DENSIFICATION FRAMEWORK

Status Quo: Analysis & Findings Document

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1. INTRODUCTION

Settlement Planning and Dludla Development cc. (Setplan) was appointed in June 2007 to undertake the drafting of a densification Framework for the Ekurhuleni Metropolitan Municipality. The sections below give an overview of the aims and objectives of the project and the approach of the consulting team.

1.1 Consultant’s Brief

The Ekurhuleni Metropolitan Municipality initiated the project, the DRAFTING OF A DENSIFICATION FRAMEWORK, due to various pressures the Metro is facing in terms of densification. These pressures are both from the private sector as well as from mandatory policies and legislation to which the Municipality must adhere.

The brief for the project can therefore be summarised as follows:

- The Densification Framework must identify suitable areas within the Metro for sustainable densification.
- The Densification Framework must address issues of location, extent and qualitative aspects of densification.
- The Densification Framework must be aligned to other studies and policies within the Metro.
- The Densification Framework must provide clear design guidelines to ensure sustainable densification.
- The Densification Framework must be in line with management, upgrading and maintenance programmes of all service delivery departments in the Metro.

1.2 Process and Outputs of the Study

The process of this study should lead to a comprehensive, well-structured and user-friendly document, which will provide guidance to officials, developers and the general public. In order to achieve this, the following process has been followed, which is linked to the various project outputs.
1.3 Aim of Report

The aim of this particular Report, the Status Quo document, is to explore and convey the different approaches, which have been taken to the issues of densification. It will highlight both local and international trends, the relationship between sustainable densification and urban design principles as well as statutory obligations on the EMM.

Further, the report aims to highlight the current density situation in the EMM. This will point to areas where densification should occur, as well as those where densification should be avoided.

The outcome of the analysis in this Report will indicate the possible approaches which should be considered for the EMM, which will be explored in the Part 2 Report.
1.4 Structure of Report
This report will begin by exploring the theoretical components of densification as well as looking at some case studies and experiences of other cities, both locally and internationally. This will be illustrated by means of a literature and broad policy review. This section will also look at “generic” urban design principles and the relationship with various densities.

The report will further explore all relevant legislation and policies in order to determine the impact of these, as well as review the relevant documentation on densification. This will include the policy review of current Ekurhuleni policies on the subject matter but will also indicate areas of conflict and areas of strength where densification can and should be applied.

Following from the broad literature and policy review, a status quo analysis has been undertaken to understand the following issues in the EMM, which have a direct bearing on the recommendations of the Density Framework:
- Current densities in the EMM per LSDF area
- Current Land Use Applications for increased densities
- Current EMM Density Policies
- Current Infrastructure and Service Delivery Capacities
- Current Infrastructure Upgrading/Installation Plans

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Understanding Density
This section explores both local and international literature to gain a clear understanding of density and related topics. International trends and understanding of density will be explored first, followed by the local understanding of density.

International case studies and literature reveal that density and issues surrounding it are perceived in similar ways but are applied and measured differently throughout the world.
The Ekurhuleni Metropolitan Municipality falls within Gauteng, which is now aiming to create a “Global City Region” with the City of Tshwane and the City of Johannesburg. In light of this “global” trend (which is largely European based, developed and driven by the European Spatial Development Perspective), many European cities will be looked at in terms of densities and their approaches to this. Europe will not be the only region of focus. The Americas and Australia will also be reviewed.

However, before one looks at how densification, or in some instances, urban compaction, is achieved and applied across the globe, one needs to understand the drive behind this global movement and the basic theoretical underpinnings of this movement.

2.1.1 The Urban Compaction Movement

Urban sprawl has become a global phenomenon, with the growth of cities across the globe reaching unprecedented standards in recent decades. Cities have expanded to such a degree that they are becoming unmanageable and inefficient in terms of service delivery, travel times for commuters and, in many instances, inequality for many of its residents. The movement has also come about in terms of concerns raised by environmental action groups as the concrete jungle encroaches on nature.

The ‘symptoms’ which led to the identification of unsustainable urban sprawl included a dominance of single family homes in cities, which was linked to the perception of safer and better living environments, especially for the young family raising children. This was and is still to a certain degree being weighed against denser inner city environments, which are more heterogeneous, diverse and vibrant. The connotations for such active, more enclosed and dense environments is that they become unhealthy, aesthetically unpleasing and dangerous. But on the other hand, more sprawled cities added to longer traveling distances, times and costs, increased levels of pollution and additional costs to consumers and suppliers due to greater distances. This not only impacts on the living areas and environments of people, but also causes economic slumps in the inner city environments as suppliers follow consumers to places of residence to ensure higher levels of accessibility to their products, also playing on the ‘convenience’ factor for the customers. The inner city experience has become obsolete in many parts of the world due to this residential and economic flight to the suburbs.
In response to these broad issues outlined above, the Compact City Movement has evolved and support for this movement has increased throughout the developed and developing world. “This concept has emerged primarily in response to the widely acknowledged need to find more sustainable models for the towns and cities of the developed world” (Burton, 2000, p1969). A range of definitions has been developed for the idea of the ‘Compact City’ but all of these have the same gist of relatively high-density, mixed use developments, which promote and enhance efficient public transport systems and increase the quality of life of residents in cities across the world.

This process of achieving urban compaction usually involves intensification of activities, consolidation of activities and uses and the densification of strategic residential locations, which usually adds to intensification and consolidation of activities. These activities also usually involve the re-use of brownfield land parcels, the more intensive use and re-use of existing urban buildings, infill development and increases in residential densification in new and existing buildings where alterations and additions can occur. (Harrison, 2003; Burton, 2000; Oelofse, 2003; Todes, 2003; Irurah & Boshoff, 2003).

Across the globe, the town planning response to these strong ideas of urban compaction has been the introduction of ‘planning tools’ such as urban growth boundaries, infill developments, incentives for densification, urban corridors, strategic transport planning and strategic infrastructure investment programmes. Many of these ideas have been incorporated into local planning initiatives.

The movement towards more compact cities is driven by the need for more sustainable human environments and urban sustainability. The focus has not only fallen on the urban morphology but also on the aspect of social equality, especially in the developing world. (However, this is also applicable to the developed world and its deep division of social classes).

The major focus of this study is the densification component. Although this study will focus on residential densification, it will be examined and explored in the context of other components of urban compaction, as it is not an isolated issue.
Densification

Residential densification has many connotations – mostly negative in nature. The negative connotations usually associated with it are that high density creates ‘bad’ living environments. This is accompanied by some misconceptions, as outlined in the Guideline Document for Higher Density Residential Development, prepared for the Housing Department of the EMM (p10, 2005):

- Low densities result in higher quality living environments, whereas higher densities result in less desirable, low quality urban environments.
- Higher density environments are associated with limited housing options, in particular high-rise, cramped buildings.
- High densities are associated with low-income groups and low densities with high-income groups.

Within the domain of urban planning, residential density is generally defined in terms of net or gross density.

**NET DENSITY**

Density on a specific site where public roads and public spaces are excluded (usually measured in terms of dwelling units per hectare)

![Figure 1. Net Density](Guideline Document for Higher Density Residential Development, 2005)

**GROSS DENSITY**

Density on a specific site where public roads and public spaces are included (usually measured in terms of dwelling units per hectare)

![Figure 2. Gross Density](Guideline Document for Higher Density Residential Development, 2005)
The most popular measure of density is net residential density. This is because it is easier to measure and it is found to be more accurate than gross residential density. Net density is also always higher than gross density and can be increased more easily. The accompanying diagrams illustrate the concept of net density in terms of erf sizes, number of units and average number of people per unit. Other elements, which directly influence net density, are town-planning controls such as coverage and minimum erf sizes. These are, however, variables which could change. Further, as explained in the Guideline Document for Higher Residential Development, the higher the net density, the lower the gross density. The reason for this is that the increase in population in a specified area requires additional social facilities and amenities, which occupy greater amounts of land. Therefore, the gross density would decrease. If no social facilities were provided in that specified area, the net and gross densities would be equal. Residential densities are therefore dependant on the percentage of land allocated for non-residential uses and also on the efficiency of the layout. Therefore, if one component increases or decreases, the other would automatically increase or decrease (as illustrated overleaf).
In terms of further understanding density, the factors of sustainability and suitability need to be explored. No single density would be suitable for all situations and contexts. Each parcel of land being considered for any means of densification would have a number of variables, which would influence the level of density that could be achieved. Issues to be considered in the application of density policy are summarised as follows:

- The cost, availability and location of land
- Transportation and accessibility
- Socio-economic issues (household sizes, lifestyle)
- Environmental considerations
- Cultural issues
- Political position of government (local and national)
- Infrastructure planning (availability)
- Geological Constraints – especially dolomitic areas

The criteria or issues listed above should inform a development in terms of density decisions and how densification should be applied in certain areas. The context of an area will determine the appropriate density.
At this stage of the report, density is not yet classified from low to medium densities and what is usually acceptable in these categories. Case studies and other cities of the world will first be examined and a classification table is provided after section 2.1.3.

2.1.2 International Trends and Density Studies

International cities, especially cities in Europe, have long development histories, whereas South African cities (and especially cities in Gauteng) have comparatively short histories. If one looks at the history of Town Planning as a ‘profession’, it is evident that it began during the period of Industrialization in European cities (i.e. London) when industrial workers lived in dense living environments and health and safety issues became of great concern to the authorities of the time. Prior to Industrialization, settlements were more incremental, unplanned and organic in nature.

Even though movements such as the Garden City and New Town Movements came about due to the move away from high density inner city living in cities, such as London, a move toward cosmopolitan living has come about in recent decades and the Compact City Movement and Smart Growth Movement is now being advocated to cure the ills of sprawl (which occurred from the move toward suburban style living). It is therefore clearly evident already, that a balance has not been struck between the two extremes and that these new movements are aiming to find a sustainable urban solution in terms of residential living environments.

The sections below illustrate the approaches and views taken by cities across the globe and are categorized by continent for reference purposes.

EUROPE

The development strategy in Europe is largely driven by the European Spatial Development Perspective (ESDP, 1999) as advocated by the European Union. One of the major objectives of the ESDP is to create balanced and shared growth within the greater economic geography of the continent. This, in essence, means bringing economic opportunities closer to areas where economic growth has been lacking due to the centralization of economic activities in the pentagon area of Europe. The pentagon of Europe is illustrated below.
Even though the ESDP is a strategic economic document, spatial elements are imperative to the success of the strategy. The pentagon cities are the major economic cities of Europe and therefore have major workforces in and around them. Therefore, these cities are ideal for understanding densification approaches.

**United Kingdom – London**

The City of London has an average residential density of 4 500 people per km². This density is measured within the geographical area, which falls within the M25 ring road. The City of London has a variety of high-density residential housing typologies. According to Tate Online (http://www.tate.org.uk/modern/exibitions/global), cited 23 August 2007) some of London’s most affluent urban neighbourhoods consist of townhouses, mansion blocks and clusters. These developments are usually found around urban green areas and landscaped gardens. The current development trend is also to provide high-rise, high-density residential complexes around existing and planned transport centres to ensure the sustainability of public transportation investments. This development trend also offers the opportunity of mixed-use developments in and around these areas.
The City of London is not only promoting the strategy of densification for the purposes of sustainable development, but is also responding to a housing backlog. The London Plan, which is the equivalent of the conventional Spatial Development Framework of a city, was released in 2004 and falls under the auspices of the Mayor's office. The London Plan is a strategic document, which must guide development and be supported by sectoral plans to ensure its success. The plan states that a significant growth in population is imminent and that this population growth needs to be accommodated in a sustainable and equitable manner for all of London's citizens. In 2003, the population was estimated at 7.3 million people and it is estimated to increase to 8.1 million by 2016. With this growth in population, one also finds that demographics and the structure of the population change. This indicates that housing within the City should cater for a full life cycle of the population and should also cater for various cultures, as London hosts the most cultures in one city in the world (approximately 300 languages are spoken in London).

The London Plan, 2004, p10
The City of London Plan highlights a few critical elements, which need to be considered in terms of residential development and especially densification. These key elements are briefly outlined below:

- Residential development should enhance diversification and be inclusive.

- Residential development should be well located in terms of opportunities (economic, social, transportation, open spaces).

- Higher density residential development does not need to be monotonous.

- Higher density residential development must be guided by good design objectives and guidelines to ensure safe, secure and healthy living environments.

- Residential densification should be approached in a strategic manner and should support other city functions and spatial elements.
Design is the essential process which transforms development strategy into real buildings and spaces. Good design is rooted firmly in an understanding and appreciation of the social, historical and physical context, including urban form and movement patterns. Two thousand years of building in London have left layers of history, illuminating the city’s social, political and economic heritage. Creating a more densely-developed and intensively-used urban environment imposes particular challenges. All development design needs to support the objective of creating a safe, secure, sustainable and inclusive city. Good design attracts economic investment, and contributes to regenerating the poor, hostile environments often associated with social exclusion.

The London Plan establishes a strategic framework for development density which will guide spatial planning. To achieve the necessary density of development, tall buildings will be supported where they create attractive landmarks enhancing London’s character, help to provide a coherent location for economic clusters of related activities or act as a catalyst for regeneration. At the same time, they will have to be acceptable in terms of design and impact on their surroundings. However, high-density residential development need not imply high-rise buildings. Some of London’s highest density housing is in low-rise, compact developments.

Preserving the best of London’s built heritage within a strategy of intensive development requires attention both to historic buildings themselves and their wider setting. The protection and enhancement of historic assets forms a key part of the wider design and urban improvement agenda. Much of London’s historic inheritance is inaccessible, badly maintained or not viewed as relevant to local communities. The sensitive and innovative use of historic assets within local regeneration will be encouraged. London’s four World Heritage sites need special management.

The protection of strategic views of London’s major landmarks is as important as protecting individual structures. Government Directions currently identify strategically important views in London which need such protection. The London Plan designates a selected set of panoramas, river prospects, townscape views and linear views. Planning applications and spatial management plans will need to respect the relevant sightlines and viewing corridor. These include views towards St Paul’s Cathedral and the Palace of Westminster from vantage points such as Greenwich Park, Parliament Hill and Richmond Park.

The London Plan, 2004, p31
The City of London Plan highlights the approach of the City in terms of densification and the strategy within which this fits to ensure the sustainable growth of the City and the provision of adequate services, infrastructure and opportunities for all residents of London.

Ireland – Belfast

The City of Belfast is said to be one of the most car-dependant cities in the United Kingdom. “Urban sprawl has resulted from increasingly affluent households and commercial investors exercising their locational choices in a free market, aided by the availability of good quality transport infrastructure and relatively cheap private transport” (McEldowney et al., 2003, p113).

These symptoms of urban sprawl, leading to unsustainable and costly cities, have led the City of Belfast to join the “notion of a dense and compact city with mixed-use neighbourhood” (McEldowney et al., 2003, p113). This notion has become a strong political view within the City and is, as such, being advocated through strategic policies. This political stance emanated from the Commission of the European Communities’ Green Paper on the Urban Environment, 1990, which proposes that “strategies which emphasize mixed use and denser development are more likely to result in people living close to work places and the services they require from everyday life” (McEldowney et al., 2003, p113).

Due to this shift in political stance and also planning approaches, planning has moved slowly toward a more strategic level and further away from traditional land use management practices. Urban compaction is now about the integration of various life dimensions and the establishment of stronger links with urban core areas (i.e. CBDs) and the metropolitan areas as a whole.

The Belfast Metropolitan Area has developed a strong interlinking set of urban policies to aid in sustainable development and ensure a holistic approach to redefining and restructuring the City’s morphology. The organogram overleaf sets out the structure of policy linking, after which the objectives and strategies of the urban planning policies are highlighted to illustrate the mechanisms of achieving urban compaction and higher residential densities.
Regional Development Strategy

The broad aim of the RDS is to guide future development and, in so doing, ensure the promotion of balanced, equitable and sustainable developments across the region/province. The figure below (The Spatial Development Strategy for Northern Ireland) illustrates that this strategy is built around transport corridors around which development should happen.

Principles in RDS
- Encourage revitalization of BMA
- Providing for lateral expansion of key transport routes
- Developing main towns
- Accommodate overspill in nearby towns

“PERHAPS THE KEY CHALLENGE OUTLINED BY THE RDS WILL BE ACCOMODATING THE PROJECTED HOUSING GROWTH FOR THE BMA. …RDS ESTABLISHED HOUSING NEED… 2015…REGIONAL NEED OF 160 000 DWELLINGS…” (McEldowney et al., 2003, p119)
Due to this need for housing, the following criteria were developed to find suitable land to address the housing needs:

1. Use of previously developed and undeveloped land within urban areas, informed by urban capacity studies.
2. Extensions of Towns and Cities.
3. Exceptional major expansion of a village or small rural settlement.
4. New Settlement

These steps are quoted from the DRD, 2001, p115 by McEldowney et al., 2003, p119.

The major thrust in the RDS is to promote infill development and, only by means of elimination of the above criteria, move towards new settlements. It is also very closely related to areas where transport opportunities and residential areas compliment and support each other.

**Belfast Metropolitan Area Plan**

The RDS outlined that residential units in the Belfast area be distributed as follows:

- Accommodation for an increased share of future residential development within the existing urban area, contributing to the regional target of 60 percent Brownfield Housing development.
- Existing land zonings, whitelands and smaller sites to be determined by BMAP.
- Major areas of planned expansion on the key corridors at Lisburn and Newtownabbey, focused near suburban rail links and other public transport services.

In terms of urban compaction in the BMAP, various strategies are outlined, which interlink with densification. The extract overleaf illustrates these strategic interventions:
The Belfast example of urban compaction and densification is very much focused on transportation initiatives in relation to housing opportunities. From this example, it should be noted that transportation becomes a strategic measure for urban compaction.

Netherlands – Randstad Holland

The Randstad (Ring City) Holland is a polycentric urban area within the Netherlands, where a conscious decision was made to promote and implement urban compaction elements within the Netherlands. “Davoudi (2002) explains the Randstad as an area, which includes four major cities, each specialising in a different economic activity as such. The four cities are, Amsterdam, which is in close proximity to the Schipol airport and which is a great area of tourism and finance; Utrecht, which boasts a high and impressive service sector and which is aesthetically pleasing; The Hague, which is the seat of government and Rotterdam, which is a major port and industrial city. These cities
are indicated on the map in figure 7 below with all other secondary cities found in the Randstad. All of these cities surround an area of open space and water, which is commonly referred to as the Green Heart. The Randstad is not only seen as a unit of political and administrative stature in the eyes of the Dutch planners, but rather also as the next big European Metropolis as it is becoming an increasingly coherent region. The Randstad houses approximately 7 million people (Bailey and Turok, 2001)” (de Villiers, 2005, p41).

![Map of the Randstad and its Cities](image)

**Figure 6. A Map of the Randstad and its Cities (after Kloosterman and Lambregts, 2001, p725)**

The Randstad covers an area, which is approximately 80 kilometers by 80 kilometers. The Netherlands showed a growing concern for urban expansion as early as the 1920s but this was approached more seriously in the 1960s, when the urban expansion was threatening the Green Heart of the Netherlands. At this time, a policy was derived to channel suburbanisation to areas where concentrated deconcentration was occurring – the northern and southern parts of the country. Since this period, the agenda of urban compaction has remained the one major building block of the country’s policies. Policy agendas included the following strategies:

- “Concentrated deconcentration” was seen to be successful until inner city decline and decay occurred.
• Policy on Urban Compaction shifted with this decay and a policy of ‘redevelopment’ was developed and promoted – brownfield sites and green field sites directly adjacent to cities/developments. This was achieved through public sector investment.

• The main objective/rationale of policies during the 80s and 90s was to contain urban sprawl and protect the environment (the Green Heart). The second objective was to reverse inner city decay through compact urban planning which would achieve the promotion of walking, cycling and using public transport.

(Dieleman et al. 1999)

These policies all ‘worked’ on paper but some challenges were found in terms of administration and implementation of policies due to the fragmented nature of the administrative region (many individual cities within one region). Further, strategic planning was lacking within the Netherlands and common visions were difficult to find between cities (Dieleman et al. 1999).

Issues in terms of urban compaction all interlinked in this country and densification was not the only way to reach a state of urban compaction, but was an integral part of it. Densification in the cities throughout the Netherlands was strategically aligned to other areas within urban planning, namely:

- Mobility and mobility patterns – the movement (especially convenient movement) of people is important in understanding and implementing urban compaction.
- Strategic visions for cities and the country as a whole was important in terms of protecting environmentally sensitive and essential open space areas protected.
- Issues of convenience – live, play and work (mixed use developments).
- A strategic housing policy must be in place to support and guide general urban development and ensure that densification occurs in areas, which can afford to have such developments – whether state, or private sector driven.

(Dieleman et al. 1999)
Even though this section only outlines densification on a strategic level in the context of urban compaction, it is relevant and important to note that residential densification falls into a greater urban phenomenon and ‘strategy’ and cannot be looked at in isolation. It is clearly linked to other urban elements which define a city’s morphology and which determine how cities function and whether they are functioning in a sustainable manner. What the Netherlands has achieved successfully is looking at urban compaction in a strategic manner and they have advocated and implemented this over an extended period of time to ensure that the main objectives are met and kept, namely ensuring the protection of environmental assets and ensuring that residents have sustainable cities and comfortable lifestyles within these cities.

Conclusion to EUROPE
European examples of densification, or rather urban compaction, are all centred on similar strategies, as they are mostly led by the ESDP and other European Union policies. In conclusion to the analysis of European strategies, the following should be highlighted:

- Densification and housing opportunities should occur around transport strategies.
- Social equity plays a major role in determining housing opportunities.
- Environmental conservation is a leading strategy in terms of densification and intensification of uses.
- Mixed-use developments should be encouraged.
- Infill opportunities and redevelopment of brownfield sites are the primary choices for housing developments within cities and towns throughout Europe.

The following extract is given in conclusion, to illustrate the average densities in European cities, measured in terms of people per square kilometer.
AMERICA

The graph illustrated overleaf shows some of the densities in US cities. However, urban sprawl in the US continues at an accelerated pace. The reason for this has been that citizens’ affluence has caused urbanization to occur on urban fringes and peripheral areas. In 2000, it was stated by Lindsay Gow (Ministry for Environment – New Zealand) that statistics indicated that land areas in America’s large metropolitan communities were increasing at almost twice the population growth rate of the time. This, in essence, means increase servicing costs and endangering environmentally sensitive and valuable land in doing so.
Further to these urban ills, social and lifestyle issues are becoming major problems. Traveling times, pollution and the disparity in distance between work and home locations, are issues to consider in weighing up the costs between sprawl and densification. One of the factors which has led to the easy sprawl of the urban morphology is the fact that America has cheaper technology and fuel prices, which does not hamper consumers in living in areas where their preference lies – i.e. technology and communication infrastructure aids in longer distance work and personal relationships. A social factor leading to fringe development is crime, which pushes people to urban fringe environments where crime is perceived to be lower and where ‘healthier living environments’ exist. All of these factors have led to rapid urban sprawl.

However, the United States developed and still advocates the idea of Smart Growth and New Urbanism to attempt densification and better use of land within and around cities. These two principles are primarily based on the concept of work-live-play and mixed-use
developments. Even though this has been advocated and attempted in the US, the success rate of it has not been proven.

The example of New York City, one of the most populated areas in the United States, is briefly discussed below. General reading regarding the United States planning paradigm has shown that concepts are developed but not widely practiced within cities.

An extract from “Curbing the Sprawl Urban Growth Management in the United States – lessons for New Zealand” (2000) follows, showing the major findings from the author’s perspective after visits to US Cities.

New York City

New York City stretches over approximately 83,000 hectares (830km²). The extract below indicates the approximate population per major area in New York County and approximates population densities in each respective area.

Table 1. New York County – Population Densities (Mid-Tokyo Maps, www.mid-tokyo.co)

<table>
<thead>
<tr>
<th>AREA</th>
<th>POPULATION</th>
<th>POPULATION DENSITY (people/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York City</td>
<td>83,347</td>
<td>7,322,564</td>
</tr>
<tr>
<td>Manhattan</td>
<td>6,139</td>
<td>1,487,536</td>
</tr>
<tr>
<td>Bronx</td>
<td>11,398</td>
<td>1,203,789</td>
</tr>
<tr>
<td>Brooklyn</td>
<td>21,177</td>
<td>2,300,664</td>
</tr>
<tr>
<td>Queens</td>
<td>29,049</td>
<td>1,951,598</td>
</tr>
<tr>
<td>Staten Island</td>
<td>15,583</td>
<td>378,977</td>
</tr>
</tbody>
</table>

In certain areas of Manhattan, population densities have reached levels of 411 people per hectare. If one were to assume households consisting of four people, this would roughly translate to 110 residential units per hectare in the densest areas of Manhattan.
The average population density of 242 people per hectare translates to approximately 60 unit units per hectare.

The City of New York is a densely developed urban area with a mixture of residential and business opportunities in close proximity to each other. In New York, public transportation is well developed and the rapid rail (metro) and taxi services function well. The City is very pedestrian oriented and it also has a strong night time population, which indicates that it is a 24-hour city catering for the live-work-play scenario. However, this is not the case in suburban areas within the county, as one can see in the table above, detailing population density.

The inner city of New York is a vibrant mixed use area, centred along strong lines of transportation infrastructure. It has an array of day and night time uses and a formalized open space area (Central Park) is provided and maintained for inner city residents and workers.

Key Findings - Curbing the Sprawl Urban Growth Management in the United States – lessons for New Zealand (Gow, 2000)

The extract overleaf illustrates the key findings from visiting US Cities. The author visited Minneapolis, Portland and Seattle and assessed each planning system and urban morphology against the others to understand issues of sprawl and densification. What is highlighted in this document is that densification is not an isolated concept in terms of urban management and urban morphology. It must be assessed and looked at in the entire context of planning, especially from a strategic point of view. This is clearly stated in the extract below.
This is an insightful reference as it highlights the perceptions of increasing densities and how the effects of densification on people and urban areas are argued generally. Most of these arguments are against densification and are generally argued by critics of densification (those more conservative in their approach) and some developers.

(Gow, 2000, p62 - 63)
Key findings

The key findings I took from visiting Minneapolis St Paul, Portland and Seattle were not so much about good urban design or innovative transport solutions, though all of these places have interesting examples of them. And I didn’t conclude that higher-density development is better than lower density: both have their place. Rather, the important findings concerned the need for effective metro-scale regional strategies and ways to make them work. In fact, my overarching conclusion is that the way strategies are developed and implemented and the scope of what they cover is critical to their success. Here are my findings.

1. Metro-scale regional authorities are the best way to develop regional growth management strategies.

   Especially where such authorities have some formal powers and resources, they provide an effective way of developing and, in particular, helping implement strategies for development. The benefits of metro-scale management are seen in better-quality environments, more accessible urban areas and often less costly infrastructure. Managing urban growth also helps protect key environmental areas (both within and outside urban areas).

2. Metro-scale planning needs to be comprehensive - that is, it should encompass environmental, social and economic dimensions.

   Typically, metro strategies deal with:
   • environmental quality (preserving natural and valued environments within and outside urban areas, environmental quality standards for air and water, and urban amenity and recreation needs)
   • land supply, and directions and areas for present and future urban development
   • housing, including affordable housing
   • economic development, especially employment and its spatial distribution
   • the co-ordination and management of major urban infrastructure such as transport (public transit, road, airports and ports), water supply and sewerage.

3. Metro authorities use incentives to stimulate and shape markets.

   Metro-scale regulatory powers are still necessary but usually kept in reserve. Providing design ideas and services and, especially, either providing or subsidising new forms of housing, transport and development is a common practice. The US experience is that markets tend to be conservative and do not innovate by themselves. Once new forms (such as higher-density, multi-use developments) are successfully launched, markets quickly pick them up.

4. Managing land supply is critical.

   This is done by ensuring that the land available for development reflects the grain and direction of the market, and provides choice, while still shaping but not squeezing development too tightly. If urban limits or tight regulation severely restrict land supply and related choice, especially of housing, then prices rise and land speculation becomes a big problem. Regulatory constraints become strained as pressure comes on and litigation starts to replace strategic planning as a way of making decisions.

(Gow, 2000, p91)
Conclusion to the United States of America

The United States of America only really achieves high-density residential areas close to major economic areas and within the major economic cities of the country, such as New York. The idea of suburbia is still prevalent in the American mindset, led by the ‘American Dream’. What is clear from the graph provided in this section, is that, relative to New York, other cities have relatively low densities (measured in people per square mile).

Even though attempts at ‘Smart Growth’ and ‘New Urbanism’ have been attempted, this has not proven to be successful or widely implemented in the States. The study of this country has shown that it is people’s mindsets that determine the spatial outcomes of cities within the US.

AUSTRALIA

Figure 8. Australia (Nation Master.com, http://www.nationmaster.com/country/as, cited 11 October 2007)


Australia’s Population: 20 434 176 (estimated at July 07)

Largest City: Sydney

Sydney’s Population: 4 350 986

Adelaide’s Population: 1 105 839

Adelaide’s Density (people per km²): 615

Australia is large continent in relation to South Africa (SA’s land size is 1 219 912km²). It is approximately five and a half times larger than South Africa. However, SA’s population is approximately twice as large as Australia’s population. Therefore, Australia has a much lower density in relation to South Africa.
The case study used for this density study is Adelaide, as that city has a density handbook in which density is discussed and illustrated through photographs. This case study illustrates how density is approached, what defines density and how density is categorized and calculated.

Adelaide

The Adelaide example of a Pictorial Handbook regarding densification gives clear guidelines to what is expected in terms of densification, whether it be very low or high densities. The table below is extracted from the document to give an indication of the densities being achieved per category in Adelaide.

Table 2. Gross and Net Densities for Dwelling Units Per Hectare in Australia

(Understanding Residential Density: A Pictorial Handbook of Adelaide Examples p5)

<table>
<thead>
<tr>
<th>Density Level</th>
<th>Approx Gross Density</th>
<th>Approx Net Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERY LOW DENSITY</td>
<td>Less than 11 dw/ha</td>
<td>Less than 17 dw/ha</td>
</tr>
<tr>
<td>LOW DENSITY</td>
<td>11-22 dw/ha</td>
<td>17-33 dw/ha</td>
</tr>
<tr>
<td>MEDIUM DENSITY</td>
<td>23-45 dw/ha</td>
<td>34-67 dw/ha</td>
</tr>
<tr>
<td>HIGH DENSITY</td>
<td>Greater than 45 dw/ha</td>
<td>Greater than 67 dw/ha</td>
</tr>
</tbody>
</table>

The extract to the left (Understanding Residential Density: Pictorial Handbook of Adelaide, p6) illustrates the methodology used to calculate density in the process of determining densities across Adelaide. This method was used in determining net densities across the city.
The extracts below are given as guidelines in the Handbook and serve as examples to understand how density is measured against certain criteria and what is achievable in each category in terms of land use controls.

**VERY LOW DENSITY**

<table>
<thead>
<tr>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Planning Strategy for Metropolitan Adelaide describes very low density as:</td>
</tr>
</tbody>
</table>

| Typical Built Form | Very low density housing comprises single storey detached dwellings on large allotments, with large setbacks to side boundaries and the street, and large areas of private open space. |
| Approximate Gross Density | Less than 11 dwellings per hectare |
| Approximate Net Density | Less than 17 dwellings per hectare |
| Appropriate Locations | Very low density housing development occurs within the outer areas of country townships and on the fringes of the metropolitan area in locations relatively distant from community services and facilities. It should also occur where there are constraints such as topography, vegetation, character and heritage, and where sewerage services are restricted requiring on-site wastewater disposal. |

Figure 9. Very Low Density in Australia

**LOW DENSITY**

<table>
<thead>
<tr>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Planning Strategy for Metropolitan Adelaide describes low density as:</td>
</tr>
</tbody>
</table>

| Typical Built Form | Low density housing comprises single and 2 storey detached, semi-detached and row dwellings on reasonably large allotments, with small-to-medium setbacks to side boundaries, relatively large setbacks to the street, and reasonable areas of private open space. |
| Approximate Gross Density | 11-22 dwellings per hectare |
| Approximate Net Density | 17-33 dwellings per hectare |
| Typical Locations | Low density housing occurs on greenfield development sites on the fringes of the metropolitan area, within country townships and within established suburban areas throughout metropolitan Adelaide as redevelopment as part of a range of housing densities. |

Figure 10. Low Density in Australia
The example of Adelaide illustrates the approach and methods of calculating densities and also begins to associate housing typologies with the densities in the Handbook. The densities are very low in comparison to other parts of the world per category (especially in looking at what the norms are becoming in SA). However, it begins to categorize and define the various densities throughout the city.
Conclusion to International Trends and Approaches

The examples of approaches to density above have been given to obtain a general overview of how density is defined, measured and approached. What is evident is that density is conceived in very similar manners across the globe, whereas it is applied and measured very differently. This could be due to the fact that concepts are applied to varying contexts in different manners and are adjusted to suit local circumstances and situations.

The concept of densification is strongly linked to issues of the environment and the conservation thereof, bringing the population closer to opportunities (employment and social) and also maximizing infrastructure where it has already been established. In most of the examples this is clearly seen to be around transport infrastructure, especially of a public nature. These are the main threads, which run through the application of densification throughout the world.

Certain countries, especially in Europe, also focus on the social issues. This is important in terms of achieving balanced and shared growth throughout the continent. The table below illustrates the densities of various countries across the globe as a reference point. It is evident from this graph that the eastern world is achieving high densities, whereas the western world, especially America, has very low densities in its cities. African countries have a range of densities across the spectrum, as do European cities.

As previously highlighted, no single solution in terms of densification can be found for all cities and countries across the world, but with ever increasing costs of living, convenience factors, opportunities and environmental conservation, densification is becoming the norm.
2.1.3. South African Trends & Density Issues

The following section is extracted from de Villiers (2005, p70):

“Notions of urban compaction came to the forefront of planning policy with the first democratic election in the country in 1994; however work had started on this concept before this major shift in the political history. The notions of restructuring the city by means of integration and compaction emerged in policy documents such as the 1994 RDP\(^1\) policy, the DFA\(^2\) of 1995 and later also the UDF\(^3\) of 1997. Urban compaction was first recognised and developed by the academics of the University of Cape Town even before the 1994 political transformation, as early as the 1970’s and 1980’s (Todes, Forthcoming; Todes, 2003). The model included the concept of node and corridor development and the model itself was based on a critique of both the modernist

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\(^1\) Reconstruction and Development Programme
\(^2\) Development Facilitation Act
\(^3\) Urban Development Framework
influences of planning as well as the notions around which apartheid planning was premised. They developed their argument around critiques made by earlier writers and placed some emphasis on areas which had an organic feel of development and arrangement and aimed at deriving some design principles from these earlier settlement patterns (Todes, Forthcoming).”

South Africa is currently promoting concepts of densification and urban compaction through policy, legislation and academic writings. South Africa has a unique situation due to its political past that dictated its urban form through legislation of the time. This has led to a very fragmented urban morphology throughout the country as noted above. The history of SA’s urban development shows that the concern with the separating and ordering of land uses also led to these fragmented sprawling cities (Harrison, 2003; Oelofse, 2003; Todes; 2003).

International trends towards densification were determined by various elements of the Compact City Approach, such as increasing densities, containing sprawl, mixed use developments, support for public transport and the conservation of environmental resources. Instruments, which have been introduced, to contain sprawl and ensure compaction of urban areas include:

- Urban growth boundaries
- Infill developments
- Designation of urban corridors
- Road pricing
- Strategic infrastructure investments

These concepts are all familiar to the SA planning paradigm, even though there might be name changes and slight deviations in terms of meanings and application in the SA context. However, in the SA context, urban compaction is not merely about the dysfunctional urban form of the country’s cities, but it is also linked to issues of social justice and social equity. The Compact City Approach, as outlined by Oelofse (2003) has a broader spectrum of focus, which has to include social and distributive justice.
The leading social issue, which leads to the continuation of sprawling cities, is poverty. It is generally evident that people will settle where they can afford to. This translates to the developments on urban peripheries, where the cost of land is much lower than land closer to economic opportunities. This trend of settlements continuing to grow and appear on urban peripheries is exacerbated by policies that promote freehold title, single unit units per erf (RDP).

In the SA context, the promotion of these spatial concepts, which are so closely linked to densification and vice versa, is not being implemented in a holistic, integrated manner to ensure sustainable urban forms for the future. Policy contradictions and political will are preventing implementation from occurring as it should and this is leading to a continuation of past settlement patterns. The South African approach to density is yet to be proven through the implementation of concepts, which are widely promoted through legislation, policies and general development frameworks. These concepts, which are yet to be tested over prolonged periods of time, are further highlighted in Section 2.3.

**South African Cities Overview**

The section above has outlined the approaches to densification in South Africa in very broad, academic terms to familiarize the reader with the wider, national approach to densification and urban issues related to sprawling, unsustainable cities. This section will look at specific cities in the country to determine the densification approaches taken in other city contexts. This overview will be based on selected member cities of the South African Cities Network, of which Ekurhuleni is one.

The South African Cities Network ([www.sacities.net](http://www.sacities.net)) is defined as follows on the website:

- An established network of South African cities and partners that encourages the exchange of information, experience and best practices on urban development and city management.
- An initiative of the Minister of Provincial and Local Government and nine city municipalities, in partnership with the South African Local Government Association (SALGA).
- The goals of the SA Cities Network are to:
  - Promote good governance and management of South African cities.
o Analyse strategic challenges facing South African cities, particularly in the context of global economic integration and national development.

o Collect, collate, analyse, assess, disseminate and apply the experience of large city government in a South African context.

o Promote a shared learning partnership between different spheres of government to support the governance of South African cities.

The members of the SA Cities Network are:

- Buffalo City (East London)
- City of Cape Town
- Ekurhuleni Metropolitan Municipality
- City of eThekwini (Durban)
- City of Johannesburg
- Mangaung Municipality (Bloemfontein)
- Msunduzi Municipality (Pietermaritzburg)
- Nelson Mandela Metropolitan Municipality (Port Elizabeth)
- City of Tshwane

The table below illustrates a comparison of the members of the SA Cities Network in terms of size, population estimates and population density per city.

Table 3. SA Cities Network City Comparison (SACN, 2007)

<table>
<thead>
<tr>
<th>MEMBER CITY</th>
<th>SIZE OF MUNICIPAL AREA (km²)</th>
<th>ESTIMATED POPULATION</th>
<th>AVERAGE POPULATION DENSITY (km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo City (East London)</td>
<td>2 527</td>
<td>765 343</td>
<td>302</td>
</tr>
<tr>
<td>City of Cape Town</td>
<td>2 460</td>
<td>2 969 458</td>
<td>1 207</td>
</tr>
<tr>
<td>Ekurhuleni Metropolitan Municipality</td>
<td>1 924</td>
<td>2 528 303</td>
<td>1 313</td>
</tr>
<tr>
<td>City of eThekwini (Durban)</td>
<td>2 291</td>
<td>3 161 844</td>
<td>1 379</td>
</tr>
<tr>
<td>City of Johannesburg</td>
<td>1 644</td>
<td>3 295 088</td>
<td>2 003</td>
</tr>
<tr>
<td>Mangaung Municipality (Bloemfontein)</td>
<td>6 283</td>
<td>705 156</td>
<td>112</td>
</tr>
<tr>
<td>Msunduzi Municipality (Pietermaritzburg)</td>
<td>633</td>
<td>565 196</td>
<td>891</td>
</tr>
<tr>
<td>Nelson Mandela Metropolitan Municipality (Port Elizabeth)</td>
<td>1 958</td>
<td>1 100 320</td>
<td>561</td>
</tr>
<tr>
<td>City of Tshwane</td>
<td>2 174</td>
<td>2 040 517</td>
<td>938</td>
</tr>
</tbody>
</table>
Ekurhuleni Metropolitan Municipality ranks third in the above table, in terms of average population density. The table also indicates the vast difference in population density across the country. This is illustrated graphically below to indicate densification in a national context of these cities. The six major SA cities combined, house 31% of the country's total population. The six cities include Johannesburg, Cape Town, Durban, Tshwane, Ekurhuleni and Port Elizabeth. These cities are classified as the major cities (Settlement Type = Metropolitan Cities) as they have population counts of over one million people. This classification is put forward in the draft Urban Development Framework as quoted in the SA State of the Cities Report, Table 2-3, page 2-12.

![Illustration of SACN Densities (as per Table 3)](image)

Figure 14. Illustration of SACN Densities (as per Table 3)
Table 4. Typology of Urban Settlements in South Africa after the draft Urban Development Framework (State of the Cities Report, 2006, p2 – 12)

<table>
<thead>
<tr>
<th>Settlement type</th>
<th>Scale and settlement characteristics</th>
<th>Economic base</th>
<th>Institutional context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metropolitan cities</td>
<td>Population over 1 million. Established formal core of industrial, commercial and suburban development. Formal townships, hostels, and backyards. Informal settlements with significant RDP housing on the periphery.</td>
<td>Huge economic base plus the core of economic potential. Highest concentrations and absolute numbers of urban poor.</td>
<td>Metropolitan government consolidates fragmented municipal history. Urban benefits not yet seamlessly applied to all residents.</td>
</tr>
<tr>
<td>Secondary cities</td>
<td>Population 250 000-1 million. Established formal core of mining, commerce and suburban development. Formal townships with backyards plus informal and traditional settlements and significant RDP housing on the periphery.</td>
<td>Economic potential varies from strong to weak according to sectoral base and geographical location. Rapid urbanisation and some of the most extreme levels of poverty.</td>
<td>Racially divided municipal history, now typically the core of a district municipality. Complex issues of planning and cross subsidisation.</td>
</tr>
<tr>
<td>Large towns once in 'white' South Africa or old homeland capitals.</td>
<td>Population 25 000-250 000; Typically former colonial administrative centres, the hubs of mining and industrial areas, but also old homeland capitals. Limited formal suburban stock, formalised townships now extended with RDP housing and informal settlements.</td>
<td>A few are booming, but many are in severe decline. A relatively small, but crucial elite population, in most cases employed in the public sector, offers limited rates base. Majority impoverished without land or urban economic livelihoods.</td>
<td>Municipal capacity is stretched, institutional systems are often non-existent. The urban councils are poorly equipped to deal with the complex urban-rural interface of the districts.</td>
</tr>
<tr>
<td>Small towns providing crucial access and service functions</td>
<td>Population 2,000 to approximately 25,000. Typically a small commercial, administrative, farming or tourist node. Small, generally ageing formal housing stock and a former township, spatially integrated over the last decade with the ‘old’ town through RDP housing and informal settlements.</td>
<td>Save for a few small locally significant activities, the economies are in most cases struggling and weak. Work is scarce and prospects for employment of educated youth virtually non-existent.</td>
<td>Municipal and other public services are in most instances weak or non-existent. Councils are virtually incapable of assisting communities. Services offered by the private sector reserved for the few inhabitants with a stable income, often a pension or grant.</td>
</tr>
<tr>
<td>Displaced dense settlements on homeland boundaries</td>
<td>Population up to 400 000. Consolidated dense informal settlement in traditional land characterised by absence of formal industrial or commercial activity.</td>
<td>Often depicted as ‘rural’ these large non-agricultural areas are characterised by a virtual absence of modern urban economy and services.</td>
<td>Prior to 1994 there was no urban administration. The introduction of local government post-1994 co-exists with traditional leadership and capacity in rural.</td>
</tr>
</tbody>
</table>

Source: DPLG and the Presidency (2005)

Out-migration or split urban rural lifestyles are common.

The detailed city overview will be based on the six member cities of the SA Cities Network, which all fall within the same category of major cities, Metropolitan Cities, excluding Ekurhuleni Metropolitan Municipality, as it is analysed in depth in Section 3.
The City of Johannesburg is located within the Province of Gauteng and lies directly west of the Ekurhuleni Metropolitan Municipality. The City of Johannesburg is the largest city in South Africa in terms of its population (approximately 3.3 million people) but it is not the largest in terms of its geographic area. The City is spread over an extent of 1,644 km². Due to the large population, the City of Johannesburg has the highest population density in the country, at approximately 2,000 people per square kilometer. The City has a range of densities, which is influenced by factors such as locations and income levels (City of Joburg SDF, 2007/8). The City accounts for 7.2% of South Africa’s total population.

The City of Johannesburg has developed a density strategy over the past couple of years and has refined this strategy over time. The City has experienced a shift in the housing and development market in terms of demand for apartment blocks and ‘loft-style’ developments in strategically located positions, especially around established, well-known nodes. Densification in the City has also tended towards peripheral areas of the urban core (agricultural holdings and farm portions) and has taken the form of medium to high density estate, cluster and sectional title developments which range in densities from 10 unit units per hectare (typically synonymous with golf estates) to 40 to 70 unit units per hectare for sectional title developments. The City of Johannesburg has, however, noted that residential densification has taken place without taking public transportation into account. Most of this high-density peripheral development is focused around private car ownership.
The City of Johannesburg has however also noticed that its highest population and residential densities are occurring in informal settlements across the City. Such areas include Soweto (which has seen a tremendous growth in the property market due to investment), Diepsloot, Alexandra, Orange Farm and Ivory Park. Densities in these areas have been measured between 40 to 60 units per hectare in the areas, which are being formalized. Settlement areas, which have remained informal, such as Diepsloot, have seen densities of approximately 170 households per hectare.

Section 4 of the City of Johannesburg Spatial Development Framework 2007/8 lists seven Development Strategies for the City. One of these Development Strategies is:

**INCREASED DENSIFICATION OF STRATEGIC LOCATIONS**

Strategic Densification in the City of Johannesburg’s SDF 2007/8 is briefly described as follows:

“As a counter to increased urban sprawl on the periphery of the City’s established areas and with a view to accommodating demand in close proximity to existing opportunities and infrastructure, densification of strategic areas (in and around nodes, along mobility and transportation routes) is seen as a key re-structuring strategy”.

The City of Johannesburg assessed densification against the vision of the City and the possible positive effects strategic densification will have on the City overall. The City however also looked at the negative aspects or rather negative perceptions with which higher densities are associated.

Section 4.3 of the Spatial Development Framework, 2007/8 has been attached in Annexure A: SA Cities’ Densities Policies/Strategies.

The major thrust of densification in the City is that densification is promoted in and around the following areas:

- Nodes (as defined in the policy)
- Along transportation routes
- Areas of public sector investments
- Areas of private sector investment and economic activity

The attached extract in Annexure A further explains the assessment criteria and issues of consideration. It also lists some of the Density Design Guidelines, which should be considered.
THE ETHEKWINI MUNICIPALITY (DURBAN)

Ethekwini Municipality does not have a formal density framework or policy in place, even though it is one of the most populated municipal areas in the country. Densification is approached per area and area characteristics. There is no clear method of determining densities is known for this municipal area.

THE CITY OF CAPE TOWN

The City of Cape Town is a politically complex city due to leadership changes over the past couple of years. It also has a complex economic landscape and is a major service centre in the Western Cape in terms of health care, education and retail. The City of Cape Town also has 64% of the total population of the Western Cape.

The geophysical features and natural resources, which add to the beauty of the City’s landscape, determine development patterns as areas of growth and areas of limited to no growth are identified. A draft document for discussion, Planning for Future Cape Town: An Argument for the Long Term Spatial Development of Cape Town (August 2006) highlights three main development issues in terms of Cape Town’s geographical area:

1. Urban development should not expand eastwards and should be selective in growing northwards.
2. A linked system of open space, which supports ecological sustainability, water system integrity and safety and optimizes recreational opportunities, is identified and protected.
3. Densification of urban areas to create more compact urban footprints, limiting urban sprawl and protecting the natural environment.
In this draft discussion document, the City of Cape Town outlined eight draft development guidelines for the City’s future development. One of these guidelines is: “Promote densification in selected areas and along appropriate portions of major public transport routes” (p16).

The document further outlines five key points of argument.
KEY POINT 1: Consolidate, Protect and Improve Access to Natural Resources
KEY POINT 2: An Equitable Pattern of Access
KEY POINT 3: Sustainable and Accessible Economic Opportunities
KEY POINT 4: Settlement – An Integrated development Path
KEY POINT 5: Create More Great People Places

The discussion around these five key points indicates possible strategies by assessing the current situation. One of the primary arguments for densification is that low densities do not support increased public investment in public transport services. Further to this, it is suggested that increased densities be promoted along major movement and activity corridors. The discussion further proposes that economic development be supported by increased densities and promoted in terms of mixed-use developments. The City of Cape Town is promoting this increase in densities across the City in terms of the conceptual economic backbone of the City.
An area of intervention for this has been proposed and is as follows:

“Enabling the take up of development rights through zonings and incentives, and the identification of areas for higher-density development and infill (including housing).”

A further area requiring action to contain and direct urban growth in the City, is the development of vacant and underutilized land and the promotion of mixed-use and higher density residential development in strategic locations where high levels of accessibility exist. Further proposed strategies for residential densification proposed include:

- Adjustment of land use rights through the introduction of densification overlay zones.
- Second unit dual occupancy provisions.
- Revised subdivision regulations and rights.
- Introduction of density bonuses and density controls.
- Amendment of parking requirements.

The following is an extract from the discussion document (p43) making further suggestions on containing and directing urban growth through densification.

Due to the City’s not having an approved Spatial Development Framework currently, some reference has to be made to the Western Cape Provincial Spatial Development Framework of November 2005. The Provincial Spatial Development Framework suggests an average gross density of 25du/ha after extensive research. The research showed that when this density is achieved, urban performance improves. The urban
performance of an area is improved due to destinations being within walking distance, improved security and surveillance, employment opportunities being accessible and vibrant, diverse and active streetscapes being achieved.

The document further emphasizes that even though a ‘base’ density is derived/promoted, one should not expect that uniform developments and monotonous urban landscapes would be achieved. Density must be looked at in terms of the surrounding areas, varying layouts, design elements, accessibility, massing and form. The local character of an area is to be addressed and taken into consideration and densities should be applied in a logical manner (i.e. different densities will suit different areas).

Higher density can also be achieved through low-rise developments such as 2 and 3 storey walk-ups in terms of development controls and the sizes of units. Ideally, higher density developments should only occur in areas where pressure for development and demand for residential stock is seen. Densification should also be seen as a restructuring tool to assist in the changing of land use and socio economic patterns, which should take cognizance of public transport and movement patterns. Densification should also be assisted by a tightly drawn urban edge/development boundary.

The major issue around densification is that it is not attainable in the short term but must be seen as a medium to long term strategy (5 to 10 years). The extract of the Western Cape Provincial Spatial Development Framework, 2005, is attached in Annexure A.

THE CITY OF TSHWANE

The City of Tshwane is known as the administrative capital of South Africa. The City of Tshwane comprises fourteen amalgamated areas and is 2 174km² in extent with a population of 2 040 517 people. The average population density of Tshwane is 938 people per square kilometer.

In July 2004, the Department of Housing, City Planning and Environmental Management of the City of Tshwane published the document, A Macro Perspective on Residential
Densities and Compaction for Tshwane, which was prepared by Business Enterprises at UP and the Department of Urban and Regional Planning, University of Pretoria.

It was found that the City of Tshwane has the same urban morphology as most South African cities, in that it is very fragmented and has low densities (20 people per hectare), except in the inner city and the informal settlements on the urban periphery. The maximum densities in urban areas were measured at a maximum of 80 people per hectare and 240 people per hectare in townships of Soshanguve and Mamelodi.

From research conducted during the study, the following benchmark figures were deduced to ensure efficiency in urban areas (p43):

- Suburban density: 80 people per hectare
- Within 1km from a node: 80 – 160 people per hectare
- Within 100m from a node: 160 – 240 people per hectare
- Central nodal density: 240+ people per hectare

In most instances, the densities of Tshwane do not reach the minimum density requirement for these specific areas. Increases in densities are mainly being experienced in low income, subsidised housing in the peripheral areas of the City.

The document stipulates some desired outcomes, which are divided into broad objectives (p44):

1. Develop Sustainable Human Settlements
2. Rectify the apartheid imbalances in the access to and the ownership of wealth

In order to achieve this, one of the strategies is to “ensure that Tshwane has a smaller footprint through compacter, higher density development” (p44). The proposal, which came out of the document, was that, Tshwane accept and promote a “Smart Growth” approach. This approach entails steering and guiding developers into high-density/intensity nodes and public transport corridors, while ensuring that this does not destroy the small business spirit of the City’s citizens. One of the interventions to achieve this is to provide incentives for high density, mixed land use, residential developments, redevelopments of brown field sites at high densities, mixed land use
developments throughout the city and development around corridors in the City. Incentives could include a reduction in property taxes or tax rebates.

In April 2007, the City released the City of Tshwane Spatial Development Strategy, 2010 and Beyond. The purpose of this strategy is to provide a short-term investment management tool providing spatial guidance for the next five years. The City is currently unsustainable in terms of its current spatial morphology and various strategies are proposed in this document.

(i) Metropolitan Activity Nodes

- Highest order mixed activity nodes
- Physically and functionally integrated with and around railway stations and transport infrastructure
- Characteristics of such nodes to include:
- High intensity and high density mixed land use

(ii) Development Corridors

- Predominantly accommodate the manufacturing sector, warehouses and distribution, as well as higher density residential development

(iii) Specialized Activity Areas

- Residential densification will not form part of such areas as these are more industry related

Further to residential densification being coupled with other spatial elements, the document outlines what sustainable neighbourhoods should have, especially in terms of higher density residential developments. Issues to consider include:

- Provision of adequate residential support facilities such as parks and open spaces and social infrastructure
- Design and layout of neighbourhoods
- Clustering of facilities
Even though specific densification guidelines are not provided, the research paper of 2004 provided some benchmark figures. Density is approached through guidelines, rather than prescriptive standards and each application is assessed on its merits.

2.2 Density & Urban Design Issues

Urban Design plays an important role on a number of scales of development in urban settlements and living environments. However, irrespective of the scale of application, it is always concerned with the nature and quality of the spatial relationships within human communities and their environment (i.e. be it with respect to economic, social or ecological relationships). It is always concerned with the performance of the environment for people.

At the macro level (i.e. city, town and/or large precinct levels), it is about translation of strategic economic, social and environmental planning policy into integrated urban spatial systems of land use, activity and movement. It is about the structuring of urban areas in terms of efficient and sustainable functional relationships between various land uses and activities in space and time.

At the micro level (i.e. city or town block, neighbourhood and/or street and building level), it is about the creation of high performance urban environments made up of distinctive neighbourhoods, streets, buildings and public and private spaces and places. At this level, its role is identifying and articulating the nature and effectiveness of the relationship between public and private space and the nature of the relationship between built form and open space.

Density (either building density, population density or unit density) is the expression of a number of factors. These include price and availability of land, accessibility to economic and social opportunity, affordability levels of individuals and communities, capacity of services and transportation and so on. Density is also a tool that can be used to structure and channel movement and activity and it is critical when determining the quality of living environments and the sustainability of cities or parts of cities.
Urban Design can thus play an important part, firstly, in understanding the impacts of density on the living environment and secondly, in designing environments to accommodate the needs of communities living in different density situations.

**Structuring the Urban Environment (Macro Scale)**

At this scale, urban design is concerned primarily with the location and quantity of density type (and the associated lifestyle option that it generates and sustains) and it is concerned with urban form geometries i.e. grid, linear, cluster, nodal etc. As such, urban design will generate spatial responses with respect to the following elements:

- Distribution of Density with respect to the formation of economic thresholds for economic activity
- Distribution of Density with respect to the formation of optimum thresholds for community facilities
- Distribution of Density with respect to the formation of optimum thresholds for public transportation
- Distribution of Density with respect to the formation of viable and sustainable thresholds for services infrastructure (i.e. water, sewage disposal, electricity, waste disposal etc.)

In this sense, urban design will be strategic in ensuring that density is used to create well-structured, integrated and sustainable urban environments.

**Detailing the Environment (Micro Scale)**

Urban design is concerned with the detail design of the public and private urban environment and how it performs as a platform for individual and community activity and life. It strives to ensure that the public environment (i.e. public spaces and public buildings) can support dense populations in terms of its capacity, accessibility, circulation, variety, diversity and legibility. Once density has been allocated to an area at the higher levels of urban design and planning, the role of urban design then shifts to identifying the nature of the neighbourhood layout and built form that the allocated density could generate and using it to create functional living environments i.e. safe, secure, legible, comfortable and convenient neighbourhoods, streets, public spaces and buildings.
Some of the issues that urban design focuses on at this scale include the following:

- **City or Town or Neighbourhood Block Layout**
  Urban Design generates the size and shape of blocks, the configuration of streets and spaces and principles for the subdivision of blocks into plots that are to accommodate the density envisaged for an area.

- **Building Types**
  Urban design generates building type options that will accommodate the densities envisaged for an area but ensures that the buildings are integrated with the overall environment in terms of height, shape, size, scale etc.

- **Accessibility**
  Urban Design ensures a well designed, integrated and convenient pedestrian and vehicular access and movement system and ensures that community facilities are well located in accordance with density parameters.

- **Permeability**
  Urban Design ensures that the urban fabric includes “fine grain” linkages between housing areas and commercial, social and recreational areas that are convenient and safe and offer a choice of routes commensurate with the flows generated by the density of an area.

- **Form**
  Urban design ensures that built form, generated by density of development, positively defines public and private space, that it is efficient and that it articulates the role and function of buildings. It ensures that buildings compliment one another to form cohesive neighbourhoods.

- **Scale**
  Urban Design ensures that built form accommodating higher densities is designed to respect the human scale and that built form scale is consistent with its context i.e. residential, commercial, civic etc.
o Massing
Urban Design ensures that built form is used to create identifiable and legible environments through the distribution of building height, the use of building shape and the “weight” of form.

o Street Design
Urban design ensures that streets are designed as multifunctional spaces to serve various activities at different times and that they reflect their role in the movement and space hierarchy.

o Noise
Urban Design ensures the distribution of land uses and activities into compatible relationships both horizontally across neighbourhoods and vertically through individual buildings.

o Privacy
Urban design minimizes the overlooking of private spaces and private unit units and minimizes overshadowing of public and private spaces.

o Townscape and Landscape
Urban Design ensures that built form contributes to a cohesive and discernable townscape character and identity.
2.3 South African Documentation

This section of the report will focus on Legal, Policy and Development Planning Frameworks very briefly, to gain an understanding of what issues are being highlighted in these documents and the manner in which they are being addressed through the legal and policy frameworks of the country.

This section is built on work done for the City of Tshwane in the document – A Macro Perspective on Residential and Compaction for Tshwane (July, 2004, p5 - 16). The document gives a broad, comprehensive outline of all the relevant legislation, policies and development frameworks, which promote and inform densification.

Legislation & Policy

The following legislation and policies are relevant in terms of Spatial Planning and Land Development.

a. Development Facilitation Act, 1995 (DFA)
   • Promote efficient, integrated land development
   • Discourage urban sprawl, encourage compact cities
   • Maximise use of resources and infrastructure
   • Promote development of residential and employment opportunities in close proximity to each other

   • Ensure effective urban reconstruction and development, which is integrated in terms of race, class and gender
   • Four key programmes in the UDF
     o Integrating the city
     o Improvement of housing and infrastructure
     o Promoting urban economic initiatives
     o Creating institutions for delivery

c. White Paper on Spatial Planning and Land Use Management, 2001
   • Promotes similar concepts and principles as the DFA
d. Land Use Management Bill, 2001-3
   - Principles similar to DFA promoted through this Bill
   - The Bill is set to replace the DFA

e. Gauteng Planning and Development Act, 2003
   - “…promotes the more compact development of urban areas and the limitation
     of urban sprawl and the protection of agricultural resources” and development
     that “results in the use and development of land that optimizes the use of
     existing resources such as engineering services and social facilities…”

f. The Urban Strategy, 2004
   - Builds on the UDF of 1997
   - Not available for public comments

Pieces of legislation and policy of other sectors within the development field are listed
below. Although this is not discussed in detail, it is considered important as it supports
the ideas of densification and urban compaction and urban compaction/densification
processes will support the various objectives highlighted by these documents.

Transport
   - White Paper on Transport Policy, 1996
   - Moving South Africa, 1997 – 1999
   - National Land Transport Act, 2000

Local Government
   - Municipal Systems Act, 2000 (& Regulations, 2001)

Environment
     Draft Regulations on Bioprospecting, Access and Benefit Sharing
   - EIA Regulations 2006
Housing
- National Housing Act, 1997
- Gauteng Inclusionary Housing Policy (Housing Charter)

Water
- White Paper on Water Supply and Sanitation, 1994
- Water Services Act, 1997

Energy

Trade and Industry
- Spatial Development Initiatives (SDIs), 1996 –

The Development Planning Framework
The Development Planning Framework of South Africa constitutes a family of documents from national to local level, which promote densification and compaction. Plans, which have been considered, include:
- The National Spatial Development Perspective (NSDP)
- Provincial Growth and Development Strategy (PGDS)
- The Ekurhuleni Integrated Development Plan (draft 2007 – 2011)
- Ekurhuleni Growth and Development Strategy (discussed in Section 2.4)

2.4 Ekurhuleni Policy Review
Similar to other municipalities, Ekurhuleni has a family of plans, which guide development within the City. The overarching, leading documents are the Integrated Development Plan (currently in draft format for 2007- 2011) followed by the City’s strategic document, the Growth and Development Strategy 2025. These two documents look at overall development within the City, which includes all departments and services the City offers.
Ekurhuleni is currently divided into three service delivery regions, namely the Northern-, Southern- and Eastern Services Regions. Each of these regions has a Regional Spatial Development Framework, which supports the Metropolitan Spatial Development Framework of the municipal area. Sections from these documents will be highlighted to illustrate the current policy stance of the Metro towards densification and intensification of activities. This section will also highlight the concepts, which are linked to densification, as residential densification cannot be looked at in isolation from other uses and strategies.


The EMM IDP is a statutory document, which is the overarching management document for officials and Departments in the EMM. The IDP promotes a uniform identity for the Metropolitan area and through this, the striving for social transformation by building sustainable communities. Ekurhuleni is characterized by Apartheid settlement patterns.

This requires an integrated approach to residential restructuring which is possible through appropriate residential densification. However, residential densification is only one component of restructuring the urban form in a sustainable manner and the IDP lists all challenges, which need to be addressed to achieve a sustainable urban form. These are:

- Consolidation of old township schemes, which will enable better facilitation of private sector development.
- Protection of environmentally sensitive land.
- Acquisition of land for human settlement and infrastructure development for public housing programmes.
- Public transport planning and implementation.
- Efficient project management and employment of skilled labour at adequate capacities.
- Effective governance.
The above extract illustrates the intention and aims of the GDS for the EMM. It further provides strategic visions for the physical development of the City with other developmental strategies, which are linked to these issues.

The extract provided from the GDS forms part of the GDS Status Quo Analysis and clearly indicates an important part of Ekurhuleni’s ‘problem statement’ of what the urban ills of today are within the Metro. The Metro currently has low densities across the city and development is very fragmented, but this is not an isolated case in the SA context.
PROBLEM STATEMENT IN GDS

The urban development issues and social issues are illustrated in the extract to the left, which clearly indicates that a large portion of the population is living in inadequate, unsafe, unhealthy areas. It further highlights the issues so many other cities are facing and the fact that the finding of suitable land for development to house this portion of the population remains a challenge.

The problem is further exacerbated by the influx and migration patterns of people moving into the Metro Area and this needs to be approached in a manner, which will cater for people’s needs. This extract also indicates that past policies of recent years are not yielding the desired results.

In order to address these issues, the GDS highlights strategies for urban development, which include:

- The prevailing pattern of outward urban growth and expansion will be redirected inwards. No urban development will be allowed outside the urban edge as demarcated in the Spatial Development Framework (SDF);
- Infill development will be promoted at all times, especially in and around the urban core areas;
- Accessibility to the urban core areas will be improved;
As is evident from some of the strategies for densifying urban areas in the Metro, spatial concepts and incentives are introduced to aid in densification of the EMM. These strategies, as outlined in the GDS 2025, have to be translated into development documents, such as Spatial Frameworks, in order to be implemented. Visions and strategies are only the beginning of transformation.

The Metropolitan Spatial Development Framework (2005)
The MSDF, Section 4 – Ekurhuleni Spatial Development Objectives and Concept, highlights the following as its second development objective:

_to promote the development of a sustainable compact urban structure, which optimises the utilisation of all resources – land, engineering services, transportation infrastructure, social infrastructure and ecological resources._

Further to this and other objectives, the MSDF begins to put strategies into action through the promotion of spatial development concepts, which will aid in the densification process. These concepts are:

- The Urban Development Boundary
  The primary objective of this concept is to contain urban sprawl and ‘force’ development to occur closer to current resources and also to protect environmental assets of the Metro.

- Linkages and Activity Corridors
  This element links to a further strategy, which is to promote high density, mixed use developments along these strategic areas of activity and movements, which in turn will lead to better utilization of resources and will support public transportation initiatives.

― There will be incentives and rewards for private development in the core areas. ―
- Infill Development

The MSDF promotes infill development within urban areas to combat sprawl and also to regenerate urban and suburban areas within the Metro.

The Spatial Development Framework is illustrated overleaf.
The MSDF is the broad Metro-scale, guiding developmental document, which begins to indicate where strategic investment and development should occur. It highlights strategies in terms of densification practices, without touching on quantitative aspects of these strategies. The next level of plans is the RSDF Documents.

**RSDF Documents**
The Regional Spatial Development Frameworks for the Eastern Region, Northern Region and Southern Region all build on the same concepts of the MSDF but apply to specific areas within the Metro. In terms of prescribing densities in certain areas however, The RSDFs remain strategic guiding documents. They are not prescriptive, detailed, quantitative documents. The RSDFs are created to aid in the administration of areas as much as the servicing thereof. They make the Metro area more manageable, but remain in line with all other relevant policies.

The quantitative aspects of densification emerge in local level plans such as the LSDFs. These are discussed in more detail in Section 3.1.

**EMM LSDFs**
The EMM has 103 LSDF areas. Of these 103 areas, 26 have approved LSDFs. Policy documents are currently being formulated for some LSDF areas, while others are still to be commissioned. The LSDFs are area-specific spatial planning documents which take cognizance of local circumstances, situations and the general environment.

Some LSDFs do propose specific densities where others propose guidelines. The Density Framework will be a guiding document for future LSDF revisions and formulations. Where the LSDF densities are contrary to the Density Framework, the Density Framework will be the overriding document.

**Core Economic Development Triangle**
The EMM has identified various areas within the Core Economic Development Triangle for development. These are briefly listed below.
Rhodesfield Residential Area
Plans for this area include the Gautrain Train Station opposite OR Tambo International Airport and the development of offices this area as a supporting function for the Gautrain Station and the Airport.

Pomona AH
This area forms part of the R21 development corridor. Midfield developments linked to the OR Tambo International Airport will link into this development corridor via the K90 route.

Bardene/Bartlett
Three main developments are planned for this area, as follows:
1. High tech industrial parks and light industrial parks are to be developed in the area north of the N12 to suit the ACSA Park development in the future.
2. South of the N12, a mixture of land uses should be developed to serve the local community needs in the area surrounding the East Rand Mall. Routes earmarked for such development are Northrand Road, Trichard Road and Elizabeth Road.
3. Large tracts of land are still available for development.

Mining Belt
Informal settlements are currently located along this mining belt between Germiston and Boksburg and plans for in situ upgrading have been proposed to formalize this area.

Connectivity
K157 upgrading has aided in North South linkages on the eastern side of the Airport. Congestion is occurring on the southern side of the Airport and future road planning will have to be undertaken to ensure that development of this area does not add to the congestion.

Linkages have to be provided between the area of the Airport and Germiston and no current direct linkage is available in the EMM. Some proposals have been made regarding this issue.
Activity or Development Corridors
The Development Corridors listed overleaf have been identified for the EMM and should be kept in mind with future densification trends.

Housing Documents/Policies

Housing Precinct Plans
Six precinct plans have been developed and were made available to the consulting team. These include:

- Olifantsfontein Clayville (2005)
- Kwatsaduza (2005)
- Mayfield (2005)
- Palm Ridge (2005)
- Mining Belt
  - Eastern Mining Belt
  - Western Mining Belt
No recent precinct plans have been developed and the precinct plans produced in 2005 are based on the Guideline Document for Higher Residential Development (Housing, 2005). Densities in these precinct plans are rather conservative. Densities in most of these precinct areas do not reach higher than 110du/ha (Olifantsfontein Clayville Precinct Plan). This needs to be revised, due to the high cost of land and the location of housing initiatives.

The Density Framework will outline where the most strategic locations in PDAs are for housing densification projects, in order to achieve sustainable human settlements.

**Municipal Housing Development Plan**

The Municipal Housing Development Plan advocates that sustainable human settlements must be strived for and developed through the principles of sustainable human settlements. It further encourages the search for strategic locations for higher density residential development along corridors and in and around nodes.

The extract below indicates density targets around Transit Oriented Development, which is used as a basis for most of the EMM housing documents and policies.

![Diagram of Transit Oriented Development](image)

**Figure 16. Transit Oriented Development**
Densities in Transit Oriented developments should be reviewed, as there is a great need for support from higher densities to increase investment in the public transport sector.

Guideline Document for Higher Density Residential Development
The aim of this report/document is to give guidance to planners, developers and decision-makers on subsidies for housing projects at a range of densities (medium to high) and housing typologies.

The document serves as a guideline for higher density residential developments and highlights aspects of design, which should be taken into account in the preparation, and implementation of such developments. It is an insightful and descriptive document, which makes it user-friendly and which is extensively referred to in other documents, especially housing precinct plans. This document will be a building block for the Density Framework and should not be disregarded but rather used in conjunction with the document.

Additional Policy Documents/Studies
The following studies were also reviewed but it was found that these studies had no direct influence on the Density Framework or is alternatively addressed elsewhere in the Status Quo Document in the relevant section:

- Ekurhuleni Regional Retail Investigation
- Ekurhuleni Urban Renewal Strategy
- Sustainable Human Settlement Presentation, 2005
- Environmental Management Framework (North, East, South)
- Climate Change & Energy Report
- Bicycle Strategy
- Dolomite Risk Management Study

2.5 Key Trends & Theoretical Findings
Densification is not an isolated concept, which can be used on its own to achieve sustainable urban environments. Densification has been on the agenda of many countries and cities for approximately two decades and has undergone various phases of development and refinement. The examples used in Section 2.1.2 illustrate how
densification is approached in different contexts and it has become evident through these case studies, that many factors influence the application of density. These are:

- Political views and wills
- Population densities
- Economies of cities and countries
- Environmental agendas
- Social issues
- Urban sustainability practices
- Strategic visions and investments
- Geological conditions

Densification measures also vary across the world, where densities are measured either by residential densities or population densities. The norm, however, seems to be measuring densities by means of residential densification, therefore unit units per hectare. America seems to be one of very few countries that measure densities as population per square kilometer or mile.

The implementation of densities can also not be isolated from urban design practices. The reason for this, is the general perception that high densities create poor, unsafe living environments. It is also generally perceived that high densities are only aimed at the lower income groups, which is not always the case. With design guidelines, densities can be attractive to a whole range of income groups and the benefits of densities can affect all who are involved in densification, from city administrators to the occupants of such units.

South Africa is promoting densification through its policies and legislation, however, it has not yet proven successful. Densification is generally achievable over extended periods of time, as is evident in the Randstad Holland example. South Africa has only recently begun to promote densification in the country’s young democracy. Urban ills of the past are a major challenge and ‘Apartheid practices’ have taken on different dimensions. Where racial segregation was the predominant political and planning agenda of that time, racial segregation has now turned to class segregation, where the
poorest of the poor are not being catered for, even though densification intentions are aimed at accommodating this sector of the population.

Densification is therefore not easily implementable, but implementation can be achieved over time and with the correct strategies and political will, which has been the experience in European countries.
3. EKURHULENI TREND AND SITUATION ANALYSIS

3.1 Density Trends

In the EMM, a clear trend is apparent of increasing densities (intensity of use) and the acceptance of higher densities. Three site visits were undertaken with Ekurhuleni Planning, Housing and Environmental Officials and the findings, described below, were made during these three site visits.

Northern Region Site Visit

The Northern Region Site Visit included visits to Kempton Park, Edenvale and Bedfordview. From the discussions and observations made on the site visit, one could see remarkable densification occurring in Bedfordview around the Bedford Centre Shopping Mall and also around Eastgate Shopping Centre. Bedfordview is the most dense area in terms of formal residential stock in Ekurhuleni, according to the officials. The pictures below illustrate the current residential buildings as well as the new developments in this area. It was noted that densification projects occurring in this area are also aimed at higher income earners, as prices for apartments are in the range of R1 900 000 and above.

These pictures illustrate the current established higher density residential apartment-flat blocks in Bedfordview. This area in Bedfordview is viewed as the densest area in Ekurhuleni and development in this densely populated residential area is occurring as illustrated in the pictures overleaf.
Areas in Edenvale have not seen a great increase in densification and it is perceived by officials that the area is well established and infill opportunities are limited in this region. During the visits to this region, there was no real evidence that higher density developments are occurring in this area.

The Kempton Park site visit did not show any significant areas of densification, however, the Planning Officials from the area informed us that a revitalization strategy for the Kempton Park CBD was underway and that a draft density policy for this area had been compiled. This policy is attached in Annexure B and is discussed in section 3.3.2 of this document.

It was found that this region might have the best capacity for densification as it also hosts many economic opportunities for EMM.
Eastern Region Site Visit

The Eastern Region Site Visit included visits to Benoni, Springs and Brakpan. Springs and Brakpan do not show any pressure for higher density residential development as is shown in other areas in Ekurhuleni (i.e. Bedfordview).

Springs CBD showed some revitalization initiatives in terms of higher density developments and conversions, as illustrated below. The building on the right is the tallest residential building in the CBD of Springs.

Benoni CBD does have limited high-rise, high-density residential buildings as illustrated below. Some new developments are occurring, but these are limited and no increased pressure for development in the CBD is evident.
It was also found that areas of strategic location did not have increased densification around them, such as train stations (Benoni Station illustrated in the picture above on the right) or areas of inter-modal transport changes.

**Southern Region Site Visit**

The Southern Region Site Visit included visits to Alberton and Germiston. The visit to Germiston showed that the CBD area and some of the residential areas were quite run down and limited investment is occurring in this area. There are, however, a couple of high-density residential examples, as illustrated below.
Developments in Alberton have shown some innovative and good designs in terms of higher density residential developments.

Areas such as Dinwiddie, which boasts “Stone River’s Arch”, shows that higher density residential buildings do not have to be monotonous and can have some design and style variations even if all buildings are within one complex.

Other developments have once again indicated that the higher income earners in the area also enjoy higher residential densities within areas such as Meyersdal and Bassonia. The pictures below illustrate these trends.
3.2 Current Applications

All Area Managers were requested to provide the consultants with information regarding recently approved and current applications that have a higher density. The data overleaf, Table 5. Recent and Current EMM Land Use Applications, has been provided.
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Settlement Planning & Dludla Development cc. (T) 011 467 0040 (F) 011 467 0090 e-mail: setplan@icon.co.za
EMM DENSIFICATION FRAMEWORK: Status Quo Analysis & Findings Document
JANUARY 2008
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### EMM DENSIFICATION FRAMEWORK: Status Quo Analysis & Findings Document

**JANUARY 2008**

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<td>Dawn Park X 6</td>
<td>Residential 1</td>
<td>50 units/ha</td>
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<td>Dawn Park X 35 Erf 3250</td>
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<td>Groeneweide Erf 100</td>
<td>Educational plus Unit Units</td>
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<td>Klippoortjie Erf 306</td>
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**BENONI**

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General Trends

Kempton Park

Kempton Park proper and Nimrod Park are currently experiencing high levels of densification. Most densification applications are for a zoning of ‘Residential 4’ with densities as high as 170du/ha. The lowest residential density currently being applied for is 40du/ha, according to the schedule in this section. This clearly indicates that the Kempton Park areas are popular in terms of residential development. An attraction of these areas is their proximity to OR Tambo International Airport and economic activities, such as the industrial areas of Isando.

Glen Marais and Pomona applications were also received and the following criteria were listed for residential densification:

- Residential 1: up to and including 20 du/ha
- Residential 2: 21 to 40 du/ha
- Residential 3: 41 to 60 du/ha
- Residential 4: 61 du/ha and above

The Pomona applications tend to be more business orientated, with some higher density residential applications, which meet the above set of density criteria per Residential zoning.

The Glen Marais applications are mostly for residential densification, due to the area being more residential in nature. Some lower order business activities are evident in the area, but the predominant use zone is Residential.

The densities listed above are relatively conservative in relation to other areas in Kempton Park, as discussed above. Reasons for such differences relate to location, opportunities in terms of services and amenities and transport and road infrastructure.
Springs

Applications in Springs for residential densification are limited according to the schedule above. The highest residential densities applied for are 75 dwelling units per hectare in Pollack Park. This indicates that there is not a high demand for residential stock in these areas and this could be attributed to the great distances from opportunities in terms of services and employment. This area is not well serviced in terms of public transport and the area is also characterized by large informal settlements, such as Kwa Thema. Limited investment is occurring in this area and this was evident during the site visit.

Germiston

Applications in Germiston have been very conservative in terms of densification. Residential 3 applications have applied for densities as low as 23 dwelling units per hectare, which is very low in comparison to areas in Kempton Park. The highest residential density, which has recently been approved, is a ‘Residential 4’ application of 236 dwelling units per hectare.

Germiston is currently in a poor state of development and general maintenance, as was pointed out to us on the site visit. The Germiston CBD has been chosen as a Presidential Project for reinvestment and upgrading purposes.

Germiston has also not capitalized on its rail infrastructure in terms of ‘commuter traffic’, commercial development and associated residential development. Great opportunities exist in this area for redevelopment and investment.

Alberton

Alberton is predominantly a residential area within the greater EMM. Development over the past five to ten years has been very significant, especially in the more recent years.

The schedule in this section indicates the volume of rezoning applications received in order to obtain higher order residential rights. Alberton is in relatively close proximity to the CBD of the City of Johannesburg, which makes it an attractive area
in which to reside. It is also accessible via the national road system and areas around the Alberton CBD have seen great levels of development and redevelopment in terms of commercial, retail and residential development. One of these areas is the New Redruth area, where rezoning applications have been submitted and some have been approved for ‘Residential 3 and 4’ rights. The densities of these areas are stipulated by the density polices (attached in Annexure B) or are led by the LSDF for that specific area.

The site visit also indicated this residential ‘boom’ in Alberton and photographs can be seen in Section 3.1. This area, as well as Bedfordview, has some of the best examples of good quality design for higher density developments.

Boksburg

Boksburg has also seen a major residential boom, both in terms of developments, which are seen in the area and also in the number of applications received, as illustrated in the schedule provided. The range of densities applied for also indicates a great mix of developments. For example, some ‘Residential 4’ applications are as low as 40 dwelling units per hectare, whereas other similar applications are as high as 200 dwelling units per hectare.

Boksburg is also well located in terms of employment and commercial opportunities. However, unco-ordinated commercial development is threatening infrastructure, especially in terms of roads. A large percentage of the applications for residential rights is also for higher order rights, such as ‘Residential 3 and 4’. This clearly indicates that it is a desirable area to be residing in.

Edenvale & Bedfordview

As is evident in the tables provided previously, limited applications for higher density residential development could be sourced for the Edenvale and Bedfordview CCC area. A discussion with the Area Managers indicated that no specific applications for increased densities were received for the past three years (in the Edenvale area), except for an application, received for a vacant council property.
The information for these areas differs, as their Town Planning Schemes and Policies were prepared separately but are represented by the same Customer Care Centre.

**Bedfordview**
Bedfordview has shown great examples of good quality, high-density developments. The zonings in Bedfordview, as per the current density policy, are as follows:

- Residential 2 – 20 units per hectare
- Residential 3 – 45 units per hectare
- Residential 4 – 46 units per hectare of more

The area of Bedfordview has also shown that higher density developments are suitable for higher income earners and that higher density does not necessarily mean overcrowding or monotonous designs. This is shown in some of the pictures taken on the site visits in Section 3.1. On these site visits, it was also stated that Bedfordview CBD is the highest residential density CBD in the EMM.

A Local Spatial Development Framework is to be commissioned in the near future, as the current policies and spatial documents contain many gaps and inconsistencies.

**Edenvale**
Edenvale is currently developed to its full capacity, with no land to spare. Therefore, the only manner in which increased densities can be achieved is by infill development and subdivisions. The planning officials in Edenvale have indicated that they expect to realize densities of 20 dwelling units per hectare within the next three years, by changing ‘Residential 1’ minimum erf sizes from 700m² to 500m². Residential space in the CBD is not in high demand but provision for 60 dwelling units per hectare has been made along the main street in Edenvale.

A Local Spatial Development Framework has been completed for the Edenvale area.
Nigel

Residential erven have become relatively scarce in Nigel and due to this scarcity, residential densification has occurred in the area. The average density applied for is approximately 25 dwelling units per hectare. The highest densities approved in the area are 55 dwelling units per hectare. Residential densification has occurred in established township areas through subdivision and redevelopments. The applications in the schedule provided are all for ‘Residential 2’ applications.

Brakpan

Brakpan has seen a sharp rise in rezoning applications for higher order residential rights over the last few years. The required densities are not known, but should be in the same order as those in the Springs area. Applications have primarily been for ‘Residential 3’ rights in this area.

Very few applications have been received for ‘Residential 4’ rights and a minimal number of applications have been received for redevelopment of higher order rights in the CBD of Brakpan.

Benoni

Benoni has been very conservative in the manner in which residential densification has been approached. The schedule provided indicates limited higher order residential applications and those few which are for higher order rights, are fairly low in terms of the applied density.

Benoni CBD has limited residential stock and almost no applications have been received for increased density developments.

As is evident from the schedule provided and from the discussions with officials in the various areas, each area has a different approach to densification, whether it is bold or conservative. Areas currently leading the way in terms of densification are Bedfordview and Alberton. Good quality residential developments are occurring in these areas, which shows that densification does not have to be monotonous in design or a cause of poor quality living environments.
3.3 Current Density Estimates and Density Policies in EMM

Current density policies vary widely between the different areas in the EMM area and are clearly inadequate to address strategic densification or “densification sprawl”. This situation is historic, as density policies are largely based on the Town Planning Schemes and related policies of the previous nine Local Authorities that were amalgamated to form the EMM. The exercise, which is about to commence, dealing with the rationalization of Scheme Clauses of all the Land Use Management Schemes and this Density Framework, will need to address this issue.

3.3.1 Densities per LSDF Area

Each of the LSDF areas is illustrated on the map overleaf and listed in the table provided. However, limited data is available to determine the current densities per LSDF area in the EMM. In order to determine gross densities, the extent of the LSDF area and the number of erven in that particular area are required. None of this information is available for analysis at this stage. Information will be made available at the end of January 2008 and this will then be incorporated into Part 2 – the Densification Framework.

However, for purposes of this report, the current population densities and estimated gross density across the EMM can be provided from available data.

Ekurhuleni is 1 924km² in extent with an estimated population of approximately 2 528 303 people. This translates into 1 313 people per km². This figure is not consistent across all areas as some are more densely populated than others (i.e. CBDs versus Agricultural Holdings). As is already evident in Section 3.2, some CCC areas are much more popular for densification than others.
The cadastral map overleaf also illustrates where townships have developed. These areas have a higher residential and population density than other areas. One also has to take into account that some LSDF areas consist of alternative uses to residential zonings, such as industrial or commercial uses.

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The above-tabled figures are merely an indication of the approximate population and household numbers per ward. These have been translated to the various LSDF areas in Table 7. However, this table only indicates the main ward in each LSDF, therefore is purely indicative and not an accurate estimate. In the preparation and formulation of each LSDF, the correct statistics should be obtained and calculated as the gross population density per hectare and the gross number of units per hectare.

For the purposes of this metropolitan wide study, the indicative figures will suffice but when the Density Framework is complete, the framework principles should be applied at local levels where more accurate statistics can be obtained.
Figure 17. Ward Boundaries in EMM

### Table 7. List of LSDFs

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* Please note that some wards fall into more than one LSDF area. These figures are therefore merely an indicator of LSDF population densities and should be regarded as such. For a more accurate indication of population densities the wards should be consulted.
3.3.2 Density Policies

This section will review density specific policies for areas within Ekurhuleni where density policies and strategies have been developed.

KEMPTON PARK CBD

A draft CBD High Density Residential Development Policy has been developed to assist the planners and developers in the Kempton Park CBD in terms of densification issues. The problems experienced in the Kempton Park CBD can be summarised as follows:

- Pressure of Residential densification in the extended part of the CBD (known as Area 4 Local Integrated Development Plan – Aero City)
  - The area is divided into two sections, namely the North East Side of Monument Road (from Kempton Road to North Road) and North West of Monument Road (from CR Swart Drive to Kosmos Street).
- The area north east of Monument Road is earmarked for business and Residential uses, however pressure is experienced for higher density developments.
- An issue, which is noticed, is that monotonous, poorly designed blocks of flats, are being developed on single erven and that open spaces are not adequately provided in these developments.

The policy has been formulated to address the issue of guidelines to assess SDPs and rezoning applications, to provide aesthetic guidelines and design guidelines for high rise, high density developments and to provide guidelines for co-ordinated sustainable development.

The framework is specifically aimed at the CBD and takes into consideration issues of proximity to employment opportunities, maximizing the use of social and urban infrastructure, promoting public transport systems through densification, creating a twenty-four hour city and combating urban sprawl.

An extract from the Draft CBD High Density Residential Development Policy, outlining the Town Planning Criteria, is provided overleaf.
The maximum density allowed in the CBD area, is 200 unit units per hectare. This is taking place is on the North East Side of Monument Road. A maximum height of six storeys and 50% coverage of sites are given for development purposes.

The North West Side of Monument Road may have a maximum density of 60 unit units per hectare with a maximum height of 3 storeys and 50% coverage.


TOWN PLANNING CRITERIA

6.1 GUIDING PRINCIPLES FOR ASSESSMENT
The following guidelines to be implemented on the assessment of the Site development plan and rezoning application
(a) The children’s play area of 250m² be provided on any high density residential development irrespective of the zoning to the satisfaction of the Ekurhuleni Metropolitan Municipality.
(b) The children's play area shall be located in a centralized or accessible area to all the residents of the development and be practicable in shape to the satisfaction of the Ekurhuleni Metropolitan Municipality.
(c) The children's play area must be an exclusive area only for children’s play purposes and shall be provided on ground level and not permitted on the roof of buildings for safety reasons.
(d) The side building lines of 2-meters be retained in all high-density residential development irrespective of the zoning and shall not be relaxed.
(e) The street building line shall not be less than 5-meters
(f) At least a three (3) meters wide strip along the street boundary shall be landscaped to the satisfaction of the EMM.
(g) The coverage shall be reduced proportionally with the increase in height (for example 60% - ground floor, 50% - first floor, 40% - second floor, etc)
(h) No shade cloth parking facilities shall be permitted on site.
(i) All laundry related needs shall be provided inside the building (laundry area) and no outside washing line facilities shall be permitted on verandahs or patio areas of dwelling units, save areas on the ground levels exclusively developed for such purposes; provided that such designated area shall not be located in an area where in the opinion of the EMM it constitutes an unsightly development.
(j) All the mentioned development principles will be implemented on any CBD high-density residential development irrespective of the zoning of the property, through the evaluation of the SDP irrespective of the zoning and will also be implemented with the evaluation of rezoning applications.
(k) Only dwelling units or houses will be permitted and hostel or boarding rooms shall not be permitted. (The units must have their own bathroom and kitchen facilities.)
(l) That the prescribed principles be incorporated in the new town planning to be drafted for the Ekurhuleni Metropolitan Municipality.

6.2 The following measures shall apply to the Northeast side of Monument Road:
(a) The maximum density shall not exceed 200 units per hectare
(b) The maximum Coverage shall not exceed 50%
(c) The maximum Height shall not exceed 6 storeys

6.3 The following measures shall apply to the Northwest side of Monument Road
(a) The maximum density shall not exceed 60 units per hectare
(b) The maximum Coverage shall not exceed 50%
(c) The maximum Height shall not exceed 3 storeys.
DENSIFICATION POLICY FOR MULTI-UNIT RESIDENTIAL DEVELOPMENT IN BEDFORDVIEW

A densification policy for Bedfordview currently exists and was formulated under the Greater Germiston Council. The attached plan in Annexure B illustrates the framework for the density policy. On this plan, six density zones are shown, which range from 14 units per hectare to 46+ units per hectare.

The policy framework sets out clear guidelines on what will be permitted on which types and sizes of erven and in which areas. The extract from this policy is attached in Annexure B. The following section highlights some of the policy principles:

Policy Principles and Residential Densities:

- The policy is aimed at densities of 10 units per hectare or more.
- Multi unit developments are only permitted on erven of 4 000m² and larger, with a minimum of 8 units per development.
- The following table has been drafted from information obtained in the policy:

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<tr>
<th>Use Zone</th>
<th>Maximum Density</th>
<th>Coverage</th>
<th>FAR</th>
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The above principles are outlined as the general density policy for the area. The Bedfordview area, however, been divided into Densification Zones which accompany the attached plan (Annexure B). The Densification Zones are numbered from A to M and define the areas they pertain to and what densities are allowed in these areas.

DENSIFICATION POLICIES IN ALBERTON

The Alberton area has experienced and still experiences densification pressure. To this effect, various density guideline documents have been developed, which need to be looked at in order to understand what these pressures are and how the EMM has
approached these issues in these documents. The extract overleaf illustrates the resolution of Council on Residential Densification in Alberton in the mid 1990s.

Resolution of Council on Residential Densification in Alberton (mid 1990s)

IT IS RECOMMENDED:

THAT the following be accepted as Council policy:

1. That townhouses/densification be allowed in any residential area of Alberton, provided that the necessary rights for such use have been obtained.

2. The number of storeys for any such development be limited to two.

3. The following development control measures be accepted as a general guideline in order to regulate the number of units that can be erected:

3.1 The coverage of all buildings on the erf shall not exceed 40% of the area of the erf.

3.2 The floor area ratio shall not exceed 0.6.

3.3 A site development plan shall be submitted and approved prior to the submission of building plans.

4. Effective, paved parking spaces together with the necessary manoeuvring area, shall be provided on the erf to the satisfaction of the local authority in the following ratios:

4.1 1 covered parking space per dwelling unit with 3 or less living rooms;

4.2 1 covered and 1 uncovered parking space per dwelling unit with 4 or more living rooms; and

4.3 1 uncovered parking space per 3 dwelling units for visitors.

5. A minimum of 10% of the area of the erf shall be developed as a recreational area.

6. A minimum side building line of 5 metres be instated to protect the privacy of the neighbours.

7. The above guideline may be deviated from during the approval of individual applications, if the Head: Urban Planning is satisfied that sufficient merit exists.
Council passed a specific densification resolution in 1997 regarding densification in New Redruth. This was an amendment to the 1985 resolution and affected more properties (which are indicated on Annexure B). This policy was however replaced by LSDF 8.

The Meyersdal area has also seen widespread densification. A policy for densification was passed in 2000 and the recommendations are illustrated below. The entire study document is provided in Annexure B.


A summary of the conditions proposed under this policy are therefore as follows:

That,

1. The suburb of Meyersdal maintain its existing/current status of office/higher density and low residential density zones.
2. The general conditions of the township establishment and annexures, currently applicable with regard to minimum dwelling unit sizes (210m²), etc., be maintained in the ‘Residential 1’ sector of Meyersdal.
3. Minimum size of subdivided erven shall not be less than 650m².
4. Second dwelling units or ‘Granny flats-cottages’ (Clause 20 of the Alberton Town Planning Scheme, 1979), shall not be permitted on erven smaller than 700m².
5. Should densification be facilitated due to the property size, the density rezoning application (amendment to the Alberton Town Planning Scheme, 1979 in terms of the Town Planning and Townships Ordinance 15 of 1986) or Simultaneous removal of restrictions and rezoning application (in terms of the Gauteng Removal of Restrictions Act of 1996), shall be circulated to all neighbours affected by the proposed application and to all surrounding property owners for written consent / comments. The comments / consents shall be submitted simultaneously with either of the aforementioned applications.

**SECOND DWELLING UNITS POLICY**

In June 2003, The Development Planning Department released the ‘Second Unit Units Policy’ as approved by the Mayoral Committee. The policy aims to provide guidance and provide a standard approach to second dwelling unit application and consideration. The Second Dwelling Unit Policy is targeted at property owners who wish to add a second dwelling unit on their property for various reasons (these are stipulated in the policy document). The general definition contained in Ekurhuleni’s policies and documents is as follows:
“3.3 Definition of a second unit:
An additional dwelling unit situated on the same erf as a unit or unit house, and which
may be attached or detached to the original unit or unit house. The intention is that this
definition would include what is commonly known as a ‘granny flat’, but that a second
dwelling unit would not be limited to a ‘granny flat’.”

The research on second unit units indicates that most second unit policies prior to this
specific policy subscribe to general principles in terms of Residential densification as
contained in the policy document set out below.

- Better utilisation of urban infrastructure
- Reduces the need to travel, by concentrating residences near communal facilities
  and transport routes
- Promotes effectiveness and economic viability of public transport systems
- Promotes optimal use of land and reduces loss of productive agricultural land
- Prevents urban sprawl
- Reduces the need for duplication of community services such as libraries and
  clinics
- Promotes security
- Reduces the cost of housing by using existing infrastructure

The policy sets out general development controls for this type of infill development,
which leads to a degree of densification. These are summarised below:

i. Neighbours do not have to be consulted in such an application
ii. Second unit units are only permitted on erven with a minimum extent of
    500m² (one dwelling unit per 250m²)
iii. The size of a second dwelling unit shall not exceed 100m²
iv. Only one second dwelling unit per erf shall be permitted
v. Other development controls are provided under section 5.7.3
vi. In dolomitic areas, a second dwelling will only be permitted on erven with a
    minimum extent of 1 500m², if the dolomite risk allows for such a
development
The specific definition, which the policy formulates on second unit units, as contained in Section 8, is;
“An additional dwelling unit situated on the same erf as a unit or unit house, and which may be attached or detached to the original unit or unit house”.

The conditions pertaining to second unit units are extracted below from the policy document (p15-16):

8.3.3 The erection of second dwelling units shall be subject to the following conditions:

a. Number of units:
   Only one additional dwelling unit shall be allowed per erf (or subdivided erf), with a minimum area of 500 m² subject thereto that the subdivision of erven with an area of 500 m² and smaller on which a second dwelling unit has been erected, will not be allowed and that all other development controls must be adhered to.
   Second dwelling units erected in terms of this policy shall not be sold by means of sectional title.

b. Size of units:
   No second dwelling unit shall have a gross floor area of more than 100 m², excluding garages and other outbuildings.

c. Coverage:
   The combined coverage of the first and second dwelling unit shall not exceed the maximum coverage allowed in terms of the Town Planning Scheme.

d. Floor Area Ratio:
   The combined Floor Area Ratio of both dwellings shall not exceed the maximum FAR allowed in terms of the Town Planning Scheme.

e. Height:
   No second dwelling units shall be higher than 2 storeys or be built on a level higher than the second storey of the first dwelling unit.

f. Side spaces:
   No second dwelling unit with a height of more than one storey shall be erected closer than 2 metres from any side boundary of the property, or in contravention of any town planning scheme or other legislation.

g. Building restriction line:
   As per Town Planning Scheme.
h. Parking:

Two additional parking spaces shall be provided on the erf for use by the occupants of the second dwelling unit, provided that if the second dwelling unit has only one bedroom, only one parking space shall be required, or as per existing town planning scheme.

i. Services connections:

Only one sewerage, water and electricity connection shall be provided per erf (or subdivided erf, agricultural holding or farm portion). Electricity supply to the second dwelling unit must be taken from the main dwelling unit and sub-metered by the applicant if required. The applicant is to apply for an upgraded electrical connection if the existing supply is inadequate for both dwellings.

j. Aesthetic treatment:

The second dwelling unit shall be aesthetically acceptable and shall blend in with the design and construction of the main building.

8.3.4 In addition to the above, the erection of additional dwelling units on agricultural holdings or farm portions shall be subject to the following:

a. Only one additional (second) dwelling unit shall be allowed per agricultural holding or per farm portion.

b. In addition to a second dwelling unit, accommodation for bona fide employees may be erected on agricultural holdings and farm portions in the following ratio’s:

- Farm portions of less than 5 ha: Not more than one unit.
- Farm portions of 5 ha and more: Not more than six units.
- Agricultural holdings: Not more than three units.

Even though this policy document is a guiding document for a specific type of development, the element of densification must be taken into account, as this has an impact on areas in which such developments occur.
3.4 EMM Low Income Housing

(a) Past, current and planned low income housing

It is reported that Ekurhuleni has the highest number of informal settlements in South Africa and that this statistic is still increasing. The presence of mining and heavy industrial townships is seen as a major cause of these settlements and hostels, as many migrant as well as unskilled workers are employed in this sector. Most of these informal settlement areas (PDAs) have been established on the peripheries of the economic areas of the EMM. Some settlements have also recently developed within the disused mining areas within the municipal area, in response to economic pressures, as commuters now travel shorter distances to places of work. There is a lack of service provision in these informal areas, despite the close proximity of these informal settlement areas to the economic areas.

The Provincial Government, together with the EMM, has embarked on a programme to identify land suitably located in relation to employment opportunities and social facilities. This exercise has not been successful thus far, due to a number of factors such as land availability, land prices, geology and environment. Low-income housing has mainly been provided in the typology of RDP Housing, which is, one house per erf. This housing typology is still being developed on the peripheries of economic areas in the municipal area. The southern and the eastern regions are experiencing an exponential growth of this housing stock. Some of this stock is found around the Tembisa complex and the Daveyton / Etwatwa area.

New housing stock is being planned at this stage, as infill opportunities to be located between the Previously Disadvantaged Areas (PDA) and areas with intense economic activities. The Albert Luthuli Township is such an example. Higher design standards and higher densities will be achieved, unlike in the current 20 to 40 units per hectare developments.
(b) Analysis of the impact of the Guideline Document for Higher Density Housing

The report is instructive on aspects to be considered when designing for higher density residential developments. The following advantages and disadvantages are identified for high and low-density residential development:

**Advantages:**

- Efficient provision and use of infrastructure.
- Infrastructure is shared by more housing units. This assists in the reduction of infrastructure and servicing costs.
- Efficient use of land is achieved.
- High revenue generation.
- Achieving economies of scale.
- Increased access to employment opportunities and social services.

**Disadvantages:**

- Possibility of infrastructure overload.
- Pollution.
- Environmental hazards.
- Congestion.

The following misconceptions are associated with high density:

- Low densities create high quality environments and high densities create low quality environments.
- High-density residential developments are synonymous with monotonous housing typologies.
- High densities are appropriate for low-income groups and low densities for high-income groups.

**Sustainable Densities**

Factors to be considered for sustainable densification:

- Land availability and land cost
- Location and transport: high accessibility must be present for high densities
• Social context and household sizes and lifestyles
• Environment consideration
• Cultural acceptance
• Political opinion and intervention

Problems with current process

Residential layouts are currently guided by the following:

• Engineering and, in particular, transportation guidelines. As there are currently limited public transport opportunities, design of townships is based on the provision of private transport, which results in:
  - Road widths determined by expected trips
  - Layouts that reduce potential vehicular conflicts
  - Road hierarchy with fewer intersections
  - Generous road reserves

• Attitudes and expectations of communities and regulations
• An introverted Neighbourhood Concept that limits the sharing of social and other facilities between neighbourhoods.
• Nuclear families, in particular those with young children, prefer private space to shared space.
• Outdated and excessive standards for different land use e.g. amount of space per school.
• Professionals dealing with the built environment working separately as opposed to an integrated team approach.
• Quantitative standards instead of qualitative and performance orientated standards e.g. open space provision that may lead to fragmented pieces of open space placed in the least desirable location.

The above factors work against integration, higher density, public transport and performance orientated standards, leading to mechanistic planning which compromises the quality and sustainability of living environments.

An alternative approach

To achieve higher densities, the following steps should be taken:
• Design approach should consider the context and environment as well as internal spaces.
• Public space should give form and should be used as a structuring element. Public space to be organized into interconnected system that accommodates ecological and human activities and movement.
• Trade offs need to be made between erf size, service cost, accessibility, proximity to services and facilities, road widths and economic opportunities.
• Each development must be assessed in relation to its contribution to achieving compact sustainable cities. (Building cities and not houses)

A project site must be viewed as a component to the general urban areas, not as an isolated project. Development should seek:
- Integration of the new development and existing areas.
- Progressive intensification of land uses.
- Changes in land use and mixed uses.
- To focus on the performance of the project in relation to its context.

c) Inclusionary Housing

The National Inclusionary Housing Policy is aimed at supporting mixed income, ‘affordable housing’ development through contributions from developers, either in the form of housing units or a cash contribution. Affordable Housing is technically, in terms of the Housing Charter, homes in the price range between R50 000 and R350 000. In practise however, it is effectively housing for all those who cannot access subsidies, but do not qualify for bonded houses. This is currently in the range between R150 000 and R700 000.

There is presently a wide range of definitions of Inclusionary Housing. One of these is, “A housing programme that fosters mixed-income housing through regulations and/or incentives that require or encourage developers to include a proportion of housing units for low and moderate income households within private developments.” (Western Cape Provincial Government: Inclusionary Housing Options Workshop 3 May 2007.)
Everyone involved in this process agrees that Inclusionary Housing is not solely about addressing the housing backlog. It is also intended to:

- Overcome racial segregation
- Overcome exclusion of lower income people from well located and desirable areas
- Create better functioning mixed use areas with “home and work” in close proximity

Inclusionary Housing Policy will have a major impact on Mixed Use Developments in that it will no longer be an option, but it will be a requirement to have ‘affordable housing’ within or associated with developments. Each Province is currently finalizing Provincial Policy in this regard, as are most of the major local authorities.

Inclusionary Housing is not unique to South Africa, but occurs around the world. Participation in these programmes is voluntary in some countries and compulsory in others. For example, these policies exist in the following countries:

- USA
- UK
- Belgium
- Netherlands
- Australia
- China
- Malaysia
- Ireland

Inclusionary Housing will attempt to redress the factors listed earlier as well as to:

- Leverage the delivery of affordable housing, which, in simple terms, is housing for that group of people which cannot access subsidies but also do not qualify for bonded housing.
- Mobilise the Private Sector to become directly involved in affordable housing
- Create balanced, integrated mixed use developments.
What we know about Inclusionary Housing Policy from lessons learned elsewhere, is that, contrary to what many believe,

- A mix of incentives and compulsory compliance works. (The “Carrot and the Stick”.)
- Incentives work better than prescribed regulations.
- Decentralised processes are more effective. Decentralised processes are those driven by provincial and local authorities, rather than national authorities.
- Legal and constitutional challenges have not been successful.
- Well-designed schemes do not affect the local economy or markets.
- The impact of Inclusionary Housing has been positive.
- Context and local circumstances must be taken into account, for example:
  - The size of the middle/high income sector, relative to the affordable housing (IHP) sector must be taken into account.
  - “Price Cliffs” are problematic. This is where there is a many fold difference in the price of units in a single development.
  - Separation/segregation in the current spatial environment creates difficulties for inclusionary housing
  - The size of the project affects the viability of Inclusionary Housing. If the entire project is below a certain size, Inclusionary Housing becomes difficult on the same site.

Two key implementation approaches are envisaged, namely:
Voluntary Pro-Active Deal Driven (VPADD)
Compulsory Incentive Synchronised (CIS)

The Breaking New Ground Policy (BNG) reinforces the need for ‘Sustainable Human Settlements’. The need is no longer just to provide a large quantity of housing, but also quality, sustainable living environments.
In the BNG Policy, in the section on ‘Sustainable Human Settlements’ (Part B, Section 3, page 11) the footnote to the definition (footnote 7), specifically states that, “the present and future inhabitants of sustainable human settlements, located in both urban and rural areas, live in a safe and secure environment and have adequate access to economic opportunities, a mix of safe and secure housing and tenure types, reliable and affordable basic services, educational, entertainment and cultural activities and health, welfare and
police services. Land utilization is well planned, managed and monitored to ensure the
development of compact, mixed land-use, diverse, life-enhancing environments……..”.
This policy, which is currently one of the most referred to/quoted policy documents with
regard to housing, clearly supports the development of well-planned Mixed Use areas
and extends the definition of Mixed Use Developments to include not only a mix of land
uses, but also a mixture of tenure options for different income groups.

e) The Migration Plan
The Migration Plan is divided into 5 areas, namely:

- Migration Area 1: Tembisa-Kempton Park Precinct
- Migration Area 2: Mayfield Precinct
- Migration Area 3: Mining Belt Precinct
- Migration Area 4: Kathorus Precinct
- Migration Area 5: Kwatsaduza Precinct

This plan is accompanied by a Hostel Redevelopment Plan.

Area 1
Migration within this area indicates movement from informal settlements within Tembisa
mainly to Ward 1 in the northern most area of Ekurhuleni. The second biggest proposed
settlement is located in Klipfontein and some portions in Chloorkop. The area of Esselen
Park is currently being developed with low-income housing. There are 20 887 stands
available for low-income housing development, with a deficit of 12 612 stands.

Area 2
This area is located in the north-eastern quadrant of Ekurhuleni, consisting of
Etwatwa/Daveyton, Chief Albert Luthuli, Modder East, Payneville and Watville to the
west. In excess of 46 000 informal structures have been recorded for the area with
approximately 44 000 identified sites. This leaves a deficit of 2000 stands. Migration
within the area indicates proposed extensions in and around the Etwatwa, Mayfield and
Putfontein areas, Brakpan Alliance and Payneville. The movement occurs mainly in the
north and northwest with occasional movement in the south. Major movements occur
north of the N12 freeway. Areas such as Chief Albert Luthuli, Etwatwa and Mayfield are being developed to accommodate some of the informal settlements.

Area 3
This area is located in the western central portion of Ekurhuleni. It covers areas such as Boksburg, Germiston, a portion of Alberton and farms on the south-east quadrant of the area. Migration occurs mainly in the southeastern region around Windmill, Dawn Park, Villa Liza and Rondebult. Migration in the northern most area occurs around Germiston, Boksburg and Reiger Park, as well as in undermined areas along the Reef that stretches east-west. There are 40 200 stands available in this precinct, with a deficit of 300 stands.

Area 4
This area is on the south-western most point of Ekurhuleni and comprises some of the biggest townships in the Metropolitan area. Migration is directed further away from job opportunities and services. Areas included are Palm Ridge, Eden Park, Vosloorus and Zonkizizwe. There are 27 300 informal structures found in the area. Only 25 300 stands are available, with a deficit of 2000 stands. The area has the highest number of hostels.

Area 5
This area is located in the southeastern region of Ekurhuleni and comprises Springs, KwaThema, Tsakane and Duduza. Location of the current and proposed settlement areas is mainly to the south of the economic area (Springs), towards the boundary of the metro. The settlement areas are mainly around KwaThema, Tsakane, Duduza, Langaville to the south and Payneville and Brakpan to the north. There are 26 600 stands available and 29 200 are required. This results in a deficit of 2 500 stands.

Analysis
From the above figures, it would appear that of the land identified for migration purposes is further away from job opportunities and services. Land cost and availability seem to have been the major determining factors for current location. Densities seem to be low, as they range between 20 dwelling units and 40 dwelling units per hectare.
Please refer to attached tables for further information
## Migration Area 1: Tembisa - Kempton Park Precinct

Information Last accurate on: 21/01/08

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**Information Last accurate on: 21/01/08**
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Settlement Planning & Dludla Development cc. (T) 011 467 0040 (F) 011 467 0090 e-mail: setplan@icon.co.za
EMM DENSIFICATION FRAMEWORK: Status Quo Analysis & Findings Document
JANUARY 2008
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### Migration Area 5: Kwatsaduza Precinct

**Information Last accurate on: 21/01/08**

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#### Remarks

- Settlement Planning & Dludla Development cc. (T) 011 467 0040 (F) 011 467 0090 e-mail: setplan@icon.co.za
- EMM DENSIFICATION FRAMEWORK: Status Quo Analysis & Findings Document
- JANUARY 2008
### Hostel Redevelopment Plan

**85% Single 15% Family**

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3.5 Ekurhuleni Metropolitan Municipality – General Spatial Structure

The illustration (ITP Executive Summary, 2008) overleaf shows the general spatial structure of the EMM in terms of land uses. It is evident from this illustration that most development is concentrated along the central area of the EMM and along the western municipal boundary, which is shared between the EMM and the City of Johannesburg.

Limited development has occurred in the northeastern sector of the metropolitan area. Most residential development has also occurred along major transport routes and also close to economic activities and economic uses.

More detailed information on this spatial structure is available in the ITP Executive Summary, 2008.
3.6 Environmental Considerations

The EMM’s Environmental Department is constantly striving for the optimum, most balanced manner in which to achieve integrated, sustainable development, which is beneficial for both the environment and residents in Ekurhuleni. Policies are constantly being upgraded and commissioned to keep up with national and provincial legislation and regulations.

Policies within the Environmental Department do not oppose higher density residential development, but do however put in place mechanisms and preferred ways to deal with densification. Any applications, be they for residential or commercial development, are subject to environmental legislation. Issues to consider are in terms of sustainable development and the use of advanced technologies to curb pollution.

A major area of concern, requiring comprehensive guidelines in terms of urban design issues, is densification within noise zones in Ekurhuleni. The EMM Environmental Planning and Co-ordination Department provided details of the latest noise zone areas. These areas are illustrated overleaf in the map extract. The contours indicate that the highest noise zones are in the areas of Boksburg and Kempton Park, predominantly in the vicinity of OR Tambo International Airport. Special consideration will be given to areas of high noise pollution and design guidelines will be provided in the Framework document.

These issues have been raised during discussions with environmental officials and will be highlighted in the Framework document, where further emphasis and suggestions will be made in terms of development that is sustainable for the environment as well as the residents of higher density developments.
In addition to taking noise zones into account for development purposes, the general policy principles in terms of the environment in the EMM must be considered. These are:

1. Conservation of Natural Resources – the long-term sustainability of natural resources must be taken into account through protection and management of all resources.
2. Environmental Education and Awareness – education and awareness is to be supported in order to ensure that all resources are protected.
3. Infrastructure, Development and Service Delivery
   a. Land Use: Integrated planning approaches must be followed.
b. Human Settlements: The quality of life of all inhabitants must be ensured but not to the detriment of the environment.

c. Service Delivery: Service provision must be conducted in a sustainable, non-harmful manner in terms of the environment.

d. Roads & Storm Water: Road infrastructure and storm water infrastructure is to be provided in such a manner as to reduce any negative impacts of humans and the environment.

e. Economic Development: Environmental sustainability must influence economic competitiveness in the EMM.

4. Reduction & Prevention of Pollution – management and reduction of pollution is to be maintained in the EMM according to National guidelines.

a. Waste Management: Waste Management strategies are to be developed and maintained.

b. Air Quality: Improve, manage and monitor.

c. Noise Control: Avoid, improve, manage and monitor.

d. Water Quality: Improve, manage and monitor.

5. Environmental Governance – Create an effective, appropriately resourced and harmonized institutional framework.

Another major constraint to development in Ekurhuleni is that the Metropolitan area is underlain by dolomite, especially in the eastern, southern and northern areas. The central and western parts of the City are the areas where most development at high densities would be able to occur. However, some of these areas are undermined areas. These two features, dolomite and undermining, are form giving elements of the city and dictate where development can occur safely. These features are shown on the map overleaf as extracted from the EMM Environmental Management Framework of 2007.

It is evident that large sections of the Previously Disadvantaged Areas are settled on these environmentally unsafe areas.

The implications for residential densification or any higher order developments are that it is very unsafe. However, modern building practices do allow for development on such areas, but this is very expensive and would not be viable in lower income areas.
3.7 Current Infrastructure Capacities in Ekurhuleni

3.7.1 Storm Water

The areas listed in the table overleaf have completed Storm Water Master Plans. These Master Plans will be used to assist in determining guidelines for densification. Areas within the Northern Region have existing flood lines with detailed information, which can be used to assist in developing guidelines for densification.

The “Natural Watercourses Information System” was developed in 2002 and was submitted to the City Development Department for interfacing with the EMM GIS. This system will allow the plotting of the natural watercourses and the determination of areas for different levels of densification.

Most of the data for storm water and natural watercourses is relatively old and has not been updated since its original compilation. To address this problem, a proposal/bid for the gathering, compilation and updating of the Storm water Management System (SMS) is currently being compiled, but this may take up to three years. There are however, committed storm water master plan projects in all three regions, which will also be incorporated into the proposed main SMS.

In terms of the Storm Water Master Plan for Tsakane, Langaville and Kwa-Thema, the analysis is based on the current or existing land use developments.

There is service with regard to storm water systems in Ekurhuleni, but some areas that were identified have insufficient existing facilities and upgrading is necessary.

Future proposals were considered on existing developments only, as it is impossible to make proposals for open spaces for which there are no layouts or proposed plans.
### Table 9. Storm Water Master Plans

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Information supplied by Dorothy B Magau Chief Engineer: Land Development & Infrastructure Planning EMM.

#### 3.7.2 Water and Sewer Systems

Consultants appointed by the Water Services Section of the EMM are currently compiling information relating to water. This study will include information on:

- Current capacity of the water and sewer systems.
• Network linkages.
• Proposed major upgrading of the network and master plan that will impact on densities.

**Water**

Rand Water supplies all water in Ekurhuleni through a metered system. Rand Water makes their own estimates for water demand and do not appear to take into account the Spatial Development and other planning of Ekurhuleni Metropolitan Municipality. Currently the existing distribution system assumes a fully developed scenario. Reservoirs are designed to maintain sufficient volumes for an 18-hour emergency capacity. The Water Master Plan indicates that current demand is adequately catered for but upgrading will be required in the medium term in order to maintain desired service level. With regard to water supply for the future, there are major constrains development in the north, north east, the eastern part of the Metro as well as the central and southern part of the Metro. This will necessitate concentrating development in Nodes and along corridors.

**Sewerage**

The situation of sewerage is similar to that of water, in that the system is able to support current development. There are also no major constrains to future development in the south and the southwestern portions around the Katorus complex. This is mainly due to the fact that the main outfall sewer runs through the area. The sewerage system has some spare capacity, which could be used for further densification of the Ekurhuleni Metropolitan Municipality. Care must, however, be taken in ensuring that development is located in planned development areas to facilitate planning and phasing of the required sewer system.

**3.7.3 Roads**

The modeling report of the Traffic Engineering and Transport Planning Infrastructure Services: Roads, Transport and Civil Works indicates that, “The roads at LOS (level of service) E and F (the unacceptable level of service) will be growing from 222 kilometers in 2001 to 491 kilometers in 2010 and between 656 to 842 kilometers in 2025. This poor level of service is mostly found on the major routes, such as the freeways (N3, R21,
R59, etc) and the class 2 network in some cases. In some other cases, the class 3 networks do also experience congestion, but this is more limited. The report also indicates the need for the implementation of a number of K routes in order to address the congestion.” (Mr Marius van Huyssteen, Chief Engineer: Traffic Engineering and Transportation Planning Infrastructure Services; Roads, Transport and Civil Works Ekurhuleni Metropolitan Municipality.)

Network linkage to the PWV and K routes:
It is the opinion of the Chief Engineer of the EMM, that, “The road network can only function optimally if a proper hierarchy of roads is in place. To achieve this, the PWV network (class 1) network should be integrated with the K route network (the class 2 network). Similarly, the class 3, 4 and 5 networks should be integrated and planned in a holistic manner. This implies that linkages to the PWV and K routes are in place for the existing routes and should be prioritized for the planned network as part of the implementation of such roads”.

Road Master Plan
No road master plan is in place. There is however a draft Integrated Transport Plan (ITP). This provides guidance on the class 2 road network required and it also proposes an initial class 3 network. The proposed class 3 network is however tentative and should only be viewed as a departure point for more detailed investigations. The LSDF approach currently adopted by City Development and this density framework will assist in bridging the gap left by the absence of a road master plan.

3.7.4 Electricity
Consultants appointed by the EMM are currently preparing an Electricity Master Plan. Detailed information on the current status of electricity infrastructure in the EMM is not yet available. The current electrical capacity data is being gathered and audited by the appointed consultants and should be verified and completed by February 2008. The Master Plan for electricity in the EMM will be completed by mid 2008.
However, a general overview of the current status can be provided from data of 2005/6. The information, as contained in the MSDF 2005/6, remains relevant in this instance and the map is illustrated overleaf.
The infrastructure in the ‘old CBD’ areas is ageing and requires constant maintenance operations. Some areas require new electrical installations due to the age factor of the current electrical stock. Many regular power outages are occurring and industry is suffering due to these outages. Areas, which are not affected by municipal electricity supply, which fall within Eskom service regions, are usually peripheral areas to the far north and far south of the City.

Due to urban sprawl and development trends in peripheral areas within the Metro, installation of electrical supply stock needs to occur on an ongoing basis. Densification will aid in curbing this expenditure by encouraging infill in established urban areas. However, with current electrical stocking ageing, upgrading and capital expenditure is inevitable in these areas.
The map above illustrates the electrical situation as at 2005/6 regarding upgrading and maintenance of EMM electrical supplies. This will however be realigned as soon as an Electrical Master Plan is finalized for the EMM in 2008.

3.7.5 Public Transport Network

The Public Transport Network in Ekurhuleni is currently being revised under the new ITP for the period from 2006 to 2011. The ITP is currently still in draft form and cannot be released for information purposes. However, the Executive Summary of the document was made available, as this document has been approved by the Portfolio Committee.

The Transportation Vision for the EMM is:

“To develop a safe, reliable, effective and efficient integrated and sustainable transport system, focusing on public transport that will connect people and places in order to promote a smart, creative and developmental city and through this improve the quality of life of all people”

This vision is further supported by five identified goals, namely:

1. Support and grow the local economy through Integrated Transport Planning
2. The appropriate promotion of Corridor Development
3. The promotion of Sustainable Public Transport
4. The enhancement of Modal Integration
5. The protection and enhancement of the Environment

The ITP Executive Summary highlights some of the transport strategies, which are briefly outlined below. These include rail, bus, taxi and road strategies.

a) RAIL
The rail infrastructure in EMM is perceived as the backbone of public transport in the metropolitan area, which connects Ekurhuleni to other major cities. Therefore, great emphasis is placed on enhancing and developing the commuter rail line in the City.
Mode Transfer Facilities at Rail Stations
Various mode transfer facilities are identified at the following rail stations:
- Boksburg
- Daveyton
- Dunswart
- Isando
- Kempton Park
- Rhodesfield
- Springs
- Oakmoor

Priority has been placed on Park and Ride Facilities close to the Kempton Park, Rhodesfield and Brakpan stations. The Rhodesfield station will be converted to one of the Gautrain Stations, as illustrated on the diagram below.

Gautrain Station - Rhodesfield

![Gautrain Station - Rhodesfield](http://www.gautrain.co.za/index.php?pid=456&ct=1&fid=3&click=3)
Priority rail corridors have been identified where existing rails links will be strengthened and a balance is sought in terms of socio-economic and spatial planning objectives and real resource constraints. This strategy aims to ensure that passenger rail is developed and upgraded as speedily as possible.

The diagram below illustrates the current rail network in Ekurhuleni.

![Figure 20. Rail Network in Ekurhuleni](image)

A National Rail Plan has also been developed and, within this plan, four of Ekurhuleni’s rail links have been prioritized. These include Olifantsfontein and Tembisa (Germiston), Daveyton (Germiston), Kwesine and Katlehong (Germiston) and Springs (Daveyton). All of the identified rail links are linked to Germiston, which hosts the largest station in Ekurhuleni. Rail extensions are also identified in the ITP. These include the Daveyton – Etwatwa extension, Angelo – Knights extension, Kwesine – Zonkesizwe extension and the Thembisa loop extension.
These rail extensions and upgradings will have a major impact on densification strategies as commuters will need easy access to public transport which is close to residential areas.

b) BUS

Short and long term objectives have been provided for bus services, which are based on increasing the competitiveness between bus services within the public transport sector. These objectives are listed below.

**Short Term Objectives**

- To determine the strategic role of bus services and the development of a regional public transport policy.
- To prepare proposals for rationalization of existing bus services based on the CPTR (carried out in the upgrading of the Rationalization Plan).
- To apply the ArcPTMIS to capacity building and policy analysis in house, within EMM.

**Long Term Objectives**

- Extending the bus service to provide better coverage in the EMM by lengthening existing routes and promoting transport infrastructure planning as a necessity for developing areas.
- To provide people ultimately with a choice between the minibus-taxi transport mode and an efficient and accessible bus system.

No clear direction or plans have been developed for this transportation mode. It can only be assumed that this service will operate on major routes within the City.

c) TAXI SERVICES

The minibus-taxi industry is seen as one with many issues and problems. This is not only a phenomenon in Ekurhuleni, but also a national problem. Formalization and
regularization of this industry is needed and recognition should be given to this industry as being part of the public transport network. However, until such a time as these issues are addressed nationally, the EMM has derived the following interim objectives for controlling and managing issues around this industry:

- Focus on provision of and management of terminal and rank infrastructure.
- Curbing misuse of taxi permits.
- Improving road safety conditions of minibus taxi operations to improve safety for customers and other road users.

STRATEGIC PUBLIC TRANSPORT NETWORK (SPTN)
The SPTN has identified a total of nine important commuter movement routes in EMM, which operate between the previously disadvantaged areas and economically active areas. These movements are identified as:

- Thokoza – Alberton
- Katlehong – Germiston
- Vosloorus – Boksburg
- Tsakane – Brakpan
- KwaThema – Brakpan
- KwaThema – Springs
- Duduza – Nigel
- Daveyton – Germiston
- Tembisa – Kempton Park

The SPTN is illustrated in the diagram illustrated overleaf, as shown in the ITP Executive Summary.
With regard to the densification strategy, these identified SPTN routes would have to be considered in terms of strategic densification and the most appropriate routes would have to be identified for increasing densities to support public transport in the EMM.

Not only must EMM provide public transport for its residents and frequent visitors, but provision should also be made for visitors to the 2010 World Cup Soccer Tournament. EMM will be seen as the gateway to this event, due to visitors entering Gauteng through OR Tambo International Airport. Due to the expected high numbers of visitors for this event, major road works will be required to upgrade the existing infrastructure. This will include the R21, R24, N12 and other freeway related projects. The illustration of the public transport plan for the Soccer World Cup is illustrated overleaf.
MAP 7

Public transport for SWC2010

- Category A rail corridors
- Proposed HCV lanes

Expo sites
Possible practice venues
Park-and-ride facilities
Mode transfer facilities

Public viewing sites

MAKHULONG

Esselen Park

Oakmoor
Kaatfortein

HUNTERSFIELD

Karlshoring

YO.SLOORUS

SINABA

STRATEGIC MAJOR ROAD NETWORK
EKURHULENI CTPX PLANNING

Legend:
- New Roads
- Existing Roads
- Proposed Public Private Partnerships
- Existing Infrastructure
- Public Transport
- Rail
- Air
- Proposed Rail
- Existing Rail
- Proposed Pedestrian
- Existing Pedestrian
- Existing Bicycle
- Proposed Bicycle
- Existing Bicycle
- Proposed Public Transport
- Existing Public Transport
- Proposed Public Transport
- Existing Public Transport

SCALE: 1:20000
PLAN NO: 2006
DATE: May 2006
3.7.6 EMM Social Services

The illustrations in this section show the positions of the current known social and services infrastructure in the EMM. The maps illustrate the following social services:

- EMM Metropolitan Police Precinct Offices
- EMM Schools
- EMM Railway Stations
- EMM Clinics
- EMM Private Ambulance Services
- EMM South African Police Services Stations
- EMM Libraries
- EMM Fire Stations
- EMM Civic Centres
- EMM Cemeteries
- EMM Licensing Services
- EMM Solid Waste Disposal
- EMM Landfill Sites

In many instances, the provision of social service facilities seems adequate in the greater context. In terms of geographic location, social facilities seem adequately spread across the EMM, but although these facilities seem ‘geographically’ well located in theory, this is not always the case in reality. Many facilities, especially schools and clinics, are not well located in terms of the population distribution. It has been found in previous studies (MSDF 2005/6 and also other cities) that some schools and clinics are located in areas which are not densely populated and, for this reason, they are underutilized. In other cases, such facilities are located in densely populated areas but they have limited capacity and become overcrowded. A mismatch has occurred between general development, especially residential development, and the provision of social services.

Densification should ideally occur around areas where social facilities and amenities exist, but in many cases, development has occurred at a much faster pace than social service delivery and, as a result, residents in certain areas do not benefit from social
service delivery. Areas mostly affected by these situations are previously disadvantaged areas and informal settlement areas.

In order to remedy such situations and for appropriate developments to occur, integrated and sustainable planning is required and clear guidelines must be provided. Recommendations will be provided in the Densification Framework Document, as densification has to be aligned with other social developments.

The final map in this section gives an overview of the concentration of public services in the EMM as a point of reference for the development of guidelines, as discussed above.
PRIVATE AMBULANCE SERVICES
NATIONAL ROADS
SUBURBS
LSDF AREAS
Fire Stations

MAP 14

FIRE STATIONS
NATIONAL ROADS
SUBURBS
LSDF AREAS

Settlement Planning & Dludla Development cc. (T) 011 467 0040 (F) 011 467 0090 e-mail: setplan@icon.co.za
EMM DENSIFICATION FRAMEWORK: Status Quo Analysis & Findings Document
JANUARY 2008
Civic Centres

MAP 15

CIVIC CENTRES
NATIONAL ROADS
SUBURBS
LSDF AREAS
Landfill Sites

MAP 18

LANDFILL SITES
NATIONAL ROADS
SUBURBS
LSDF AREAS
3.8 EMM Socio-Economic Analysis

Ekurhuleni Metropolitan Municipality has a population of 2 528 303 people at an average population density of approximately 1 313 people per square kilometer (SACN, 2007).

The Ekurhuleni Development Guideline states that approximately 30% of the total population of the Metropolitan area lives in poverty and approximately 40% is unemployed. It is stated that the majority of this grouping lives in peripheral areas of the City and opportunities are limited. There is also a great backlog in terms of housing with approximately 134 000 informal dwellings in informal settlement areas and 36 000 backyard shacks. These are primarily in the recognised Previously Disadvantaged Areas (PDAs). These areas house the majority of the population of the EMM, which is estimated to be approximately 65% (1 643 396 people). This is illustrated in the table below.

Table 10. PDA Population %

<table>
<thead>
<tr>
<th>Previously Disadvantaged Area</th>
<th>EMM Population %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tembisa</td>
<td>14%</td>
</tr>
<tr>
<td>Katorus Complex</td>
<td>24%</td>
</tr>
<tr>
<td>Kwatsaduza Complex</td>
<td>14%</td>
</tr>
<tr>
<td>Daveyton/Etwtwa</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>± 65%</td>
</tr>
</tbody>
</table>

Approximately 52% of Ekurhuleni’s population is economically active and approximately 29% of the population is living in poverty. The largest proportion of those living in poverty resides in the PDA areas within the Metropolitan Area.

The EMM Research and Development Directorate has undertaken a basic socio-economic analysis in terms of household sizes and individual income levels. The figures provided by this Department were for suburbs within the respective CCCs within Ekurhuleni. For the purposes of this report, the suburbs have been combined into the various CCC groupings to form functional areas, as has been described in this report (Section 3.2). It must be noted that the information provided is based on the 2001
National Census Data and no updated information is available from later surveys conducted. No information was provided on Germiston CCC. The tables overleaf illustrate the data extracted.
Table 11. Average Income Level Per Individual in each Customer Care Centre Area

<table>
<thead>
<tr>
<th>Income Level/Individual</th>
<th>Kempton Park</th>
<th>Springs</th>
<th>Germiston</th>
<th>Alberton</th>
<th>Boksburg</th>
<th>Edenvale</th>
<th>Nigel</th>
<th>Brakpan</th>
<th>Benoni</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO INCOME</td>
<td>87 1%</td>
<td>170 3%</td>
<td>0 0</td>
<td>75 2%</td>
<td>29 2%</td>
<td>103 1.7%</td>
<td>42 2%</td>
<td>6 6%</td>
<td>104 6%</td>
</tr>
<tr>
<td>R1 – R400</td>
<td>550 8%</td>
<td>660 10%</td>
<td>0 0</td>
<td>306 9%</td>
<td>81 4%</td>
<td>99 5.5%</td>
<td>130 6%</td>
<td>15 15%</td>
<td>178 10%</td>
</tr>
<tr>
<td>R401 – R800</td>
<td>1250 19%</td>
<td>1162 17%</td>
<td>0 0</td>
<td>491 15%</td>
<td>112 6%</td>
<td>490 8%</td>
<td>216 11%</td>
<td>26 26%</td>
<td>301 18%</td>
</tr>
<tr>
<td>R801 – R1 600</td>
<td>2196 33%</td>
<td>2425 36%</td>
<td>0 0</td>
<td>1156 35%</td>
<td>245 14%</td>
<td>934 15%</td>
<td>543 27%</td>
<td>26 26%</td>
<td>390 23%</td>
</tr>
<tr>
<td>R1 601 – R3 200</td>
<td>1026 15%</td>
<td>1570 23%</td>
<td>0 0</td>
<td>808 24%</td>
<td>579 32%</td>
<td>653 11%</td>
<td>660 33%</td>
<td>21 21%</td>
<td>196 11%</td>
</tr>
<tr>
<td>R3 201 – R6 400</td>
<td>711 11%</td>
<td>553 8%</td>
<td>0 0</td>
<td>242 7%</td>
<td>558 31%</td>
<td>1017 16%</td>
<td>341 17%</td>
<td>5 5%</td>
<td>150 9%</td>
</tr>
<tr>
<td>R6 401 – R12 800</td>
<td>546 8%</td>
<td>189 3%</td>
<td>0 0</td>
<td>114 3%</td>
<td>166 9%</td>
<td>1159 19%</td>
<td>66 3%</td>
<td>0 0</td>
<td>149 9%</td>
</tr>
<tr>
<td>R12 801 – R25 600</td>
<td>249 4%</td>
<td>53 1%</td>
<td>0 0</td>
<td>75 2%</td>
<td>16 0.9%</td>
<td>932 15%</td>
<td>9 0.4%</td>
<td>0 0</td>
<td>128 7%</td>
</tr>
<tr>
<td>R25 601 – R51 200</td>
<td>78 1%</td>
<td>10 0.1%</td>
<td>0 0</td>
<td>19 0.6%</td>
<td>4 0.2%</td>
<td>527 9%</td>
<td>3 0.1%</td>
<td>0 0</td>
<td>80 5%</td>
</tr>
<tr>
<td>R51 201 – R102 400</td>
<td>22 0.3%</td>
<td>0 0%</td>
<td>0 0</td>
<td>17 0.5%</td>
<td>0 0%</td>
<td>153 2%</td>
<td>0 0%</td>
<td>0 0%</td>
<td>16 0.9%</td>
</tr>
<tr>
<td>R102 401 – R204 800</td>
<td>13 0.2%</td>
<td>6 0.1%</td>
<td>0 0</td>
<td>3 0.1%</td>
<td>0 0%</td>
<td>68 1%</td>
<td>0 0%</td>
<td>0 0%</td>
<td>6 0.4%</td>
</tr>
<tr>
<td>R204 801 +</td>
<td>6 0.1%</td>
<td>0 0%</td>
<td>0 0</td>
<td>3 0.1%</td>
<td>0 0%</td>
<td>48 0.8%</td>
<td>0 0%</td>
<td>0 0%</td>
<td>11 0.6%</td>
</tr>
<tr>
<td>TOTAL SURVEYED</td>
<td>6734 100%</td>
<td>6798 100%</td>
<td>0 0</td>
<td>3309 100%</td>
<td>1790 100%</td>
<td>6183 100%</td>
<td>2010 100%</td>
<td>99 100%</td>
<td>1709 100%</td>
</tr>
</tbody>
</table>
Table 12. Households per Dwelling Type in each Customer Care Centre Area

<table>
<thead>
<tr>
<th>Households per Dwelling Type</th>
<th>Kempton Park</th>
<th>Springs</th>
<th>Germiston</th>
<th>Alberton</th>
<th>Boksburg</th>
<th>Edenvale</th>
<th>Nigel</th>
<th>Brakpan</th>
<th>Benoni</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single House/Brick Structure</td>
<td>1289 (17%)</td>
<td>2162 (34%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>840 (26%)</td>
<td>1374 (93%)</td>
<td>2585 (58%)</td>
<td>68 (31%)</td>
<td>43 (72%)</td>
</tr>
<tr>
<td>Traditional Structure</td>
<td>226 (3%)</td>
<td>127 (2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>15 (0.5%)</td>
<td>16 (1%)</td>
<td>17 (0.4%)</td>
<td>11 (5%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Flats/Apartments</td>
<td>20 (0.2%)</td>
<td>92 (1.5%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>643 (20%)</td>
<td>0 (0%)</td>
<td>466 (10%)</td>
<td>8 (4%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Town/Cluster/Semi-Detached Unit</td>
<td>118 (1.6%)</td>
<td>35 (0.5%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>40 (1%)</td>
<td>4 (0.3%)</td>
<td>733 (16%)</td>
<td>9 (4%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Backyard House/Flat/Room</td>
<td>28 (0.3%)</td>
<td>227 (3.6%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>310 (10%)</td>
<td>17 (1%)</td>
<td>540 (12%)</td>
<td>64 (29%)</td>
<td>3 (5%)</td>
</tr>
<tr>
<td>Informal Dwelling</td>
<td>79 (1%)</td>
<td>1636 (26%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>993 (31%)</td>
<td>20 (1.3%)</td>
<td>30 (0.7%)</td>
<td>24 (11%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Informal Dwelling not in Backyard</td>
<td>41 (0.6%)</td>
<td>2030 (32%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>324 (10%)</td>
<td>32 (2%)</td>
<td>13 (0.3%)</td>
<td>19 (9%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Room/Flatlet on Shared Property</td>
<td>5550 (75%)</td>
<td>13 (0.2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>57 (1.8%)</td>
<td>21 (1.4%)</td>
<td>64 (1.4%)</td>
<td>15 (7%)</td>
<td>14 (23%)</td>
</tr>
<tr>
<td>Caravan/Tent</td>
<td>31 (0.4%)</td>
<td>16 (0.3%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>4 (0.1%)</td>
<td>0 (0%)</td>
<td>4 (0.1%)</td>
<td>3 (1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Private Ship/Boat</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td><strong>TOTAL SURVEYED</strong></td>
<td>7382 (100%)</td>
<td>6338 (100%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>3226 (100%)</td>
<td>1484 (100%)</td>
<td>4452 (100%)</td>
<td>221 (100%)</td>
<td>60 (100%)</td>
</tr>
</tbody>
</table>

Table 13. Total Number of Households in Ekurhuleni in relation to Dwelling Types

<table>
<thead>
<tr>
<th>Formal Dwelling</th>
<th>Informal Dwelling</th>
<th>Traditional Dwelling</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>521 385</td>
<td>213 087</td>
<td>8 046</td>
<td>2 397</td>
<td>744 915</td>
</tr>
</tbody>
</table>
### Table 14. Average Number of Persons per Household in each Customer Care Centre Area

<table>
<thead>
<tr>
<th>Persons per Household</th>
<th>Customer Care Centre</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kempton Park</td>
<td>Springs</td>
</tr>
<tr>
<td>1</td>
<td>2009 27%</td>
<td>1812</td>
</tr>
<tr>
<td>2</td>
<td>1902 26%</td>
<td>1769</td>
</tr>
<tr>
<td>3</td>
<td>1445 19%</td>
<td>1416</td>
</tr>
<tr>
<td>4</td>
<td>1002 13%</td>
<td>1251</td>
</tr>
<tr>
<td>5</td>
<td>553 7%</td>
<td>850</td>
</tr>
<tr>
<td>6</td>
<td>266 4%</td>
<td>538</td>
</tr>
<tr>
<td>7</td>
<td>139 2%</td>
<td>295</td>
</tr>
<tr>
<td>8</td>
<td>73 1%</td>
<td>174</td>
</tr>
<tr>
<td>9</td>
<td>18 0.2%</td>
<td>103</td>
</tr>
<tr>
<td>10+</td>
<td>20 0.3%</td>
<td>177</td>
</tr>
<tr>
<td><strong>TOTAL SURVEYED</strong></td>
<td><strong>7427 100%</strong></td>
<td><strong>8385</strong></td>
</tr>
</tbody>
</table>
It is shown in the data provided, that the following issues need to be considered in terms of densification in relation to the socio-economic situation in the Metropolitan area:

- The largest proportion of the population resides in the Previously Disadvantaged Areas, which place them far from opportunities.
- The largest proportion of the population living in poverty resides in the Previously Disadvantaged Areas.
- Approximately 29% of the number of households recorded in Ekurhuleni resides in informal dwelling units.
- Most CCC areas recorded that the largest percentage of household sizes was not more than one person per household, with the exceptions of Boksburg, Nigel and Benoni.
- The largest percentage of households in Ekurhuleni resides in formal or brick structure dwelling units.

In terms of these figures and the socio-economic situation in Ekurhuleni, it is evident that densification must take into account the entire spectrum of income groups, especially the lower income levels, and it must also take into account where the majority of the population resides, to ensure that densification occurs strategically to provide as many opportunities as possible, in terms of economic activity and social services.
3.8 Development Contributions

Until recently, no consistency existed in the EMM area in the application of Development Contributions. This was largely due to the amalgamation of the previous 9 Local Authorities. This situation is now being addressed through the establishment of a Services Contribution Policy. The Executive Report of this Policy is reproduced below:

**EKURHULENI METROPOLITAN MUNICIPALITY**
**DEVELOPMENT OF AN INTERIM POLICY FOR SERVICES**
**CONTRIBUTIONS FOR WATER, WASTEWATER AND ELECTRICITY**

**EXECUTIVE SUMMARY**

In terms of Sections 120 and 121 of the Town Planning and Townships Ordinance, 1986 local authorities are entitled to levy contributions for external services and pay contributions for internal services where land uses are amended.

However, prior to the inception of Ekurhuleni Metropolitan Municipality during December 2002, the nine Service Delivery Centres each applied their own policy in case of land use changes. Even to date different policies are applied in the various SDC’s. In some cases no formal policies exist and every application must be referred to Council to determine the contributions.

This situation is intolerable as entrepreneurs are in no position to establish whether a development will be feasible, or not, because the developer is not sure what the quantum of his contributions to Council would be.

In some cases the same developer is developing in more than one SDC and misunderstandings may lead to financial losses.

To eliminate confusion it is of utmost importance that a uniform policy be laid down for Ekurhuleni as a whole.

To this end, the different policies applied in the nine SDC’s were obtained and studied.

In the case of Alberton, Benoni and Germiston bulk contributions are levied for water services and electricity. Alberton and Benoni also levy a bulk contribution for wastewater. The remaining six SDC’s do not levy bulk contributions at all.

Benoni, Boksburg and Germiston are also contributing toward the cost of internal services.

Comparisons are made in this report of the cost payable by the developer for an identical township should it be developed in the various SDC’s. From the analysis it is clear that currently the cost to the developer for residential development was the lowest in Benoni and the highest in Alberton. For non-residential development, Boksburg and Kempton Park are the lowest and Edenvale the highest.

It is recommended that in future the Council be responsible for the cost of the external services and the developer for the cost of the internal services. In the case of electricity the developers will make a contribution towards bulk services but such contribution will be refunded as soon as the development has progressed adequately. This policy will have the following advantages:

It will:

- Be simple to understand and implement.
- Decrease the cost of administration for the Council.
- Streamline the process of land use changes.
- Be transparent to the developer and eliminate confusion.
- Make it easier for staff to be moved between the SDC’s.
- Stimulate development and hopefully job creation.

It is recommended that the abovementioned policy be implemented as soon as possible.
Comparisons are made in this report of the costs payable by developers for an identical township, developed in the various SDCs. From the analysis, it is clear that currently, the cost to the developer for residential development is lowest in Benoni and highest in Alberton. For non-residential developments, Boksburg and Kempton Park are the lowest and Edenvale is the highest.

It is recommended that, in future, the Council be responsible for the cost of the external services and the developer be responsible for the cost of the internal services. In the case of electricity, the developers will make a contribution towards bulk services, but such a contribution will be refunded as soon as the development has progressed adequately. This policy will have the following advantages:

It will:
- Be simple to understand and implement.
- Decrease the cost of administration for the Council.
- Streamline the process of land use changes.
- Be transparent to the developer and eliminate confusion.
- Make it easier for staff to be moved between the SDCs.
- Stimulate development and job creation.

3.9 Key Density Issues in Ekurhuleni
This Status Quo Report has highlighted a range of “Key Issues” that must be taken into account in developing a Density Framework. These are summarized in below (not in order of priority):
- A “mind-set shift” is required to accept higher density living.
- The “Compact City” approach provides right framework.
- “Urban sprawl” creates unsustainable cities.
- Mixed-use living is not widely experienced as a result of the historic separation of uses.
- Environmental and general resource protection is necessary through densification.
- Social development and efficiency of facilities and amenities can be achieved through densification.
• Household and living costs can be reduced through densification.
• Densification facilitates a wide range of tenure options (rental, installment sale etc).
• There are different approaches / solutions to densification issues around the world.
• Access to transport and other facilities, amenities and opportunities is critical in higher density areas.
• Densification planning must be linked to infrastructure planning and financing.
• Densification must be linked to social justice and equity (integration, access to housing, services and opportunities etc.).
• Densification is a mechanism for strategic rationalizing of city structure.
• Higher densities require higher level of architectural and urban design.
• Uncontrolled over densification could lead to ‘social ills’ if not planned, implemented or managed correctly.
• There is national, provincial and local policy support for densification (DFA, Urban dev Framework, Land Use Management Bill, Gauteng Planning and Development Act, EMM Growth and development Strategy etc).
• Opportunities exist for private sector drivers through partnerships and “rewards”.
• Densification can be used as a strategic planning tool (nodes, corridors, infill, development boundaries etc.).
• There are no clear case studies to work from or learn lessons from.
• Current density trends provide opportunity for further densification.
• Density framework recommendations provide guidelines for LSDFs.
• Scheme clauses in Land Use Management Schemes need to be amended to consistently address density across the EMM.
• Higher densities have disadvantages for extended family living.
• Higher densities have disadvantages for children and pets.
• Geotechnical issues, environmentally sensitive areas, heritage and other constraints must be addressed in the densification framework.
• Dolomite and undermining will impact on suitable densification and control measures.
• Phasing and financing of infrastructure must be linked to the density framework.
• Densification and public transport must be integrated and co-ordinated and
cognizance must be taken of the Gautrain in EMM and the rail system.
• The current EMM city structure must be recognised in terms of the Previously
Disadvantaged Areas and possible densification.

4. FINDINGS & CONCLUSIONS
Densification is a strategic planning concept in the sense that it drives development and
supports development within other development paradigms, such as economic and
transport development. Densification is influenced by many factors such as:
• Political views and wills
• Population densities
• Economies of cities and countries
• Environmental agendas
• Social issues
• Urban sustainability practices
• Strategic visions and investments
• Geological conditions

Density is applied and measured in various ways across the world. The most common
way of measuring densities is Residential density, i.e. unit units per hectare.

The type of environment created though densification can become a contested issue
and should not be separated from urban design. Perceptions of high-density Residential
developments are usually negative in nature, with the common belief that high densities
create poor, unsafe living environments. It is also generally perceived that high densities
are only aimed at the lower income groups, which is not always the case. Appropriate
urban design guidelines can minimize these perceptions and can create quality living
environments.

South Africa is promoting densification through its policies and legislation. However, it
has not yet proven successful. Densification is generally achievable over extended
periods of time. It is only in recent years that South Africa has begun to promote
densification in and strive for sustainable urban environments.
Increased density and the mixing of land uses is not easy to implement, but can be achieved with the correct approach, strategies and political will.

Depending on the nature of housing and other development proposals, the population of the study area is expected to increase dramatically in the near future. The overall population statistics for Ekurhuleni indicate that the average occupancy ratio for low-income areas is eight people per house, with the exception of the hostels and informal settlements, which have a different but underdetermined occupancy ratio. It is also indicated that current informal structures in the study area will mostly be formalized, either by moving residents to designated development areas or by formalizing the stands in their current locations. Housing is more adequate in the formal areas of the study area.
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23. JSA Associates & Urban Design Branch of the City of Cape Town (2005), Settlement Typology Study


30. The London Plan, 2004


ANNEXURE A
SPATIAL DEVELOPMENT FRAMEWORK (SDF) 2007/08

CITY OF JOHANNESBURG
JUNE 2007
(REVIEW OF THE APPROVED 2006/07 SDF)
4.3 Strategic Densification

As a counter to increased urban sprawl on the periphery of the City’s established areas and with a view to accommodating demand in close proximity to existing economic opportunities and infrastructure, densification of strategic areas (in and round nodes, along mobility and transportation routes) is seen as a key re-structuring strategy.

Relationship to the GDS

i. Development Paradigms

Active densification of strategic locations within the City will actively support the following GDS development paradigms:

- Balanced and shared growth
- Facilitated social mobility
- Settlement restructuring
The Densification strategy addresses the following sector plans and associated long-term strategic interventions and indicative 5-year strategic objectives:

<table>
<thead>
<tr>
<th>SECTOR PLAN</th>
<th>LONG TERM STRATEGIC INTERVENTIONS</th>
<th>INDICATIVE 5-YEAR STRATEGIC OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spatial Form and Urban Management</td>
<td>Establish a clear structure of nodes, well integrated with movement systems, with an emphasis on new economic nodes in disadvantaged areas and mixed use, mixed income nodes in other parts of the city</td>
<td>Enhancement of the intensity of existing well-functioning nodes and transformation of declining nodes to enable mixed-use mixed-income high density development</td>
</tr>
<tr>
<td></td>
<td>Promote densification in strategic locations, in accordance with clear principles and criteria, as defined in the Spatial Development Framework and Regional Spatial Development Frameworks</td>
<td>Increase in densities in nodes and along public transportation routes in support of defined spatial structure</td>
</tr>
<tr>
<td></td>
<td>Within a clear structure for movement and accessibility, ensuring that movement systems in the city directly link with, and are supported by, strong high-intensity, mixed-use nodes and higher residential densities</td>
<td>Corridors and mobility routes planned, developed and managed in the way that supports the overall development framework of high intensity nodes on a lattice of connecting routes</td>
</tr>
<tr>
<td></td>
<td>Encourage and enforce a compact urban form through a range of mechanisms</td>
<td>Minimised demand for investment and services on the urban periphery</td>
</tr>
<tr>
<td></td>
<td>Within all new housing developments ensure that the minimal Sustainable Housing Settlements (SHS) thresholds are adhered to and implemented.</td>
<td>Optimal utilisation of investment within the urban core (land, infrastructure and capital expenditure)</td>
</tr>
<tr>
<td>Housing</td>
<td>Develop principles, frameworks, and practices to ensure that spaces and specific developments adhere to good standards of urban design</td>
<td>Design and implement codes to create safer communities, legibility, functionality and aesthetics of the urban environment</td>
</tr>
<tr>
<td></td>
<td>Ensure that residents in the inner city and older locations are able to enjoy acceptable standards of accommodation (better-buildings programmes, targeted partnerships for upgrade, by-law enforcement etc)</td>
<td>Structure partnerships with stakeholders to promote inner city and older centres residential accommodation programme</td>
</tr>
<tr>
<td></td>
<td>Ensure the provision, of affordable home-ownership and rental accommodation at scale, addressing the needs of a range of housing segments, with a special focus on the needs of poorer residents not currently catered for</td>
<td>Through both the City's own means, and in partnership with other actors and stakeholders, deliver 100,000 well-located and good quality housing units over the next five years, which includes the delivery of 15,000 rental housing units, 30,000 housing units through the Community Builder Programme and 50,000 mixed income housing units</td>
</tr>
<tr>
<td>Transportation</td>
<td>Support the underlying logic of a compact, multi-nodal city form, with well-integrated land-use and transport systems, in particular by providing a legible public transport 'grid' of focused high-frequency public transport routes connecting key high-density nodes</td>
<td>N/S, NASREC and Ellis Park flagship components of the SPTN completed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reduced average public transport travel times on selected SPTN routes as measured by a five-yearly survey</td>
</tr>
</tbody>
</table>

Section 4: Development Strategies
The promotion of residential densification in strategic locations will contribute towards a more compact and concentrated urban form.

Strategic densification contributes towards the following outcomes:

- Increasing the viability of existing and proposed public transportation infrastructure and services;
- Optimising the use of land and provides accommodation in close proximity to urban opportunities;
- Phased, cost effective and efficient infrastructure provision;
- Improving citizens’ quality of life via access to opportunities and reduction in travel time;
- Reduction in pressure for development on open spaces and environmentally sensitive areas; and
- Reduction of air, water and land pollution.

However, the City also acknowledges that the following issues need to be considered when addressing increased densities:

- Higher-density living environments require appropriate design (and guidelines).
- Residents have diverse requirements and need areas of both low and high densities.
- Significant public expenditure is needed for the development of an integrated movement system, including a reliable and efficient public transport system. There is a limited capital fund within the public sector in the short term to either carry the cost of actual developments, or to provide infrastructure across the City in support of densification.
- The market is largely demand driven and profit oriented. This means that the areas of densification and the rate of development in support of densification are dependent on market demand, capital availability and profit. The intention is to channel market supply into strategic areas.
- It is increasingly difficult to find well-located land for housing for subsidised housing initiatives.
- Higher densities may result in concentrations of air and noise pollution.
- Infrastructure capacities will have to be assessed in terms of their ability to accommodate higher densities.
- Heritage sites / buildings to be taken into consideration during the assessment of the density proposal and protected where possible.

Consequently, densification within the City is promoted:

- In and around acknowledged and defined nodal boundaries – as per SDF classification;
- Along transport routes, notably the Pilot BRT/SPTN routes, Mobility Spines and Mobility Roads in support of public transport;
- Within areas of focused public-sector investments (e.g. Kliptown, Alexandra); and
- In selected areas of strong private sector investment and economic activity as highlighted in the RSDFs.

There are three aspects, as shown in Table 4.7, to consider in assessing a densification proposal within the City:
### Table 4.7: Density Assessment

<table>
<thead>
<tr>
<th>Where will increased density be considered?</th>
<th>The following is important when assessing where in the City increased densities will be considered:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• What do the local planning directives indicate? The RSDFs indicate more specific densities where relevant and will note if there is an over-riding Precinct Plan or Development Framework that stipulates a particular density.</td>
</tr>
<tr>
<td></td>
<td>• Is the area / site a heritage resource of the City that requires preservation / protection.</td>
</tr>
<tr>
<td></td>
<td>• Is there sufficient capacity of existing infrastructure? In all instances, increased densities must not negatively impact on the capacity of existing public infrastructure including bulk services, streets, stormwater management, open spaces and social and community services.</td>
</tr>
<tr>
<td></td>
<td>• How is access going to be addressed? The mobility function of the Road Network must be protected and enhanced where possible. Access onto the BRT/SPTN, Mobility Spines and Roads will not be permitted without the consent of Council. Where possible erven should be consolidated with a single access or facilitate access through a common right-of-way servitude or side / back roads (examples conceptually indicated on Diagram 4.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What density will be considered (Locational Factors / Density Guidelines)?</th>
<th>Locational factors determine desired densities. These are considered later in this section.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The ultimate determination of the density is dependant on a combination of the locational attributes and site specific characteristics including:</td>
</tr>
<tr>
<td></td>
<td>• Critical assessment of adjacent properties (height, orientation, privacy)</td>
</tr>
<tr>
<td></td>
<td>• Natural features on and around the site</td>
</tr>
<tr>
<td></td>
<td>• Topography (i.e. slope of site and contours)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What will be utilised to regulate the appropriateness of the density (Management Controls)?</th>
<th>Development management controls and Urban Design principles will regulate and enhance development proposals. Development Management controls such as Floor Area Ratio (FAR), Coverage, parking ratios, height etc. and general conditions must mitigate constraints and issues identified from the assessment of site-specific characteristics. This is considered in greater detail later in the section.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Table 4.11</strong> considers a range of density design guidelines that are applicable to density proposals.</td>
</tr>
</tbody>
</table>

Section 4: Development Strategies
4.3.1 Locational Factors / Density Guidelines

The City has introduced a Gross Base Density of 10 units per hectare to guide future residential developments. In an instance where an RSDF stipulates a density of less than the Gross Density, the lower RSDF density will prevail.

Beyond the citywide base density, locational factors may indicate a greater desired Density figure. These factors may include the proximity of a site or area to one or more of the following:

- Nodes: CBD, Metropolitan, Regional and District nodes
- Transportation routes: SPTN, Mobility Spines and Roads, Activity Streets, Rail Stations
- Subsidised housing initiatives

Special cases outside of these locational factors may be considered where there is a demonstrable and acknowledged\(^1\) direct and positive impact on the desired urban form.

**NB:** Increased densities must be motivated on these locational factors and development principles.

A spatial representation of these locational factors is represented in Map 9 at the conclusion of this section.

4.3.1.1 Densification Motivated In and Around Nodes

The City’s nodes have the greatest potential for the creation of sustainable patterns of development. In order to maximise nodal growth and to benefit from nodal characteristics of mixed use and public transportation orientated there should, in-principle, be no upper limit on the number of dwellings that may be provided in any node.

This in-principle support is subject to the following safeguards:

- Compliance with existing policies / development plans;
- Avoidance of undue adverse impact on the amenities of the surrounding area;
- Appropriate urban design parameters; and
- Capacity of services and infrastructure.

Potential benefits of densification in the City’s nodes should include:

- Assisting urban regeneration initiatives;
- Increasing the optimal use of existing infrastructure;
- Supporting local services and employment;
- Encouraging affordable housing provision; and
- Sustaining alternative modes of travel, such as walking, cycling and public transport.

Proposals within and around nodes must be supported by a motivation demonstrating a tangible and positive contribution to the respective node and must be inclusive of the following aspects:

1) Acknowledgment of any existing and officially adopted Precinct Plan / Development Framework and/or specific guidelines within the RSDF Sub-Area Intervention Tables. These will prevail over the Desired Units per hectare as envisaged in Table 4.9.

2) Integrated Site Assessment inclusive of:

- Critical assessment of adjacent properties (height, orientation, privacy)
- Natural features on and around the site
- Topography (i.e. slope of site and contours)
- Existing and proposed public transport infrastructure
- Vehicular access control measures (how is access going to be facilitated – have opportunities to consolidate access points been considered?)

---

\(^1\) In this section ‘Acknowledged’ refers to an instance where both the applicant and Council are in agreement.
The following conditions may be applied as part of an approval for a density increase in terms of the Nodal Density Guidelines listed in Table 4.9 (in addition to standard conditions applicable in terms of the relevant Town Planning Scheme for an area):

- A minimum street building line of 2 metres is required
- All parking is to be provided within the erf boundaries
- Parking areas shall be screened from the street boundary by at least a 1.5 metre wide landscaped area and a pedestrian walkway of at least 1.5 metres wide.
- At least 10% of the property is to be landscaped
- 1 tree per 7.5 metres along property street frontages
- Visually permeable materials are to be used along property street frontages (i.e. palisade fencing)
- Pedestrian access is to be independent from vehicular access
- Pedestrian access is to be situated at the closest point on the property to public transportation facilities

### Table 4.8: Nodal Density Guidelines

<table>
<thead>
<tr>
<th>LOCATION PARAMETERS – Erven / farm portions…</th>
<th>DESIRED UNITS PER HA (Max. no. Indicated - NOT CUMULATIVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within defined Nodal Boundary (CBD / Metropolitan / Regional)</td>
<td>No upper limit defined - to be determined per development proposal (e.g. where infrastructure, access and design allows 100+ du per ha could be supported)</td>
</tr>
<tr>
<td>Contiguous to a defined Nodal Boundary (CBD / Metropolitan / Regional)</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 40-80 du per ha could be supported</td>
</tr>
<tr>
<td>Within 500m of the CBD or Metropolitan Nodal Boundary*</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 20-50 du per ha could be supported</td>
</tr>
<tr>
<td>Within 500m** of a defined Regional Nodal Boundary</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 15-30 du per ha could be supported</td>
</tr>
<tr>
<td>Within District Node*</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 20-30 du per ha could be supported</td>
</tr>
</tbody>
</table>

* As per SDF / RSDF alignment
** With discretion, distance may be extended where there is a demonstrable and acknowledged, direct relationship to a recognised node

Priority Nodes within an ‘Investment Footprint’

The following existing and planned public-sector initiatives provide unique opportunities to increase densities and complement the respective initiatives:

- Gautrain stations (investment of +/-R20bn for whole project);
- Bus Rapid Transit System (BRT)/Strategic Public Transportation Network (SPTN); and the
- 2010 World Cup (infrastructure investment of R3.2bn)

These three initiatives are and will continue to realise unparalleled levels of investment within the City over a relatively short-term and can loosely be described as an ‘Investment Footprint’. The permanent legacy of investment in physical infrastructure provides a golden opportunity to realise additional benefits and opportunities to a greater number of citizens through densification initiatives. This can make a tangible contribution towards the founding SDF principle of facilitating access to urban opportunities within the City.

Section 4: Development Strategies
The nodes that fall within this ‘Investment Footprint’ include:

- Kliptown
- NASREC
- Johannesburg CBD (including Greater Ellis Park)
- Parktown
- Rosebank
- Sandton
- Illovo
- Midrand
- Lenasia

The City will actively support higher density residential development proposals within and around these nodes. The MOEs continue to assess a range of density scenarios per node and the impact these would have on existing and planned infrastructure provision. Where upgrading to support these proposals is required, the City is prepared to invest to realise the best possible urban redevelopment within these strategic nodes.
Diagram 4.1: Conceptual Plan and Elevation of Nodal Density Guidelines

Section 4: Development Strategies
4.3.1.2 Densification Motivated on Mobility and Public Transportation Routes / Infrastructure

The primary rationale for increasing residential densities along movement lines is to increase the accessibility of public transportation to a broader market and to increase this market's contribution towards a cost effective and citywide public transport network.

It is acknowledged that densities across the whole City do not presently support an effective and sustainable citywide public transport system. Densification along the primary public transport routes such as the BRT will assist in these short-term Phase 1 routes such as the Lenasia-Regina Mundi-Parktown-Sunninghill and the medium-long term interventions of the broader +300km network.

It is further acknowledged that to promote increased residential densities along these movement lines whilst protecting the inherent mobility function of the routes is a delicate issue. This issue is compounded further when the public transport network is undeveloped in many parts of the City and medium-long term plans will take time to implement. To protect the mobility function of the road infrastructure, density proposals must be supported by a motivation demonstrating a tangible and positive contribution to the respective mobility route and/or public transport and must be inclusive of the following aspects:

1) Acknowledgment of any existing and officially adopted Precinct Plan / Development Framework and/or specific guideline within the RSDF Sub-Area Intervention Tables. These will prevail over the Desired Units per hectare as envisaged in Table 4.9.

2) Nature of the locational attribute leading to the densification motivation (e.g. BRT Pilot, Mobility Spine / Road, Existing Rail Station)

3) Objective assessment of proposal’s impact on:
   - Existing and proposed Public transport infrastructure
   - Vehicular access control measures (how will access going to be facilitated and the mobility function of a road retained – have opportunities to consolidate access points been considered?) – as indicated in Diagram 4.3
   - Pedestrian access (how will pedestrians access the site and specific attributes e.g. designated bus / taxi stops thereby, maximising the opportunities afforded by existing or proposed public transport routes)

4) Integrated Site Assessment inclusive of:
   - Critical assessment of adjacent properties (height, orientation, privacy)
   - Natural features on and around the site
   - Topography (i.e. slope of site and contours)
   - Physical and Social Infrastructure assessment (availability of and impact on existing infrastructure capacity)

5) Draft / Conceptual Site Development Plan indicating mitigation of constraining aspects as identified in points 3 and 4 and how pedestrian access to the existing public transport infrastructure will be effectively facilitated (where possible, inclusive of parking, pavements and landscaping).
The indicatives in Table 4.9 are not mandatory. They indicate a preferred scenario at a macro, citywide level. Each proposal must qualify and substantiate a preferred density. Each proposal must indicate how access, both pedestrian and vehicular will be addressed. The mobility function of these routes is paramount and must not be negatively impacted because of increased densities and associated vehicular trip generation. **Accordingly, access onto the BRT, Mobility Spines and Roads for the purpose of increased densities will not be permitted without the consent of Council.**

Similarly, should vehicular access be re-routed to side or back streets, the impact of the proposal on these routes must also be indicated and not be to the unreasonable determinant of the neighbourhood. This information will provide the basis from which the City will assess the densification proposal.

**Table 4.9: Public Transport Density Guidelines**

<table>
<thead>
<tr>
<th>LOCATION PARAMETERS – Erven / farm portions…</th>
<th>DESIRED UNITS PER HA (Max. no. Indicated – NOT CUMULATIVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within 500m of an existing or proposed train station</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 30-60 du per ha could be supported</td>
</tr>
<tr>
<td>Adjacent to and fronting on a Phase 1 BRT Route#</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 70-90 du per ha could be supported</td>
</tr>
<tr>
<td>Within 200m of a Phase 1 BRT Route#</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 20-50 du per ha could be supported</td>
</tr>
<tr>
<td>Fronting on to an existing Mobility Road</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 30-50 du per ha could be supported</td>
</tr>
<tr>
<td>Fronting on to an existing Mobility Spine</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 50-70 du per ha could be supported</td>
</tr>
</tbody>
</table>

# BRT Phase 1 Routes:
- Lenasia-Regina Mundi-Parktown-Sunninghill
- NASREC-Newtown-Ellis Park
- Dobsonville-CBD-Troyeville
- Lenasia-Highgate-Sunninghill
- Randburg-CBD
- Alexander-CBD-Regina Mundi
- Braamfontein-CBD
- CBD circle route (previously the Inner City Distribution System, ICDS)

NB: Motivations for densification proposals on proposed / planned new roads will only be considered where there is Medium-Term capital commitment by the implementing authority.

The following conditions may be applied as part of an approval for a density increase in terms of the Public Transport Density Guidelines listed in Table 4.9 (in addition to standard conditions applicable in terms of the relevant Town Planning Scheme for an area):

- A minimum street building line of 3 metres is required
- All parking is to be provided within the erf boundaries
- Parking areas shall be screened from the street boundary by at least a 1.5 metre wide landscaped area and a pedestrian walkway of at least 1.5 metres wide.
- At least 10% of the property is to be landscaped
- 1 tree per 7.5 metres along property street frontages
- Visually permeable materials are to be used along property street frontages (i.e. palisade fencing)
- Pedestrian access is to be independent from vehicular access
- Pedestrian access is to be situated at the closest point on the property to public transportation facilities

* With discretion, distance may be extended where there is a demonstrable and acknowledged, direct relationship to the locational attribute
Diagram 4.2: Conceptual Plan and Elevation of Movement / Public Transport Density Guidelines
Diagram 4.3: Access Alternatives for Increased Density Proposals

- **Single Direct Vehicular Access** for consolidated mid-block erven (2 or more)
- **Single Vehicular Access** from Back/Side Roads for consolidated corner/rear erven
- **Private Direct Vehicular Access** from Side/Back Roads for consolidated erven
- **Shared Vehicular Access** via servitudes connecting to Side/Back Roads
- **BRT or Mobility Spine/Road**
- **Pedestrian Access**
4.3.1.3 Densification Motivated by Subsidised Housing Initiatives

As a result of the high premium of land, as well as an established need for a variety of housing typologies, increasing residential densities within subsidised housing schemes can prove to be an efficient way of optimising existing land resources, bulk infrastructure and accommodating a range of housing options.

Densification proposals linked with subsidised housing initiatives must be supported by a motivation inclusive of the following aspects:

1) Acknowledgment of any existing and officially adopted Precinct Plan / Development Framework and/or specific guideline within the RSDF Sub-Area Intervention Tables. These will prevail over the Desired Units per hectare as envisaged in Table 4.10.

2) Existing / prospective funding agreements / approval based on proposed yield of project.

3) Integrated Site Assessment inclusive of:
   - Critical assessment of adjacent properties (height, orientation, privacy)
   - Natural features on and around the site
   - Topography (i.e. slope of site and contours)
   - Existing and proposed public transport infrastructure
   - Vehicular access control measures (how is access going to be facilitated – have opportunities to consolidate access points been considered?)
   - Pedestrian access (how will pedestrians access the site maximising the opportunities afforded by existing or proposed public transport routes, social facilities etc.)
   - Physical and Social Infrastructure assessment (availability of and impact on existing infrastructure capacity)

4) Conceptual plan of complete development indicating mitigation of constraining aspects as identified in site-assessment and specific design aspects.

The indicatives in Table 4.10 are not mandatory. They indicate a preferred scenario at a macro, citywide level. Each proposal must qualify and substantiate a preferred density.

This information will provide the basis from which the City will assess the densification proposal.

Table 4.10: Subsidised housing Density Guidelines

<table>
<thead>
<tr>
<th>LOCATION PARAMETERS – Erven / farm portions…</th>
<th>DESIRED UNITS PER HA (Max. no. Indicated – NOT CUMULATIVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City endorsed subsidised Housing initiative</td>
<td>To be determined per development proposal. Where infrastructure, access and design allows 40 - 300 du per ha could be supported</td>
</tr>
</tbody>
</table>

The following conditions may be applied as part of an approval for a density increase in terms of the Subsidised Housing Density Guidelines listed in Table 4.11 (in addition to standard conditions applicable in terms of the relevant Town Planning Scheme for an area):

- A minimum street building line of 2 metres is required
- All parking is to be provided within the erf boundaries
- Parking areas shall be screened from the street boundary by at least a 2 metre wide landscaped area and a pedestrian walkway of at least 1.5 metres wide.
- At least 10% of the property is to be landscaped
- 1 tree per 7.5 metres along property street frontages
- Visually permeable materials are to be used along property street frontages (i.e. palisade fencing)
- Pedestrian access is to be independent from vehicular access
- Pedestrian access is to be situated at the closest point on the property to public transportation facilities
4.3.2. Management Controls

Effective management controls to mitigate against potential impacts on surrounding properties are key to the successful implementation of an increased density proposal. This provides the critical link between what a proposal should be allowed and how, ultimately it can / should be developed.

A development control and table only approach could for example result in the following:

- **Primary right:** Residential 2
- **Coverage:** 50%
- **Height:** 4 storeys
- **Density:** 35 du/ha
- **Building line:** 3m on western boundary
- **General conditions:** A Site Development Plan to be submitted to the satisfaction of the Council.

However, a more comprehensive approach might highlight other issues that need to be addressed as part of the decision process as indicated in **Diagram 4.4**.

An integrated assessment of the site, per proposal, can result in a more appropriate set of development controls sympathetic to the surrounding development and site-specific factors as shown in the following:

- **Primary right:** Residential 2
- **Coverage:** 40%
- **Height:**
  - 2 storeys on eastern boundary
  - 3 storeys on northern boundary
  - 4 storeys on other boundaries
- **Density:** 25 du/ha
- **Building line:**
  - 3m on western boundary
  - 2m on northern boundary
  - 3m on eastern boundary
- **General conditions:** A Site Development Plan to be submitted including:
  - 14% soft landscaping
  - Storm water treatment
  - Retention of existing, established trees on perimeter.
  - Facilitation of pedestrian movement at access point to the development.
  - Boundary treatment to protect privacy on northern and eastern boundary.
  - Incorporation of appropriate design guidelines as prescribed by the Council.
4.3.3 Design Guidelines

Design guidelines are necessary as they provide the framework at a local and site level that gives shape and form to urban spaces that together shape the City. These guidelines provide basic direction for the manner in which buildings should relate to the spaces around them, such as roads and open spaces, as well as to other buildings. This is important as where there is synergy between buildings and spaces, the area between buildings takes on a definite form that adds to the urban character and contributes to the better functioning of the area.

These guidelines inform all developments and provide parameters for the interface between the public and private spaces.

A sense of identity or place has to be created through the design and placement of buildings. Table 4.11 indicates those important elements and associated density design guidelines that need to be considered in this regard.
Table 4.11: Density Design Guidelines

<table>
<thead>
<tr>
<th>Element</th>
<th>Density Design Guidelines</th>
</tr>
</thead>
</table>
| **General** | • Promote variation in the alignment of roofs.  
• A variety of facades promotes diversity and individuality and overcome monotony.  
• Screen walls should be staggered or otherwise articulated.  
• Hard landscaping should be restricted to vehicle parking and access zones, essential pedestrian pathways and private patios so as to reduce storm water runoff.  
• Variation in scale through mixing single and multi-storeyed units in one development is encouraged.  
• Street frontage should suit the efficient use of the site, the residential amenity and the character of the neighbourhood. |
| **Neighbourhood Character, Site Layout and Landscaping** | • Development should be sited and designed to acknowledge the privacy of abutting developments.  
• The siting of individual dwelling units should avoid long rows of buildings, minimise setbacks and preferably not position buildings at right angles to the street boundary.  
• Layouts should respond positively to site features e.g. topography, drainage and vegetation.  
• Good lighting, visibility and surveillance with perimeter lighting on the street frontage is encouraged.  
• The objectives of landscaping is to:  
  o Mitigate noise;  
  o Screen objectionable views;  
  o Establish a sense of place;  
  o Provide definition to dwelling unit entries and pedestrian pathways;  
  o Promote safety, security and privacy;  
  o Enhance structural elements;  
  o Provide visual relief from blank exterior walls, building mass and bulk;  
  o Help retain the long term value of property;  
  o Minimize the visual impact of impervious surfaces; and  
  o Provide protection from winter wind and summer sun. |
| **Safety and Security** | • Promote the placement of windows on the façade of buildings to allow for surveillance from the building onto the street and other public spaces.  
• Spaces around buildings should be designed to relate to the built form, so that residents can take ownership of the space.  
• Property enclosures should be permeable to allow for visual surveillance onto and from the street.  
• Landscaping should not detract from lines of vision and hiding places should not be created.  
• Ensure appropriate lighting of common spaces such as the perimeter, pathways, and entrance halls. |
| **Parking and vehicle access** | • The number of bays in residential developments should be in line with the car ownership trends in the particular area and the Town Planning Scheme requirements.  
• Access must be sited so that cars entering the development will not hinder the vehicle movement in the public street.  
• Paved areas should not hamper the efficient management of storm water.  
• A minimum of one tree for three open parking bays should be planted.  
• Car parking facilities should not dominate the development or street frontage.  
• The focus should be on pedestrian movement and vehicle movement should be planned in such a way that pedestrian movement can occur unhindered. |

Section 4: Development Strategies
WESTERN CAPE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK

FINAL

NOVEMBER 2005
4. The location of dwelling units should not be spread evenly across the landscape but should rather be clustered according to ecological design criteria that should reveal the most suitable areas for development according to a McHarg type sieve map analysis of natural and built attributes.

5. Excluding slopes greater than 1: 4 and other ecological exclusion zones will have the effect of further limiting development as these areas should be excluded from the areas for which the density calculation applies in columns two and three.

6. Height restrictions are higher in areas with greater visual carrying capacity, e.g. the mountains and lower in those with less, i.e. the hills and plains.

7. All services, (bulk, linking and connections) including waste disposal and roads required for projects outside of the Urban Edge shall be the responsibility of the owner/ developer and not the municipality for both construction and operational phases.

8. The layout, design and materials used in buildings, roads and landscaping shall vary according to the sense of place in different part of the Province as reflected in district and local municipal architectural, urban design, services and landscape design guidelines that must be prepared.

9. Other requirements such as environmentally appropriate building design, the provision of offsets, and safeguards for land reform programs still apply.

6.5 APPROPRIATENESS OF DENSITIES, URBAN RESTRUCTURING AND A TIGHTLY DRAWN URBAN EDGE

There was concern from a number of parties that the proposals to increase urban densities to an average gross density of 25 du/ha was too ubiquitous, that this would destroy the unique character of the settlements of the Province and that it would lead to unacceptable high rise buildings in rural villages and towns. This was also coupled to a fear of urban restructuring itself, which appeared to imply that in these instances, objectors to the policy proposal were content with the current apartheid derived status quo. There was also a concern that the result of the principles proposed for the Urban Edge drawing would be too tight to permit needed urban settlement growth.

There are a number of points to be reiterated in this regard:

An average gross density of 25du/ha is a minimum performance hurdle

First, the figure of 25 du/ha is derived from local and international research which has found that this is a minimum density at which urban settlements begin to significantly improve their urban performance. (Ref: Urban Task Force, 1998 : Towards an Urban Renaissance; research in Europe - examples of town plans (Leuwen Morgen Het Ruimtelijk Structuurplan in Openbaar Onderzoek, Richtinggevend Gedeelte Bindend Gedeelte, 2003). Dewar et al, 1991, South African Cities A manifesto for Change, Urban Problems Research Unit, University of Cape Town.) In fact some authorities have put this figure considerably higher at 50 dwelling units per hectare. (Dewar, 1995, Creating Vibrant Urban Places to Live : a Primer, NEWHCO, Cape Town).

Research relating densities in different suburbs of an urban settlement to their performance showed a marked increase in urban performance including:

- The ability to walk to a number of different destinations on foot;
- Improved surveillance and security;
- Wide range of employment and retail (shopping) opportunities within easy access; and a
- Vibrant and active streetscape.


Thus, the figure of an average gross density of 25du/ha should be seen as a hurdle below which urban settlements will not perform adequately, and above which a number of positive opportunities begin to be achievable. It is clear that the figure of average gross densities of 25du/ha is a fundamental and universal indicator or metric that is more akin to a formula that, if not achieved, will result in sub-optimal urban performance.

A single density benchmark will not create a stereotype

Secondly, although an average gross density 25du/ha has been identified effectively as a single hurdle this does not mean that, if applied to all settlements, that it would result in a sterile, stereotyping of the character of these towns. This density hurdle can be achieved in many different ways, through different layouts, densification of different parts of the urban settlement according to its structure of higher and lower order streets and

1 Indeed it would be difficult to find a more effective way of creating the monotonous and sterile environments that characterize many of the Provinces' urban settlements than the combination of road setback lines, single dwelling based zoning schemes and national building regulations currently in force, and whose impacts must be addressed.
areas of higher and lower access, and different building styles, massing and form. Because of this flexibility it is possible to achieve higher densities and actually strengthen particularly the historic character of most settlements which was based on a higher density, walking distance urban form. Higher gross densities, even as high as 60 to 100 dwelling units hectare gross, will be necessary in areas of highest accessibility in order to achieve average gross densities of 25 du/ha, which implies that in other areas densities can remain lower, as little as 4 to 8 dwelling units per hectare on the periphery. Thus, there is plenty of opportunity for positive local character to be expressed.

2 to 3 storeys can achieve significant density increases
Thirdly, calculations show that it is possible to achieve gross densities as high as 60 to 100 dwelling units without going above 2 to 3 storeys.

E.g. 1 hectare = 10 000 m²
- Set aside 40% of property used for roads and open space purposes
- This leaves 6 000 m² to be used for say residential purposes
- This permits 60 x 100 m² plots = 60 du /ha
- 50% coverage on each plot allows 50 m² ground floor
- 2 storeys = 100 m² gross building area
- 3 storeys = 150 m² gross building area

Both 100 m² and 150 m² gross building areas per unit are more than adequate for social and middle income housing.

Furthermore, it can be seen from these calculations that densities of 100 du/ha can easily be achieved if plots are reduced to 60 m² or an apartment type configuration without plots is used, for instance the 2 and 3 storey housing on the N2 Gateway project with apartment areas of 34 – 70 m².

It is clear that fears of high rise buildings being necessary to achieve higher densities are unfounded.

Increasing densities can only be achieved in settlements experiencing growth pressure

Fourthly, this AVERAGE gross density figure can only be given effect in those towns experiencing development pressure where it should be used as one of a suite of policies to guide development control. It is these settlements that are most in need of restructuring if they are to successfully meet the needs of their current and future inhabitants in a sustainable manner. Obviously in settlements where there is no demand for urban development this policy would not be relevant and so would not impinge on the existing character of the settlement.

Restructuring of urban land-use and socio-economic patterns is also necessary
Fifthly, there are other aspects to urban restructuring other than densification. These include the need to reorganise the location of many of the activities in urban settlements whose dispersed geographical pattern creates a large demand for motorised travel, which in most cases has to be by private transport due to inadequate public transport services. There is also a need to reorganise the socio-economic pattern of urban settlements which, in many areas, still reflects the racist separation of the Group Areas Act. Although the concerns about the consequences of reorganising these patterns for property values and community stability are noted it is believed that if the principle of a Socio-economic Gradient within walking distance is sensitively applied these concerns can be reasonably dealt with, while at the same time making significant progress to dismantling urban settlements’ apartheid layouts.

A tightly drawn urban edge is necessary if densities are to effectively increase
Sixthly, if the need to densify and restructure urban settlements is regarded seriously then a tightly drawn Urban Edge is non-negotiable. (Reference: Dewar & Todeschini) Most urban settlements in the Province, on average, have average gross dwelling units densities of 12 du/ha. This is approximately half of what average gross densities should be to achieve adequately performing urban settlements. For example, one participant at a workshop on the April road show reported that one of the reasons for South Africa’s inability to compete with China’s labour costs is that Chinese labour is able to walk to work whereas in South Africa, individuals, companies and the state were having to bear high transport costs, through fares, higher wages and subsidies.
A key component of raising densities is to limit the outward spread of urban settlements. If the area of urban settlements continues to increase outwards then increasing densities is made more difficult. If this problem is to be addressed as soon as possible then it is essential that the urban edge is held as tight as possible for a five or 10 year period, as long as it takes to increase densities. This will obviously be easier and quicker to achieve in faster growing settlements than slower ones. If a loose approach is taken to delineating the urban edge, particularly if there is an intent to continue to facilitate the current form of low density urban sprawl that remains the dominant urban form for high income and subsidy housing projects, then surprise and concern should not be raised at the lack of change to urban structure and its associated inefficiencies in the Province’s settlements in the future.

Measures to address increasing land costs (that are already occurring)
Seventhly, concerns have been raised that constraining lateral urban growth by a tightly drawn urban edge and increasing densities will increase property prices to the level that will make urban restructuring and particularly providing access to land for the urban poor impossible.

The reality is that this has already happened under the current system of loose or undefined urban edges. The only land that is easily available for low income housing is that already owned by the state. In many settlements not only in the City of Cape Town, the Winelands and the Southern Cape but also in more remote villages and towns property prices have risen to the extent that even middle income housing is no longer affordable.

Thus, notwithstanding proposals to tighten the urban edge and increase densities remedies are already necessary to address the problem of affordability. Some of these include:

- Acquisition of well located land by the state (local, provincial or national) for land banking purposes;
- Implementation of a “prescribed assets” policy whereby developers of private property must enable a certain percentage of social and low income housing either on or off site to be constructed;
- Construction of higher density housing schemes so that unit costs are brought down by economies of scale; and,
- Design of such higher density housing schemes to minimise their vulnerability to “down raiding” from higher income groups.

There is also a need to see costs in terms of a comprehensive long term life-cycle approach which takes into account transport and socio-economic costs rather than only short term construction and land acquisition costs. (Ref: A Aucamp et al, 2005. Making Low-Cost Housing Projects More Accessible for Public Transport in Ethekwini: What are the Costs?)

Therefore, it is recommended that achieving an AVERAGE gross density of 25du/ha for all settlements in the Western Cape should remain as a policy proposal. However, the public participation process has revealed considerable misunderstandings regarding densities, their meaning and their impact, even amongst experienced professionals, never mind the general public. It is imperative that in the WCPSDF training course a module is set aside to clearly explaining the density policy, its implications and how it should be applied.

Furthermore, providing the principle of a Socio-economic Gradient within walking distance is adhered to the policy proposals to restructure cities functionally and socio-economically should be retained.

Finally, the principle of a tight Urban Edge, capable of enabling densities to increase to an AVERAGE gross of 25 du/ha within 5 to 10 years depending on the rate at which the settlement grows, should also be retained.

It should be made clear that within these parameters there are many opportunities for a flexible approach to building form and style, road and landscape proposals that will allow settlements to retain and enhance their individual characters and sense of place.

6.6 RURAL DEVELOPMENT, THE GROWTH POTENTIAL STUDY AND THE NSDP

Both rural community groups and a number of professional respondents were concerned that the implications of the NSDP and the Growth Potential Study would be to neglect rural settlements outside of the City of Cape Town and those towns identified as having either high growth potential or populations in excess of 5000 people.
ANNEXURE B
ITEM 41

TOUCH-PLANNING AND CONTROL 12/31/2/3/2; 12/34/8

RESIDENTIAL DENSIFICATION IN ALBERTON

Issues raised by Councillor Visser was clarified by the Head: Urban Planning who requested an amendment to recommendation no 7.

RESOLVED:

THAT the following be accepted as Council policy:

1. That townhouses/densification be allowed in principle in any residential area of Alberton, provided that the necessary rights for such use have been obtained.

2. The number of storeys for any such development be limited to two.

3. The following development control measures be accepted as a general guideline in order to regulate the number of units that can be erected:

   3.1 The coverage of all buildings on the erf shall not exceed 40% of the area of the erf.

   3.2 The floor area ratio shall not exceed 0.6.

   3.3 A site development plan shall be submitted and approved prior to the submission of building plans.

   3.4 Effective, paved parking spaces together with the necessary manoeuvring area, shall be provided on the erf to the satisfaction of the local authority in the following ratios:
4.1 1 covered parking space per dwelling unit with 3 or less living rooms;

4.2 1 covered and 1 uncovered parking space per dwelling unit with 4 or more living rooms; and

4.3 1 uncovered parking space per 3 dwelling units for visitors.

5. A minimum of 16% of the area of the erf shall be developed as a recreational area.

6. A minimum side building line of 5 metres be instated to protect the privacy of the neighbours.

7. The above guideline may be deviated from during the approval of individual applications, if the Head: Urban Planning is satisfied that sufficient merit exists e.g. where developments are in the vicinity of business complexes and within or near the central business-area.
ITEM 41
TOWN-PLANNING AND CONTROL
RESIDENTIAL DENSIFICATION IN ALBERTON

A. BACKGROUND

During the past 10 years Council approved the following policies which dealt with the densification of the residential area:

* 1985: Planning Proposals for the densification of certain residential blocks in New Redrust.

* 1987: Amendment of the Alberton Town-planning Scheme to allow the erection of second dwelling units in Southcrest.

* 1991: Amendment of the Alberton Town-planning Scheme to allow the erection of a second dwelling unit on all "Residential 1" erven in Alberton.

It also happened that limited densification was allowed on an ad hoc basis through Alberton.

Over the past couple of years the need for and provision of housing has become a major issue.

In the RDP provision of housing was identified as an important basic need and it is stated that priority should be given to the provision of more residential units within the boundaries of existing cities and towns.

During the latter part of 1995 and early 1996 a study was conducted with the intention to formulate a policy for the evaluation of applications for subdivisions, townhouses and group housing schemes. A copy of the full report is attached as annexure. It should be noted that a number of questionnaires were completed and interviews conducted in order to determine public opinion on the matter. The recommendations are very much based on the opinions obtained from the public.

B. GUIDELINES

The recommendations and proposals of this study is:

1. That townhouses/densification be allowed in any residential 1 area of Alberton, provided that the necessary rights for such use has been obtained.

2. That the number of storeys for any such development be limited to two.
ITEM 4\! CONTINUED:

3. That the following development control measures be accepted as a general guideline in order to regulate the number of units that can be erected:

3.1 The coverage of all buildings on the erf shall not exceed 40% of the area of the erf.

3.2 The floor area ratio shall not exceed 0.6.

3.3 A site development plan shall be submitted and approved prior to the submission of building plans.

4. Effective, paved parking spaces together with the necessary manoeuvring area, shall be provided on the erf to the satisfaction of the local authority in the following ratios:

4.1 1 covered parking space per dwelling unit with 3 or less living rooms;

4.2 1 covered and 1 uncovered parking space per dwelling unit with 4 or more living rooms; and

4.3 1 uncovered parking space per 3 dwelling units for visitors.

5. A minimum of 10% of the area of the erf shall be developed as a recreational area.

6. A minimum side building line of 5 metres be instated to protect the privacy of the neighbours.

7. CONCLUSION

Approval of an actual scheme as proposed will be subject to the procedures prescribed for amending the Town-planning Scheme.

The recommended policy is mostly driven by what the public wants, while the needs of developers were also taken into account. The measures that are recommended will ensure that densification in the form of townhouse developments will take place in an orderly manner, without affecting the surrounding areas negatively.

COMMENT OF THE TOWN ENGINEER

The recommendations are supported. The normal contributions for engineering services are payable for the upgrading of services.

COMMENT OF THE TOWN SECRETARY

The recommendations are supported.
ITEM 4 CONTINUED:

COMMENT OF THE HEAD: COMMUNITY SERVICES

The recommendations are supported.

COMMENT OF THE TOWN TREASURER

In order.

IT IS RECOMMENDED:

THAT the following be accepted as Council policy:

1. That townhouses/densification be allowed in any residential area of Alberton, provided that the necessary rights for such use have been obtained.

2. The number of storeys for any such development be limited to two.

3. The following development control measures be accepted as a general guideline in order to regulate the number of units that can be erected:

3.1 The coverage of all buildings on the erf shall not exceed 50% of the area of the erf.

3.2 The floor area ratio shall not exceed 0.6.

3.3 A site development plan shall be submitted and approved prior to the submission of building plans.

4. Effective, paved parking spaces together with the necessary manoeuvring area, shall be provided on the erf to the satisfaction of the local authority in the following ratios:

4.1 1 covered parking space per dwelling unit with 3 or less living rooms;

4.2 1 covered and 1 uncovered parking space per dwelling unit with 4 or more living rooms; and

4.3 2 uncovered parking space per 3 dwelling units for visitors.

5. A minimum of 10% of the area of the erf shall be developed as a recreational area.

6. A minimum side building line of 5 metres be instated to protect the privacy of the neighbours.

7. The above guideline may be deviated from during the approval of individual applications, if the Head: Urban Planning is satisfied that sufficient merit exists.
RESIDENTIAL DENSIFICATION IN ALBERTON

1. BACKGROUND

1.1 History

Since 1983 there has been a steady increase in the number of rezoning applications that result in residential densification.

Residential densification can be described as the process whereby an existing residential township is transformed through rezonings and/or subdivisions in such a way that it results in more residential units.

Since 1975 it has been the national and provincial policy of our country to encourage higher urban densities. The following quotations on these two levels with regard to these aspects were made:

De Loor Report - Housing in South Africa: Proposals on a policy and strategy (April 1975)

"It is recommended that density policy guidelines, should, amongst other things, emphasise that

* density should be a function of cost and market demand;

* there should be a proper place in urban areas for the full range of densities and life cycle housing;

* city densities should be encouraged to increase wherever feasible in order to achieve the more cost-effective use of urban structures;

* densification of existing residential areas, as well as higher-density housing projects should enjoy the support of the local authorities and the communities involved;

* multi-storey, low-rise housing, which does not require lifts, should be encouraged."


"Reform of the urban land and planning system:

Urban integration and the management of urban growth depend on effective land use planning incorporating the principles of Integrated Environmental Management (IEM) and a well-functioning urban and regional planning system. This requires drastic reform of the current planning system."

White Paper on Reconstruction and Development (November 1994)

In the RDP-programme, meeting basic needs is one of the six basic principles on which the programme is based. As housing is defined as an important basic need, priority should be given to the provision of more residential units within the boundaries of our existing cities and towns."
In reaction to these recommendations, a study for Southcrest was conducted during 1987 in order to compile a densification policy for the township. As a result of this study, the town-planning scheme was amended to allow the erection of second dwelling units in Southcrest. As this proved to be a huge success, a similar study was conducted in 1989 in the Brackenhurst and Brackendowns area, and following this, second dwelling units were permitted in April 1993 on all “Residential I” erven in Alberton by means of a written application and subject to certain conditions.

1.2 REASON FOR THIS STUDY

This study differs from the previous densification studies, in so far as it mainly addresses the establishment of medium-density units like townhouses and cluster homes.

Between 1992 and 1995 there has been more than a 100% increase in the number of applications for increased densities.

The intention of this study is to formulate a policy for the evaluation of applications for subdivisions, townhouses and group housing schemes.

For the purpose of this study, the term “townhouses” also includes group housing and similar schemes.

2. CURRENT SITUATION

The New Redruth area was, since the early eighties, already fully developed with low density residential dwellings, and no vacant land was available for the development of townhouses.

With the compilation of the Structure Plan for the Central area, which was approved in 1988, certain blocks of erven in New Redruth were identified for future medium density developments. These blocks were so popular for townhouse developers, that two more blocks were made available in 1991 and 1992, to add up to a total of 6 blocks. By the end of 1994, more than 68% of the erven in the original 4 blocks and 16% in the other 2 blocks were already zoned for townhouses.

Throughout the rest of Alberton, applications for medium densities are at this stage considered on merit; where the necessity and desirability of the application are proved. In no areas other than New Redruth are specific blocks set out for townhouse developments; thus townhouses can be erected anywhere in an existing residential area, provided that the necessity and desirability are proven by means of a rezoning application.

The general guidelines for development control measures on townhouse erven are the following: 000222

(1) the coverage of buildings shall not exceed 40%;
(2) the height of buildings shall not exceed 2 stores;
(3) the floor area ratio is restricted to 0.6;
(4) Efficient paved parking spaces, together with the necessary manoeuvring area, shall be provided on the erf in the following ratios:

- 1 covered parking space per dwelling unit with 3 or less living rooms;
- 1 covered and 1 uncovered parking space per dwelling unit with 4 or more living rooms;
- 1 uncovered parking space per 3 dwelling units for visitors.

(5) A site development plan shall be submitted for approval prior to the approval of building plans.

The situation in Meyersdal is slightly different. As Meyersdal is a relatively new township with lots of vacant land, provision was made from the beginning for the establishment of townhouses in certain blocks. Meyersdal Extensions 11, 13 and 17 also have more strict development control measures like a minimum floor area per townhouse of 80m². However, recent applications for increased densities on "Residential 1"- erven to one dwelling per 500m², have been approved by Council, and no objections were received against these applications.

In all the above situations, a developer must submit an application for rezoning in order to obtain the rights to erect townhouses. This application entails that the applicant advertises the application in an Afrikaans and English newspaper, as well as in the Provincial Gazette once a week for two consecutive weeks. After this, he shall also put up a notice board on the property stating his intention to rezone and for which rights he is applying. This procedure is followed in order to invite anyone to comment or object against the application. In more than 95% of the applications for higher densities over the past 13 years, no objections were received.

The current situation seems to be working extremely well, and this is also proved by the views of people interviewed who are living next to existing townhouses (see section 5).

3. METHOD OF INVESTIGATION

Several methods were used in order to get a representative opinion of all residents in Alberton with regards to densification. Questionnaires were posted to 6% of all households in Alberton, and personal interviews were conducted with 33 residents living next to existing townhouses.

In addition to this, 8 local authorities have been approached for their policies on this issue.
4. POLICIES OF OTHER LOCAL AUTHORITIES ON RESIDENTIAL DENSIFICATION

The densification policy of all the local authorities approached were with small deviations, more or less the same. The local authorities of Johannesburg, Pretoria, Germiston, Kockopov, Boksburg, Springs and Kempton Park were approached, and all supported the principle of densification. They allow changes in the residential density of an erf by means of a rezoning, and allow townhouses anywhere in existing residential areas, provided that the number of units are restricted and not more than 2 storeys erected. No problems have been experienced with their policies.

5. INTERVIEWS WITH PEOPLE LIVING NEXT TO EXISTING TOWNHOUSES

Personal interviews were conducted with 33 people living next to existing townhouses in order to determine which possible problems they experience with townhouses next to their properties.

The average period these owners had been living in their houses were 17 years and in 60,5% of the cases, the owners moved in before the townhouses next door were built.

More than 76% experienced no problems with the townhouses, 15% complained about lack of privacy and 6% about littering due to the townhouses.

Nearly 76% said they would not mind living next to a townhouse complex again in future. They were also questioned if they would object to a townhouse-complex being erected next door should they not have lived next to one already. Almost 91,5% said they would not object to a new townhouse complex. In 54,5% of the cases, the people felt that a complex of 2 storeys would not invade their privacy, and 54,5% recommended that the number of units in a townhouse complex be limited.

6. RESULTS OF THE QUESTIONNAIRE-STUDY

6.1 Size of the sample and response

Questionnaires were posted to 5% of all households in Alberton, which amounted to 750. A total of 149 questionnaires were returned, which indicates a response of nearly 20%. The following section will deal with the results of the questionnaire study.

6.2 Subdivisions

About 19,7% of the respondents would possibly be interested in subdividing their properties in future, which gives an indication that these people feel their erven are too big to maintain. In the end, subdivisions also give rise to higher densities.
6.3 The general view of the public regarding townhouses

It seems that the general conception of the public not living next to existing townhouses regarding townhouses is in contrast to the views of people already living next to such complexes. Nearly 78% of the respondents do not want a double storey townhouse complex to be erected next to their properties, and 57% object to the principle of allowing townhouses at random in residential areas. However, 95% of the respondents feel that they will not object if the number of units are limited, and the number of storeys restricted.

From this it is evident that the conception exists that townhouse complexes will have too many units, and that a two storey building will invade the privacy of the neighbours. A policy that addresses these conceptions could be very useful.

6.4 The perception of townhouses per township

The following table gives an indication of the general perception of respondents regarding townhouses in each township:

<table>
<thead>
<tr>
<th>Township</th>
<th>Would object if there are no control (%)</th>
<th>Would not object if units and storeys are limited (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alberton</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Alberton-North</td>
<td>37</td>
<td>38</td>
</tr>
<tr>
<td>Albertusdal</td>
<td>49</td>
<td>100</td>
</tr>
<tr>
<td>Brackendowns</td>
<td>59</td>
<td>100</td>
</tr>
<tr>
<td>Brackenhurst</td>
<td>60</td>
<td>93</td>
</tr>
<tr>
<td>Florentia</td>
<td>44</td>
<td>86</td>
</tr>
<tr>
<td>Gen. Albertsparks</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Hayberry park</td>
<td>66</td>
<td>72</td>
</tr>
<tr>
<td>Meyersdal</td>
<td>62</td>
<td>100</td>
</tr>
<tr>
<td>New Redrust</td>
<td>33</td>
<td>100</td>
</tr>
<tr>
<td>Raceview</td>
<td>37</td>
<td>100</td>
</tr>
<tr>
<td>Randhart</td>
<td>75</td>
<td>94</td>
</tr>
<tr>
<td>Southcrest</td>
<td>66</td>
<td>100</td>
</tr>
<tr>
<td>Venloepark</td>
<td>57</td>
<td>86</td>
</tr>
<tr>
<td><strong>AVERAGE</strong></td>
<td><strong>57.29%</strong></td>
<td><strong>95.64%</strong></td>
</tr>
</tbody>
</table>

From this table it is evident that people do want certain control measures to regulate townhouse developments in their vicinity.
6.5 Number of storeys

As already mentioned, not less than 95% of the respondents felt that the number of storeys should be limited. The table reflects their support for the following number of storeys:

<table>
<thead>
<tr>
<th></th>
<th>Single storey</th>
<th>Two (ground + 1)</th>
<th>Three (ground + 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support%</td>
<td>43.13%</td>
<td>34.73%</td>
<td>2.07%</td>
</tr>
</tbody>
</table>

It is evident that people prefer developments not to be higher than 2 storeys, although they also feel that a double storey building would probably invade their privacy (see section 6.3).

6.6 Other problems and proposals

Some respondents also mentioned that they had the following proposals/problems:

* unoccupied land should be used for townhouses;
* higher densities will cause traffic congestion;
* only single storey townhouses in existing residential areas;
* limit the number of units to not more than 10 units per traditional sf (-1000sf);
* uncontrolled housing will lead to slums;
* keep enough open areas;
* impose building lines on side boundaries.

All these problems/proposals will be dealt with in the following section containing the recommendations.

7. RECOMMENDATIONS AND PROPOSALS

In the light of the results of this study, it is recommended that the following policy be approved for the evaluation of applications for higher densities:

7.1 THAT townhouses be allowed in any residential area, provided that the desirability of the application are proved by means of an application for rezoning.

Townhouses should be allowed in any residential area between existing dwellings, and townhouses should nowhere be restricted to certain blocks.

It is clear that the minimum problems are experienced with the current procedure of applying for a rezoning where townhouses are proposed, and where the public have an opportunity to object to such a rezoning. Although Council is not obliged by any law, it is recommended that Council send out written notices to the adjacent neighbours of a rezoning of this nature to inform them of the nature of the attendant scheme. This way, the residents of a neighbourhood will have an opportunity for comment on what is happening in their vicinity.
It is recommended that the current policy of densification in particular blocks in future not be enforced in New Redruth, and that this township should be allowed to densify naturally as at present in the rest of Alberton. The allocation of blocks could give rise to speculation and excessive prices on properties. Numerous enquiries are received from the public and developers in New Redruth for the erection of townhouses outside the current blocks. In addition to this, the questionnaire survey also indicated that 57% of the respondents in New Redruth preferred townhouses to be placed anywhere in the township—not in specified blocks alone.

In Meyersdal, the practice of allocating particular areas for townhouse development seems to be working very well where vacant land is available, and should therefore be continued. In addition to this, it is recommended that townhouses also be allowed throughout the neighborhood, subject to the substantiation of a rezoning application. This approach is also in line with the recommendations of Dr. Leach who compiled a socio-economic study for Meyersdal which suggested that a bigger range of housing densities should be provided for in Meyersdal.

7.2 THAT the number of storeys be limited to two.

As can be seen from section 6.5, almost 55% of the respondents supported the restriction of the height of townhouse complexes to 2 storeys. Townhouses of more than 2 storeys should not be allowed within existing residential areas, but can only be allowed near the central area, in and around the Ring Roads, to the discretion of the local authority.

As some people felt that a double storey building would invade their privacy, recommendations are made furtheron to prevent this problem. Although a 2 storey development normally is a medium density development, it is still viable for developers to erect a 2 storey complex, and therefore the needs of both the public and developers are met.

If objections are received on the basis of invasion of privacy, it is recommended that the application be restricted to one storey only, or that the location and architectural appearance of proposed buildings be discussed with the objector.

7.3 THAT the following development control measures be accepted as a general guideline in order to regulate the number of units that can be erected.

It is recommended that the coverage of all buildings on a townhouse erf shall not exceed 65% of the area of the erf, as well as that a floor area ratio of 0.6 be applicable on the erf. As this restricts the area of the erf that can be developed, it will automatically limit the number of units to be erected; depending on the size of the property. A site development plan must also be submitted which deals with parking, entrances, number of units, landscaping, etc.
7.4 THAT parking should be provided on the erf

Efficient paved parking spaces together with the necessary manoeuvring area shall be provided on the erf in the following ratios:

- 1 covered parking space per dwelling unit with 3 or less living rooms;
- 1 covered and 1 uncovered parking space per dwelling unit with 4 or more living rooms;
- 1 uncovered parking space per 3 dwelling units for visitors.

The above parking should be decarcased and should be provided on the erf itself - not on the pavement and road reserve.

This will ensure that parking problems are not experienced where townhouses are erected.

7.5 THAT a minimum of 10% of the area of the erf be developed as a recreational area

To prevent a townhouse erf looking like a concrete jungle, it is necessary to require that a minimum of 10% of the area of the erf be developed as a recreational area where kids can play and residents can relax. This area may not include paved areas like parking spaces and manoeuvring areas. By providing this on the erf, a safe area will be created for recreation without people having to leave the complex.

7.6 THAT side building lines be instated to protect the privacy of neighbours

In the cases of double storey developments, a side building line of 3 metres will be applicable on all boundaries except the street boundary, where the normal street building line of the township will be applicable.

The side building lines of a single storey development shall be 3 metres from all sides, also except the street building line applicable in the township.

The Town-planning Scheme provides for the relaxation of building lines in extraordinary circumstances that will be considered on merit.

This is the most effective way to ensure that double storey developments will not affect the privacy of neighbours, and that the effect of single storey townhouses is limited to a minimum.

8. CONCLUSION

The recommended policy is mostly driven by what the public wants, while the needs of developers were also taken into account.
The measures that are recommended will ensure that townhouse developments will take place in an orderly manner, without affecting the surrounding areas negatively.

This policy is a huge step towards the provision of additional housing in Alberton, in accordance with the RDP and the national policy of residential densification.
'RESIDENTIAL 1' DENSIFICATION POLICY
FOR MEYERSDAL STUDY AREA

1. BACKGROUND

The Greater Alberton densification policy was approved in May 1996, yet despite the demarcation of certain portions of Meyersdal for clusters/ sectional title/ townhouses, applications for densification within the soft "Residential 1" inner-core of the suburb have increased drastically since July 1998. An annexure condition in the establishment of certain Meyersdal Extensions (14, 12, & 17), aimed at a specific housing type, character, and market, by stipulating a minimum floor area of 210m², for the dwellings, and conditions regarding outbuildings/ 2nd units and garages (Refer to attached "Annexure 2" - letter to Meyersdal residents)

The survey/ posting of the above mentioned letter and questionnaire ("Annexure 2"), was conducted/distributed in September 1999, by Alberton Town Council Urban Planning Department. It had emerged that developers were not utilising or focussing development to the allocated high density sectors of Meyersdal, but were capitalising on cheaper 'Residential 1' erven, and thereafter rezoning / densifying. The survey was thus conducted, in an effort to ascertain the wishes of residents in Meyersdal Extensions 14, 12 and 17, and to strategically plan for the long term effects and trends/demand of densification. (Refer to attached Locality Maps - 'Annexure 1')

2. OBJECTIVE

The aim and objective of the exercise was to establish the general feeling / or attain residents wishes/ consensus on their neighbourhood. This was envisaged through detailed questions focusing inter alia on feelings towards densification, subdivision, minimum dwelling unit sizes, minimum erf sizes, need for neighbours comments, & allowing of 2nd dwelling units.

3. SURVEY

In total 342 letters and questionnaires ("Annexure 2"), were posted to residential homes within the specified extensions of Meyersdal, in the month of September 1999. The attached table and graphic illustrations ("Annexure 3"), represent a summary of questions and responses thereto.

Eighty Three (83) residents responded (by the closing date), which reflects a 24% response rate

4 OPTIONS

Simplistically the options are two fold, either to densify the suburb with a pre-planned and controlled strategy, with specific design and town planning controls through a policy plan, or to curtail and curb future densification of the low density residential area by approving a policy for maintaining the status-quo and denying subdivisions, second dwellings and densification.

It was 1... page 2
It was hypothesized that the latter of these options was the likely path and "Annexure 3" - the diagrammatic and tabulated results of the opinion survey, enforced this ideology.

5. TABULATION AND ANALYSIS OF OPINION SURVEY / QUESTIONNAIRE

The table attached under "Annexure 3" sums up the views of those surveyed. In interpreting the results it must however be taken into cognisance that although 342 questionnaires/surveys were administered, the response was only 24% thereof. The survey gives a general indication of the residents wishes / vision for the area and these are self evident from the manner in which the table/diagrams read. The 24% response rate was deemed acceptable in the light of the size of the sample/area, and the skew ness of the results ie. if the margin of responses were closer to one another, questioning of the response ratio could have been entered into.

QUESTION 1 - DENSIFY ? (Refer to "Annexure 3" - 'Pie Chart')
88% of respondents saw no need for densification of the existing "Residential 1" erven in the suburb, whilst 12% seemed satisfied to densify, if stringent controls were imposed and maintained.

QUESTION 2 - MINIMUM DWELLING SIZE?
(Refer to "Annexure 3" - 'Cylinder Graphs')
The minimal dwelling unit size of 210m² was noted by 92% of respondents as efficient and only 6% saw no need for a minimal primary dwelling unit floor area.

QUESTION 3 - NEIGHBOURS COMMENTS? (Refer to "Annexure 3" - 'Pie Chart')
94% of respondents saw a need for neighbours to comment on an application for densification of a "Residential 1" stand, whilst 6% saw no such need.

QUESTION 4 - MINIMUM ERF SIZES (Refer to "Annexure 3" - 'Bar Chart')
5% saw 400m² as an appropriate minimum stand size, while the same was felt by about 13%, regarding 500m² erven. 10% were satisfied with a minimum erf size of 600m². The remaining 51% of respondents saw the need for erven to be in excess of 600m².

QUESTION 5 - 2ND UNITS ON SUBDIVIDED PORTIONS
(Refer to "Annexure 3" - 'Cone Chart')
If an erv was to be subdivided, 87% of respondents saw no need for a granny flat or second dwelling unit provision, whilst 12% were in support of this type of densification.

The sentiments of the respondents, which can be extrapolated to represent the community and residents of Meyersdal, are hence clear, in that their sentiments and wishes converge towards low density, maintaining control on dwelling and erf size, and consulting with neighbours prior to development.
The additional comments received do not specifically point in a direction for future survey/study but do reiterate the residents' feelings / their strong views against densification. These comments can be summarized as:

- Densification will lead to loss of exclusivity, and elitist/upmarket character, status and nature will be lost, resulting in devaluation of properties.
- Lack of demand for higher densities in this area.
- Sufficient provision of higher density erven.
- Will lead to downgrading of area.
- Traffic and pedestrian flows will increase.
- Overpopulation and overcrowding will occur.
- Council's previous planning now deviated from - creating distrust, etc.

6. MOTIVATION AND POLICY PROPOSALS

From the aforementioned reasons and feedback of the respondents, it is apparent that there is no need and desirability for intensification of land use or densification within the 'soft Residential 1 core' of Meyersdal. Based on this conclusion the first policy proposal is that:

"The suburb of Meyersdal maintain its existing/current status of office/higher density and low residential density zones."

The second policy statement is derived from the findings revealing that residents had purchased in the suburb due to a sense of security that lower density would be maintained. This was implied through the conditions of the township establishment and various annexure conditions. The policy statement is hence proposed to read as:

"The general conditions of the townships establishment and annexures, currently applicable with regard to minimum dwelling unit sizes (210m²), etc., be maintained in the 'Residential 1' sector of Meyersdal."

The third policy proposal is aimed at facilitating for subdivision of larger erven, whilst maintaining the low density character and nature of the area. The majority of 'Residential 1' erven in Meyersdal are approximately 1000m². If one was to allow a second unit on these erven the de facto density would be 1 unit per 500m². This would have the effect of minimum erf sizes of 500m². This could technically be seen as radically intense densification as some erven in Meyersdal do reach up to 2500m² implying a stand with previously one unit thereon may now develop with 5 units (prior to considering of second dwelling units on a stand, which could result in 10 units per property if secondary units are supported on 500m² erven) - this however is merely a technical extrapolation and not implementable as 'Residential 1' densification currently only allows for a single subdivision on these erven. Furthermore, 1200m² erven are prevalent in Meyersdal x14, predominantly around the 'koppie' ridge, and besides the possible service provision encumbrances the preservation of this ridge is of importance. Densification is therefore not proposed on the 1200m² erven. The remaining erven in excess of 1400m², which find themselves on the eastern boundaries of Meyersdal x14 & 12 (about 10% of erven in the study area), are thus suitable for subdivision into 2 portions. The proposed implied minimum erf size would hence be 700m² (if subdivision were allowed), which is more in line with current smaller erven of 900m² already existing in Meyersdal.
The policy proposals regarding subdivision/minimum erf sizes and second units are proposed as:

"Subdivided portions shall have a minimum size of 650m² ."

and

"Second dwelling units or 'Granny flats-cottages' (Clause 20 of the Alberton Town Planning Scheme, 1979), shall not be permitted on erven smaller than 700m² ."

Question 3 of the survey (Results diagrammatically represented under 'Annexure 3'), aimed at establishing whether surrounding neighbours should be approached for comments on potential rezoning / densification applications. The 94% positive response in this regard led to the following proposal:

"Should densification be facilitated due to the property size, the density rezoning application (amendment to the Alberton Town Planning Scheme, 1979 in terms of the Town Planning and Townships Ordinance 16 of 1986) or Simultaneous removal of restrictions and rezoning application (in terms of the Gauteng Removal of Restrictions Act of 1996), shall be circulated to all neighbours affected by the proposed application and to all surrounding property owners for written consent / comments. The comments / consents shall be submitted simultaneously with either of the aforementioned applications."

A summary of the conditions proposed under this policy are therefore as follows:

That,

1. The suburb of Meyersdal maintain its existing/current status of office/higher density and low residential density zones.
2. The general conditions of the township establishment and annexures, currently applicable with regard to minimum dwelling unit sizes (210m²), etc., be maintained in the 'Residential 1' sector of Meyersdal.
3. Minimum size of subdivided erven shall not be less than 650m².
4. Second dwelling units or 'Granny flats-cottages' (Clause 20 of the Alberton Town Planning Scheme, 1979), shall not be permitted on erven smaller than 700m².
5. Should densification be facilitated due to the property size, the density rezoning application (amendment to the Alberton Town Planning Scheme, 1979 in terms of the Town Planning and Townships Ordinance 16 of 1986) or Simultaneous removal of restrictions and rezoning application (in terms of the Gauteng Removal of Restrictions Act of 1996), shall be circulated to all neighbours affected by the proposed application and to all surrounding property owners for written consent / comments. The comments / consents shall be submitted simultaneously with either of the aforementioned applications.

Date: 14/02/2000

Ref: Meyersdal survey analysis policy TPA_04
COUNCIL RESOLUTION 30/7/97

49. RESIDENTIAL DENSIFICATION IN NEW REDRUTH: POLICY

1. THAT the policy with regard to Residential Densification in Alberton as approved by the Executive Committee on 21 May 1996 be amended by making the following conditions applicable to the township of New Redruth:

1.1 That townhouses/densification be allowed in principle in New Redruth, provided the necessary rights for such use have been obtained.

1.2 Coverage shall be restricted to:

- 45% for double storey developments
- 30% for single storey developments, provided that developers are encouraged to provide double garages for such single storey developments.

1.3 The height of the building shall be restricted to two storeys (ground floor plus one).

1.4 Double storey development shall be detached (free standing) duplex units designed and built for one family. Such units shall be located as evenly as practically possible across the entire erf and not be erected in concentrated groupings.

1.5 The size of the units, excluding outbuildings and garages, shall not be less than 90m².

1.6 No more than eight units shall be erected per undivided erf.

1.7 The floor area ratio shall be restricted to 0.6.

1.8 Effective, paved parking spaces together with the necessary manoeuvring area, shall be provided on the erf to the satisfaction of the local authority in the following ratios:

- 1 covered parking space to 1 dwelling unit of 3 or less living rooms;
- 1 covered and 1 uncovered parking space to 1 dwelling unit of 4 or more living rooms; and
- 1 uncovered parking space to 3 dwelling units for visitors.

1.9 Side spaces of 3 metres shall apply for single storey developments and 5 metres for double storey developments.

1.10 A site development plan shall be submitted and approved prior to the submission of building plans.

1.11 Single storey developments may be attached units (simplexes)

2. THAT erven 241 up to and including erf 238 New Redruth and erven 340, 342, 344, 346, 248, 250, 252, 254, 256 and 258 New Redruth (as indicated on map B) be allowed to develop according to the parameters which applied to the area demarcated for densification during 1983, as well as erf 239, in respect of which a rezoning has already been approved.

3. THAT erven 341, 343, 345, 347, 351, 353, 355 and 357 New Redruth (as indicated on map B) be developed according to the development parameters as set out in this policy.

(ANNEXURE: Refer to item 50 of the ENCO agenda)
BLOCKS WHICH WERE
ADDED TO THE 1985
PROPOSAL
degraded, and to developers who wish to minimize risk in terms of development capital ventured.

4.2 PROPOSED GENERAL POLICY

The following general policy for multi unit residential development in Bedfordview is proposed:

4.2.1 The policy shall apply to all new applications for multi unit residential use.

4.2.2 As far as existing development rights are concerned (including rights conferred in the past by means of scheme amendments or rights vested in the title deeds of properties), it is accepted that where such rights are less restrictive than the policy proposed in this document, they will prevail.

4.2.3 Multi-unit residential developments are defined as all those developments where the density exceeds 10 units per ha.

4.2.4 No multi-unit residential development shall be allowed in the "low density areas" as demarcated on Plan No 3 and discussed in Section 3.3 of this Report, with the possible exception of certain properties abutting Van Buuren Road on the south, east of Kings Road, which may be granted multi-unit residential rights (maximum density 14 units per ha.) at the discretion of the Local Authority.

4.2.5 For the purpose of density calculation, the gross area of the site(s), before deductions of road portions which the Local Authority may require, shall be used.

4.2.6 No multi-unit residential development shall be allowed on sites smaller than 4000m², and the minimum number of dwelling units per multi-unit residential development shall be 8, except in exceptional instances, at the discretion of the Local Authority.

4.2.7 The maximum density per use zone shall be as follows:

* Residential 2 - 20 Units per ha.
* Residential 3 - 45 Units per ha.
* Residential 4 - 46 Units per ha. and more.

4.2.8 The maximum coverage per use zone shall be as follows:

* Residential 2 - 40% (applicable to the subdivided residential portions).
* Residential 3 - 40%
4.2.9 The maximum floor area ratio (FAR) per use zone shall be as follows:

* Residential 2 - 0,6 (applicable to the subdivided residential portions).
* Residential 3 - 0,8
* Residential 4 - 1,2

4.2.10 The maximum height per use zone shall be as follows:

* Residential 2 - 2 storeys
* Residential 3 - 2 storeys or 3 storeys at the discretion of the Local Authority on submission of the Site Development Plan.
* Residential 4 - 3 - 5 storeys at the discretion of the Local Authority.

4.2.11 Building lines shall be as prescribed in the Town Planning Scheme, with the following exceptions:

* In the case of Residential 2 developments with 2 storeys - 4m pertaining to rear and other boundaries.
* In the case of any multi-storey development with balconies or windows overlooking adjoining properties - 7m pertaining to rear and other boundaries.
* A general building line restriction of 2m shall apply on internal access roads.

4.2.12 Parking provision requirements shall be as prescribed in the Town Planning Scheme.

4.2.13 Site Development Plans, as prescribed by the Town Planning Scheme shall, in addition to the requirements of the Scheme, also indicate the following:

* Existing vegetation, especially trees, and how such can be integrated into the proposed development.
* Detailed indication of landscaping which will be done, eg. grass and paving surfaces, earthworks, water features, types of vegetation to be established, maintenance programme, etc.
* Details of external materials and finishes.
* Plans and sections that indicate the relationship between the proposed development and existing adjoining buildings/developments.

* Clause 18.2.1 of the Town Planning Scheme should be amended to substitute the required 250m$^2$ children's playground with a functional recreation area or areas minimum 250m$^2$ designed and provided to the satisfaction of the Local Authority.

4.2.14 In the case of township establishment, a notice detailing the proposed rights and inviting comments shall be erected on the site during the prescribed advertising period.

4.2.15 The Local Authority shall forward copies of applications and Site Development Plans to the Ward Councillor for comment.

4.2.16 A standard list of Site Development Plan requirements shall be drawn up by the Local Authority and provided to applicants/developers.

4.3 PROPOSED DENSITIES PER DENSIFICATION ZONE

In addition to the general development restrictions as proposed in Section 4.2 above, the following specific densities are proposed for the different densification zones, as indicated on Plan No 6.

4.3.1 DENSIFICATION ZONE A

The area north of Van Buuren Road is affected by the industrial development to the east and the freeway to the north, and a maximum density of 45 units per ha. is proposed here.

The area south of Van Buuren Road is not as compromised as the area north if it, and a maximum density of 20 units per ha. is proposed here.

4.3.2 DENSIFICATION ZONE B

Once through-traffic along Van Buuren Road is diverted along Riley Road when the "ring road" proposal is implemented, the area between Riley Road and the freeway will be severely compromised, and a relatively high maximum density of 45 units per ha. is proposed for this area.

A maximum density of 30 units per ha. is proposed for the area between Riley Road and Van Buuren Road.
4.3.3 **Densification Zone C**

This zone is more developed than zone B, with less opportunities for densification.

A maximum density of 35 units per ha. is proposed for developments abutting Concord Road, with a maximum density of 20 units per ha. for other developments.

4.3.4 **Densification Zone D**

As stated earlier in this Report, densification zone D incorporates the Bedfordview CBD, with the attendant office, retail and institutional uses which predominate in this area, and high residential densities in excess of 45 units per ha. can be allowed here, with the exception of the area east of Van Buuren Road, where a maximum density of 20 units per ha. should be allowed.

4.3.5 **Densification Zone E**

As it is envisaged that this zone should provide upmarket multi-unit residential opportunities it is proposed that the maximum density be restricted to 14 units per ha., with the following exception:

- The area abutting Van Buuren Road and south of Douglas Road mid-block as indicated on Plan No. 5 - 20 units per ha. This area is substantially affected by traffic noise and therefore warrants somewhat higher densities than the rest of the densification zone.

4.3.6 **Densification Zone F**

Those properties within this zone which abut the freeways should be allowed a maximum density of 35 units per ha., while properties which are orientated towards the low density zone, should be restricted to a maximum density of 20 units per ha.

4.3.7 **Densification Zone G**

Various maximum densities are proposed in this zone, as indicated on Plan No. 5.

In the area north of Smith Road and west of Bradford Road a maximum density of 35 units per ha. is proposed for the area south of the Eastgate complex, while densities in excess of 45 units per ha. can be allowed within the Eastgate complex.

The area south of Smith Road and west of Van der Linde Road is
characterized by mixed retail, office, institutional and high density residential uses, and future residential densities in this area can be high, in excess of 45 units per ha.

A maximum density of 20 units per ha. is proposed for the area west of Bradford, north of Smith and west of Van der Linde Roads.

4.3.8 Densification Zone H

Land within this zone which are orientated to or abut the freeway should be allowed a maximum density of 35 units per ha., while land which is orientated towards the core, low density area of Morninghill should be restricted to maximum densities of 30 units per ha.

4.3.9 Densification Zone J

It is proposed that, on the few sites within this zone which are still available for multi-unit residential development, the density be restricted to 25 units per ha., in view of the upmarket character of the area as a whole.

4.3.10 Densification Zone K

A maximum density of 30 units per ha. is proposed for new multi-unit residential development within this zone.

4.3.11 Densification Zone L

As stated earlier in this Report, densification zone L will act as a buffer between the freeway and the Residential 1 development in Essexwold, and the maximum residential density here should be 35 units per ha. on those properties which abut the freeway and 20 units per ha. on those properties orientated towards the low density area.

4.3.12 Densification Zone M

A maximum density of 45 units per ha. is proposed for the part of this zone which is located north and west of Edenvale Road.

As far as the area south and east of Edenvale Road is concerned, densities in excess of 45 units per ha. can be allowed.
RESIDENTIAL DENSIFICATION STRATEGY

PART 2

Participation Report

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June 2008

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CHAPTER 1 – PARTICIPATION PLAN

This document has been prepared for referencing purposes for the Participation Process of the Drafting of the EMM Residential Densification Strategy. The document outlines the participation process suggested by the EMM and the actual process followed. The information provided is substantiated with correspondence, invitations and attendance registers, where applicable. This document will serve as Part 2 of the Ekurhuleni Residential Densification Strategy document.

1.1 Planned Participation Process

The Ekurhuleni Metropolitan Municipality prescribed a suggested Participation Process for the Drafting of the Residential Densification Strategy, as illustrated in the table below.

The process aimed to be as inclusive as possible within the means of the project team and with the agreement reached between the Consultants and the EMM Steering Committee’s Project Leader, Mr. Pieter Swanepoel. The adjacent Table was provided by the EMM as a minimum standard for Public Participation.

### Table: Participation Process

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1.2 Stakeholder Involvement

1.2.1 Primary Stakeholders
EMM Departments
1. IS: Public Transport
2. IS: Roads
3. IS: Civil Works
4. Environment
5. Housing
6. City Development (Spatial Planning)
7. City Development (LUM)

1.2.2 Secondary Stakeholders
1. Development Forum
2. Registered Parties (Annexure M)
3. SARCC

1.3 Meeting Schedule

1.3.1 Stakeholders

1.3.1.1 Meetings
• 18 June 2008 – Initiation Meeting
• August – October – Infrastructure Consultants of EMM
• 4 March 2008 – SARCC
• 1 April 2008 - Department of Environment
• 1 April 2008 – Department of Civil Works and Dolomite
• 10 April 2008 – Departments of Roads and Public Transport

1.3.1.2 Workshops

Regional Site Visits
• Northern Region Site Visit – 27 September 2007
  o Kempton Park, Edenvale and Bedfordview
• Eastern Region Site Visit – 20 September 2007
  o Benoni and Springs
• Southern Region Site Visit – 2 October 2007
  o Germiston and Alberton

Technical Workshops (as per Section 2.1)
• 10 October 2007 (Section 2.1.3)
• 6 February 2008 (Section 2.1.3)
• 11 March 2008 (Section 2.1.8)
• 13 March 2008 (Section 2.1.7)
• 17 March 2008 (Section 2.1.8)
• 18 March 2008 (Section 2.1.8)
• 28 March 2008 (Section 2.1.8)
• 29 May 2008 (Section 2.1.12)

Public Workshops (as per Section 2.1)
• 24 October 2007 (Section 2.1.4)
• 20 February 2008 (Section 2.1.6)

1.3.2 Ekurhuleni Metropolitan Municipality Project Manager

1.3.2.1 Meetings
• 4 September 2007
• 30 October 2007
• 27 November 2007
• 17 January 2008
• 27 February 2008
• 18 March 2008
CHAPTER 2 – RECORD OF PARTICIPATION

2.1 Record of Meetings/Workshops

2.1.1 Initiation Meeting
An Initiation Meeting was held with the Project Steering Committee on 18 June 2007 at the Kempton Park Offices of the EMM.

2.1.2 Regional Site Visits
Prior to the first Technical Meeting, three site visits were conducted in order for the Consultants to familiarize themselves with the Ekurhuleni area. One site visit per Service Delivery Region was conducted. These site visits were hosted by the Regional Executive Manager for the region, the Regional Planner and the various Area Managers for each Customer Care Centre in the specific region visited. The Site Visits were held on the following dates and the following areas were visited:

- **Northern Region Site Visit – 27 September 2007**
  - Kempton Park, Edenvale and Bedfordview
- **Eastern Region Site Visit – 20 September 2007**
  - Benoni and Springs
- **Southern Region Site Visit – 2 October 2007**
  - Germiston and Alberton

The invitations to the Site Visits are attached as Annexure A with the corresponding Attendance Register for each of the Site Visits. Areas, which were not visited, include Brakpan, Boksburg and Nigel. These areas were not visited for logistical reasons or the unavailability of officials from these areas.

2.1.3 Technical Workshop 1
A Technical Workshop was conducted on 10 October 2007 at the Kempton Park Civic Centre, at which the Consultants presented their findings, to date, to invited Ekurhuleni Officials. The following documents are attached as Annexure B:

- List of Invitees
- Invitations sent via E-mail
- Attendance Register
- Copy of the Presentation

2.1.4 Public Meeting 1
During the Inception Meeting, the Consultants and the Project Steering Committee agreed that Public Meetings/Workshops would be combined with the Development Forum Meetings for the duration of the project. The Development Forum is an initiative by the EMM to keep developers, officials, residents and professionals informed of any developments, policy processes and Municipal activities. This forum consists of registered parties and is generally not open to the public. Due to the nature of this project, it was decided that the public should be involved for the duration of the project at the Development Forum and an alternative arrangement was made to reach any other Interested and Affected Parties (IAAPs) who were not registered on the Development Forum. This will be discussed in the Section 2.5.

A presentation was made at the meeting of the Development Forum Meeting on 24 October 2007. At this meeting, IAAPs were invited to register their names and contact details with
the Consultants for any future correspondence and to be informed of any further meetings.

The following documents are attached as Annexure C:
- Development Forum Invitation
- Presentation made at Development Forum
- IAAPs Register

2.1.5 Internal SDF Meeting/Workshop
A presentation on the First Draft Residential Densification Strategy was done on 6 February 2008 to the internal Spatial Development Framework Meeting held at the Kempton Park Civic Centre, Council Chambers.

The following documents are attached as Annexure D:
- Invitations
- Presentation

2.1.6 Public Meeting 2
A presentation on the Draft Residential Densification Strategy was made at the meeting of the Development Forum Meeting on 20 February 2008.

The following documents are attached as Annexure E:
- Development Forum Invitation
- Presentation made at Development Forum

2.1.6 South African Rail Commuter Corporation
A meeting was requested by the EMM City Development Department to engage on issues surrounding Densification and Railway Lines and Stations. This meeting was arranged for 4 March 2008.

The following Documents are attached as Annexure F:
- Attendance Register
- Correspondence

2.1.7 EMM City Development: Spatial Team Meeting
A presentation on the First Draft Residential Densification Strategy was done to the City Development Spatial Team on 13 March 2008 to introduce the proposals. It was requested that written comments be given to the Consultants.

The following documents are attached as Annexure G:
- Attendance Register
- Correspondence with EMM Project Manager
- Comment Sheets

2.1.8 Series of CCC Meetings
A series of CCC Meetings/Workshops were arranged after comments were received for the first draft of the Residential Densification Strategy. These meetings are listed below and all supporting documentation is attached as Annexure H.

1. 11 March 2008 – Northern Region Meeting at Edenvale Offices
2. 17 March 2008 - Southern Region Meeting at Alberton Offices
3. 18 March 2008 – Northern Region Meeting at Kempton Park Offices
4. 28 March 2008 - Eastern Region Meeting at Springs Offices

2.1.9 Department of Environment
On 1 April 2008 the Consultants met with the Department of Environment to discuss the impact of the densification
proposals on the environment. Supporting documentation is attached as Annexure I.

2.1.10 Department of Civil Works and Dolomite
On 1 April 2008, the Consultants met with the Department of Civil Works and Dolomite to discuss the impact of the densification proposals on the relevant infrastructure and dolomite areas. Supporting documentation is attached as Annexure J.

2.1.11 Departments of Roads and Public Transport
On 10 April 2008, the consultants met with the Departments of Roads and Public Transport to discuss the impact of the densification proposals on the current and planned infrastructure.

Supporting Documentation is attached as Annexure K.

2.1.12 EMM City Development: Spatial Team Meeting
The Final Residential Densification Strategy was presented to the Spatial Team on 29 May 2008. The presentation is attached as Annexure L1.

2.1.13 City Development: Area Managers
The Final Residential Densification Strategy was presented to the City Development Area Managers, Land Use Management and Spatial Planning Directorates on 1 July 2008. The presentation was done by officials from the Spatial Planning Directorate. The attendance register is attached as Annexure L2.

2.2 Proof of Advertising
An advertisement was placed in the “Ekurhuleni Talks” publication (for the month of November/December 2007), which is distributed via Ekurhuleni Residents’ Rates and Taxes Accounts on a monthly basis. The advertisement called for any further IAAPs to register with the Consultants, to receive any correspondence regarding the process, future meetings or draft document circulations. These IAAPs would also be invited to future Development Forums for input into the process.

A copy of the relevant issue of “Ekurhuleni Talks” is attached as Annexure M. A list of all parties who have registered through this advertisement is also attached in this Annexure.
2.3 Comments

2.3.1 Status Quo Comments
Comments received on the Draft Status Quo Document are attached as Annexure N. The Table, attached as Annexure P, summarizes all comments received and how, if at all, these comments have been incorporated into the Final Status Quo Analysis.

2.3.2 Draft 1 Density Strategy
The First Draft Density Strategy was circulated and comments were received. Various comments were received from various role players. However, it was found that these comments were not related to what the brief of the project stipulated and required. A pattern of misconception and misunderstanding was found and the Consultants, in consultation with the Client, had decided to go back to the drawing board to develop a principle-based approach.

This triggered the series of meetings with the various departments and CCCs which are shown in Sections 2.1.8 to 2.1.12.

After this series of meetings it was decided to redraft the document completely and request a new round of comments, as all parties involved were well aware of the purpose of the project and the project brief.

2.3.3 Draft 2 Density Strategy
The second draft Density Strategy was prepared and placed on the EMM Intranet and the Setplan Website for comment on 23 April 2008. Comments were requested via e-mail, as attached in Annexure O. Due to electricity issues within the Kempton Park area during this time, an extension of time for the comment period was given until 16 May 2008. The comments received are also attached in Annexure O.
CHAPTER 3 – PARTICIPATION OUTCOME

3.1 Comment Incorporation/Exclusion

3.1.1 Status Quo
Comments received on the Draft Status Quo Document are attached as Annexure N. The Table attached in Annexure Q summarizes all comments received and how, if at all, these comments have been incorporated into the Final Status Quo Analysis.

3.1.2 Draft 1 Residential Densification Strategy
No comment incorporation (see Section 2.3.2)

3.1.3 Draft 2 Residential Densification Strategy
Comments received on the Second Draft Residential Densification Strategy Document are attached as Annexure O. The Table attached in Annexure R summarizes all comments received and how, if at all, these comments have been incorporated into the Final Residential Densification Strategy.

3.2 Lessons Learnt
The following lessons were learnt during the Public Participation of this project:
1. It is very important that all stakeholders and IAAPs are made aware from the start of the project what the purpose of the end product will be.
2. All stakeholders should be made aware of what the end product will address and what the content of the end product will be.
3. It is important to take a holistic approach with such metropolitan frameworks and engage with all relevant departments in ‘one-on-one’ sessions to gather as much information as possible. This assists in the ‘comment phases’ of the project as parties begin to understand each other’s issues and ‘language’.
CHAPTER 4 – EXECUTIVE SUMMARY

The Public Participation Process for the formulation and development of the Residential Densification Strategy for the EMM has been intense and extensive. This is evident in Chapter 2 of this report.

In total 18 meetings/workshops, excluding the meetings with the EMM Project Manager, was attended and hosted. Three sites visits were held with EMM City Officials where current densification was investigated.

Numerous internal workshops were held with the various City Departments listed in Chapter 1.

The table as illustrated in Chapter 1 of this report was extracted from the project brief and in conclusion the consultants can illustrate with certainty that this participation requirement was met with additional meetings and site visits as mentioned in Chapter 1 and 2 of this report.
ANNEXURE D
ANNEXURE F
ANNEXURE I
ANNEXURE L1
ANNEXURE L2
RESIDENTIAL DENSIFICATION STRATEGY

Part 3

PREPARED BY:
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MAY 2008

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Permission to reproduce the contents of this document must be obtained from Ekurhuleni Metropolitan Municipality.

Approved
City Development Portfolio Committee
19 August 2008, C-CD(134-2008)
This document is Part 3 of the Ekurhuleni Residential Densification Strategy. Part 1 (Status Quo Report) and Part 2 (Public Participation Report) are stand-alone documents and are available on request from the Ekurhuleni City Development Department. An Executive Summary of the Ekurhuleni Residential Densification Strategy is also available on request.
DEFINITIONS

ACTIVITY SPINE
A linear area of mixed use developments along streets with heavy traffic and pedestrian flows. Activity Spines are indicated on the relevant Spatial Frameworks.

ACTIVITY STREET
A local street where pedestrian movement and access is encouraged as a priority over mobility.

BACK PACKER ESTABLISHMENT
A residential accommodation establishment which provides low-cost accommodation to travellers whose primary needs are for sleeping facilities in a residential house, flat or other suitable building, providing only a bed, pillow and a kitchen for self-help.

BED AND BREAKFAST ESTABLISHMENT
An establishment which provides low-cost accommodation to travellers in a residential house, flat or other suitable building, providing only basic facilities for sleeping, ablutions and cooking.

CENTRAL BUSINESS DISTRICT
This node is a concentration of activities and serves a national and international community. E.g. Offices, Rental, General business, Recreational, Entertainment, Light service industry, Residential uses, Parks and open spaces.

COMMUNE
A dwelling house or dwelling units where people, not necessarily related to one another, live together.

COVERAGE
The area of a property which may be covered by buildings, as seen vertically from above and is expressed as a percentage of the area of the property.

DISTRICT NODES
These are higher order functional areas, with good access from motorways and a concentration of activities, services and amenities.

DUPLEX DWELLING
A suite of rooms forming a complete, living unit situated on two floors, having an internal stair case giving access to the upper floor, designed or used as a residence by a household, contained in a building consisting of two or more such living units, each having direct access to a garden on ground level.

DWELLING HOUSE
A free standing unit in which people live.

DWELLING UNIT
An interconnected suite of rooms including one kitchen, designed for occupation by a single family and may include such outbuildings and servant’s quarters as are ordinarily incidental thereto. It includes flat, dwelling house, cluster unit and duplex dwelling.

ESTABLISHMENT
A public or private structure (business or governmental or educational) including buildings and equipment for business or residence.

FLAT
Any suite of rooms, not being a single dwelling house but constituting a complete dwelling unit designed for use by a single family, contained in a building consisting of two or more such
dwelling units and having a common entrance.

**GROSS DENSITY**
Density on a specific site where public roads and public spaces are included (usually measured in terms of dwelling units per hectare)

**GUEST HOUSE**
A residential accommodation establishment with a distinct individual character, offering resident guests the exclusive use of the facilities, including accommodation and breakfast, as well as lunch and dinner by prior arrangement, without a public bar, managed by the owner or host, who resides on the property with his or her family with a maximum of sixteen and minimum of three bedrooms.

**HOTEL**
A building that is registered as a hotel in terms of section 1 of the Hostel Act, 1965 (Act 70 of 1965).

**HOSTEL**
A building designed or used for human habitation, other than a house or dwelling unit, which consists of a number of bedrooms, as well as communal ablution and dining facilities for use by the residents.

**LIVING ROOM**
A room designed or used for human occupation in accordance with the standards prescribed in the By-laws. This does not include a storeroom, kitchen, scullery, toilet, bathroom or passage.

**LOCAL ACCESS STREET**
Minor streets, local streets, urban local access, activity street.

**MOBILE DWELLING UNIT**
A prefabricated, combined suite of rooms, which may not include more than one (1) kitchen, designed for occupation and use by a single family as a permanent residence, which is provided with the necessary service connecting points and so manufactured that it can be moved as a unit or units on wheels.

**MOBILITY SPINE**
An arterial along which through traffic flows with minimum interruption whilst development abutting the spine is in terms of specific policy criteria relating to the types of land use to be accommodated and to level of access.

**NEIGHBOURHOOD NODE**
This type of node occurs at a neighbourhood level but may serve more than one neighbourhood.
### NET DENSITY
Density on a specific site where public roads and public spaces are excluded (usually measured in terms of dwelling units per hectare).

### PEDESTRIAN MALL
Any part of a site used as a thoroughfare for pedestrians, with no or limited vehicular access, as approved by the Municipality. There may be buildings on, above or below the Pedestrian Mall, as the Municipality may determine.

### PERMANENT RESIDENT
A person residing at a house or dwelling unit.

### RESIDENTIAL BUILDING
A building, other than a house or hotel, designed for use, or used for human habitation, and includes a boarding house, a residential club, a hostel or tenements but does not include any building mentioned in the definitions of “Place of instruction”, Institution and “Dwelling unit” whether by way of inclusion or exclusion.

### ROOMING OR LODGING FACILITIES
An informal accommodation establishment offering a room or rooms available for accommodation in a building for guests where no meals are prepared and facilities are shared.

### SELF CATERING ACCOMMODATION
A room or rooms, including a facility for the preparation of meals and an ablution facility, rented out on a temporary basis for the private use of guests catering for themselves, consisting of not less than four units.

### SOCIAL HALL
A building designed for use as or used for social assemblies, gatherings, meetings and recreational purposes, including a non-residential club but excluding a “Place of amusement”.

### SPECIAL BUILDING
A building used or designed for any use other than a use for which buildings defined herein are designed and which, in the opinion of the local authority, belongs in the use zone in which the building is to be situated.

### SPECIALITY NODE
The node that serves a specific market and it serves sub-regional areas, districts or even regional areas.

### STOREY
The space in a building between one floor level and the following floor level or ceiling or roof above as in National Regulation Building Act.

### STRATEGIC DENSIFICATION
Residential densification taking place in areas strategically chosen to enhance the urban form and the functioning thereof.
STREET FRONTAGE
The portion of the building visible from the street and is the common boundary of a property/public street.

URBAN COLLECTOR
Local distributor, Minor collector, Neighbourhood connector, CBD road, Industrial road, Lower mobility activity spine, Activity street.

URBAN DISTRICT DISTRIBUTOR
Minor arterial, Major collector, Higher mobility activity spine.
ABBREVIATIONS

BNG: Breaking New Ground
GDS: Growth and Development Strategy
LSDF: Local Spatial Development Framework
MSDF: Metropolitan Spatial Development Framework
PDA: Previously Disadvantaged Area
RSDF: Regional Spatial Development Framework
ORTIA: OR Tambo International Airport
1. INTRODUCTION

The “Status Quo: Analysis and Findings” Document highlighted the current trends and approaches to densification across the globe and in South Africa and its various cities. Some of the key issues and highlights of the “Status Quo: Analysis and Findings” Report, will be reiterated in this document.

The trend of densification across the world is driven by a vision for more sustainable cities and largely by a movement for the protection of the environment. Urban sprawl is a worldwide phenomenon and densification is part of the urban compaction movement, which strives for high density, mixed-use developments, promoting and enhancing efficient public transport systems and enhancing the quality of life of residents in cities across the world. To achieve sustainable densification, a number of selected issues need consideration:

- The cost, availability and location of land
- Transportation and accessibility
- Socio-economic issues
- Environmental considerations
- Cultural issues
- Political position of government
- Infrastructure planning and availability

The above listed issues must be taken into consideration together with other density controls, which will be outlined in this Strategy document.

In South African cities, trends in densification have been to direct densification towards other urban elements and areas with sufficient infrastructure capacity to ensure the maximum use of services. These urban elements are primarily nodes or nodal points, transportation routes especially where public transport is encouraged, areas where public investment is occurring and areas of increased economic activity and private investment (nodes and corridors). Most SA Cities now also promote base densities across the municipal area, except in areas where other densities are encouraged through alternative policies.

More detail on these findings is available in the Status Quo: Analysis and Findings Document. The next section will briefly outline the findings for the Ekurhuleni Metropolitan Municipality and its general objectives and strategies in terms of its urban form.
### Key Density Issues and Findings in Ekurhuleni

The Status Quo Report highlighted a range of “Key Issues” that must be taken into account in developing a Residential Densification Strategy. These are summarized in point form below (not in order of priority):

- There is a “mind-set shift” required to accept higher density living.
- “Compact City” approach provides the right framework.
- “Urban sprawl” creates unsustainable cities.
- Mixed-use living not widely experienced and history of separation of uses.
- Environmental and general resource protection through densification.
- Social development and efficiency of facilities and amenities achieved through densification.
- Reduction of household and living costs through densification.
- Densification facilitates wide range of tenure options (rental, installment sale etc).
- Different approaches / solutions to densification issues around the world.
- Access to transport and other facilities and amenities critical in higher density areas.
- Densification planning must be linked to infrastructure planning and financing.
- Densification linked to social justice and equity (integration, access to housing, services and opportunities etc.).
- Mechanism for strategic rationalizing of city structure.
- Higher densities require higher level of architectural and urban design.
- National, provincial and local policy support for densification (DFA, Spatial Development Framework, Land Use Management Bill, Gauteng Planning and Development Act, EMM Growth and development Strategy etc).
- Opportunity for private sector drivers through partnerships and “rewards”.
- Densification used as a strategic planning tool (nodes, corridors, infill, development boundaries etc.).
- Current density trends present opportunity for further densification.
- Residential Densification Strategy recommendations provide guidelines for LSDFs.
- Scheme clauses in Land Use Management Schemes need to be amended to consistently address density across the EMM.
- Higher densities have disadvantages for extended family living.
- Higher densities have disadvantages for children and pets.
- Geotechnical, environmentally sensitive areas, heritage and other constraints must be addressed in the Residential Densification Strategy.
- Phasing and financing of infrastructure must be linked to the Residential Densification Strategy.

In terms of the Ekurhuleni Metropolitan Municipality’s objectives and strategies for growth, the following, in particular, should be kept in mind in order to align the Residential Densification Strategy with the rest of Ekurhuleni’s Development Policies, of which some are:

- The Ekurhuleni Growth and Development Strategy
- The Ekurhuleni Metropolitan Spatial Development Framework 2005
- The Regional Spatial Development Frameworks

These and other Development Policies are briefly discussed in Section 2 of the document.
1.1 Purpose of the Residential Densification Strategy

The project brief stipulated the formulation of a specific product, which should be versatile enough to inform the spatial planning in the Ekurhuleni Metropolitan Municipality, especially with the revision of the MSDF and which should also be used as part of the Town Planning Scheme (or rather Land Use Management Scheme) which will be developed by Ekurhuleni over a period of time.

The document should therefore be guiding in nature and should provide guidelines on densification in terms of strategic development initiatives, as well as development controls in terms of densification throughout the city. However, this should not be a static document but one which evolves over time and with development.

The overall aim of this Strategy is therefore to provide guidance to Ekurhuleni Officials, Planners, Developers and the public in the densification of Ekurhuleni. This document is a broad metro-wide strategy, which is to be incorporated into and applied to any new or revised policy documents and which takes cognizance of all current policy and framework documents. **This document is not produced for the evaluation of individual residential densification applications, but is produced to guide the drafting of LSDFs and other metropolitan policies.** The principles and proposals of this strategy may however be used in the evaluation of residential densification applications in areas where there is no LSDF.

The Residential Densification Strategy’s principles, guidelines and controls must be applied with discretion and local knowledge to more localized plans for specific areas, especially at LSDF level.

1.2 Users of the Residential Densification Strategy

The Residential Densification Strategy should be used by built environment officials and Municipality officials in the compilation of Local Spatial Development Frameworks and other policies and plans. This document forms part of the greater family of plans and frameworks and should be read in conjunction with metropolitan or areas based plans, such as the LSDF, in order to align thoughts and apply for appropriate densities according to the local situation.

1.3 Structure of Residential Densification Strategy

The Residential Densification Strategy consists of a number of sections, each of which deals with certain aspects of densification. The Strategy begins by highlighting the approach and informing principles of densification used in deriving this Strategy. The Strategy sets out the current trends of densification in the EMM and highlights some of the anticipated trends and possible targets for the future. It further relates the issues of density to the broader Ekurhuleni policy framework, which needs to be enhanced through densification.

The Strategy then addresses specific categories of densification and provides guidelines in terms of design and control measures for densification to occur. It will further provide guidelines in terms of managing densification throughout the metropolitan area and at various scales and will address issues of short, medium and long terms concern, such as the movement of the Urban Development Boundary.
2. RESIDENTIAL DENSIFICATION STRATEGY

2.1 EMM Vision & Densification

The EMM is formed by nine former towns on the East Rand, resulting in a fragmented metropolitan area, which lacks a clear identity in terms of urban form and function. Furthermore, documentation and policy in the metropolitan area are not aligned, nor do they have a holistic approach, which can be applied to all distinct areas.

The vision for Ekurhuleni, as stated in the GDS 2025, is:

The Smart, Creative and Developmental City

The approach to densification in Ekurhuleni should build on this vision and strive to provide a clear direction for the City’s morphology and development, which supports the ideals and objectives of creating a sustainable, inclusive and productive city through densification.

2.2 Densification Objectives & Strategies

The table below illustrates the proposed objectives and strategies to achieve sustainable densification throughout the Metropolitan area.

<table>
<thead>
<tr>
<th>OBJECTIVES &amp; STRATEGIES</th>
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</thead>
<tbody>
<tr>
<td>OBJECTIVES</td>
</tr>
<tr>
<td>1) To ensure safe, quality living environments for all residents in Ekurhuleni</td>
</tr>
<tr>
<td>2) To ensure sustainable densification in terms of infrastructure capacities and provision</td>
</tr>
<tr>
<td>3) To ensure environmental protection in the process of densification</td>
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<tr>
<td>4) To ensure effective and appropriate decision making in terms of density proposals</td>
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<td>5) To ensure effective and efficient management of higher density residential developments</td>
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<tr>
<td>6) To ensure balanced growth in terms of densification by providing residents with opportunities close to economic activities</td>
</tr>
<tr>
<td>7) To ensure balanced growth in terms of densification by providing residents with opportunities close to social facilities</td>
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</tbody>
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<table>
<thead>
<tr>
<th>STRATEGIES</th>
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</thead>
<tbody>
<tr>
<td>1a) To create clear guidelines for Urban Design in higher density residential developments</td>
</tr>
<tr>
<td>1b) To create guidelines for suitable housing options and typologies</td>
</tr>
<tr>
<td>2a) To align densification in EMM with bulk infrastructure service delivery and maintenance</td>
</tr>
<tr>
<td>3a) To create clear guidelines for densification to occur in non-sensitive areas</td>
</tr>
<tr>
<td>3b) To provide decision makers/officials, town planners, developers and residents with guidelines and policy which is to be consulted in terms of environmental consideration and procedure</td>
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<tr>
<td>3c) To formulate criteria for the protection of environmental assets</td>
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<tr>
<td>4a) To establish clear assessment criteria for decision making officials in terms of density proposals across EMM</td>
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<tr>
<td>4b) To establish an Aesthetics Committee(s) for assessment/review of building design and urban design principles</td>
</tr>
<tr>
<td>5a) To establish management criteria for various densification classification</td>
</tr>
<tr>
<td>6a) To place residential densification in close proximity to economic and employment opportunities</td>
</tr>
<tr>
<td>7a) To align densification to areas where adequate social infrastructure is available</td>
</tr>
<tr>
<td>7b) In the event that social infrastructure is limited, provide guidelines for aligning densification with social infrastructure service provision</td>
</tr>
</tbody>
</table>
2.3 Approach to Densification

After consultation occurred and comments were received on previous drafts of this document, an approach was adopted in consultation with the client. This approach is based on the principles listed below and discussed in turn, in terms of its relevance to Densification.

i. Adherence to National & Provincial Legislation
ii. Looking Forward (in line with Current Development Policy)
iii. Strategic Densification
iv. Sustainability
v. Quality Environments

i. Adherence to National and Provincial Legislation/Policies

National and Provincial legislation has been formulated around concepts and ideas which have not emerged in South Africa, but which have emerged globally and have been transferred to the local context. Primary concepts currently being embraced within legislative and general planning thinking are those of urban compaction and social and urban integration.

Various principles are highlighted in this section to illustrate this and how legislation has been passed to lead planning thought and practice. The specific pieces of legislation which are of relevance are the Development Facilitation Act, 1995 (Act No 67, 1995), The Gauteng Planning & Development Act, 2003 (Act No 3, 2003), Breaking New Ground Policy and the ASGISA (Accelerated and Shared Growth Initiative – South Africa).

The various relevant principles within these documents are listed below.

THE DEVELOPMENT FACILITATION ACT, 1995 (ACT NO 67, 1995)

Chapter One of the Development Facilitation Act lists a set of principles which should be adhered to by all land development. These thirteen principles are listed below:

a) **Policy**, administrative practice and laws should provide for urban and rural land development and should facilitate the development of formal and informal, existing and new settlements.

b) **Policy**, administrative practices and laws should discourage the illegal occupation of land, with due recognition of informal land development processes.

c) **Policy**, administrative practice and laws should promote efficient and integrated land development in that they
   i. Promote the integration of social, economic, institutional and physical aspects of land development;
   ii. Promote integrated land development in rural and urban areas in support of each other;
   iii. Promote the availability of residential and employment opportunities in close proximity to or integrated with each other;
   iv. Optomise the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities;
   v. Promote a diverse combination of land uses, also at the level of individual erven or subdivisions of land;
   vi. Discourage the phenomenon of “urban sprawl” in urban areas and contribute to the development of more compact towns and cities;
   vii. Contribute to the correction of the historically distorted spatial patterns of settlement in the Republic and to the optimum use of existing infrastructure in excess of current needs; and
   viii. Encourage environmentally sustainable land development practices and processes.
d) Members of communities affected by land development should actively participate in the process of land development.

e) The skills and capacities of disadvantaged persons involved in land development should be developed.

f) Policy, administrative practice and laws should encourage and optimize the contributions of all sectors of the economy (government and non-government) to land development so as to maximize the Republic’s capacity to undertake land development and, to this end, and without derogating from the generality of this principle,

i. National, provincial and local governments should strive clearly to define and make known the required functions and responsibilities of all sectors of the economy in relation to land development as well as the desired relationship between such sectors; and

ii. A competent authority in national, provincial or local government responsible for the administration of any law relating to land development shall provide particulars of the identity of legislation administered by it, the posts and names of persons responsible for the administration of such legislation and the address and locality of the offices of such persons to any person who requires such information.

g) Laws, procedures and administrative practice relating to land development should –

i. Be clear and generally available to those likely to be affected thereby;

ii. In addition to serving as regulatory measures, also provide guidance and information to those affected thereby;

iii. Be calculated to promote trust and acceptance on the part of those likely to be affected thereby; and

iv. Give further content to the fundamental rights set out in the Constitution.

h) Policy, administrative practice and laws should promote sustainable land development at the required scale in that they should

i. Promote land development which is within the fiscal, institutional and administrative means of the Republic;

ii. Promote the establishment of viable communities;

iii. Promote sustained protection of the environment;

iv. Meet the basic needs of all citizens in an affordable way; and

v. Ensure the safe utilization of land by taking into consideration factors such as geological formations and hazardous undermined areas.

i) Policy, administrative practice and laws should promote speedy land development.

j) Each proposed land development area should be judged on its own merits and no particular use of land, such as residential, commercial, conservational, industrial, community facility, mining, agricultural or public use, should in advance or in general be regarded as being less important or desirable than any other use of land.

k) Land development should result in security of tenure, provide for the widest possible range of tenure alternatives, including individual and communal tenure, and in cases where land development takes the form of upgrading an existing settlement, not deprive beneficial occupiers of homes or land or where it is necessary for land or homes occupied by them to be utilized for other purposes, their interests in such land or homes should be reasonably accommodated in some other manner.

l) A competent authority at national, provincial and local government level should co-ordinate the interests of the various sectors involved in or affected by land development so as to minimize conflicting demands on scarce resources.

m) Policy, administrative practice and laws relating to land development should stimulate the effective functioning of a land development market based on open competition between suppliers of goods and services.

As is clearly evident in these principles, urban compaction is a driving force for settlement development, which is further underpinned by issues of integration and a holistic approach to development.
The key concepts can therefore be summarized as follows:
- Facilitation of developed, undeveloped and informal areas
- Efficient and integrated land development
- Promote sustainable land development
- Promote speedy land development
- Provide security of tenure
- Stimulate effective functioning of a land development market

GAUTENG PLANNING & DEVELOPMENT ACT, 2003 (ACT NO 3 OF 2003)

The principles stipulated in this legislation are set out in Chapter II. Sections 3, 4 and 5 are of relevance to this study and are listed below:

Principles to promote spatial restructuring and development
1. **Policy**, administrative practice and law in the Province shall promote development and land use which
   a) Promote the more compact development of urban areas and the limitation of urban sprawl and the protection of agricultural resources;
   b) Support the correction of historically distorted spatial patterns of settlement in Gauteng;
   c) Promote integrated land development in rural and urban areas in support of each other;
   d) Result in the use and development of land that optimises the use of existing resources such as engineering services and social facilities;
   e) Have positive development qualities, particularly with regard to public environments.

Principles to promote sustainable development
2. **Policy**, administrative practice and law in the Province shall with due regard to the principles of the National Environmental Management Act, 1998 (Act 107 of 1998) promote sustainable development that –
   a) Is within fiscal, institutional and administrative means to the Province;
   b) Meets the basic needs of all citizens in an affordable way;
   c) Establishes viable communities with convenient access to economic opportunities, infrastructure and social services;
   d) Optimizes the balanced use of existing resources, including resources relating to agriculture, land, water, minerals, services infrastructure, transportation and social facilities;
   e) Balances environmental considerations of preserving natural resources for future generations with economic development practices and processes; and
   f) Ensures safe utilization of land taking into consideration its biophysical factors such as geology and undermined hazardous areas.

Principles relating to development in general
3. **Policy**, administrative practice and law in the Province, shall
   a) Promote the integration of social, economic, environmental, institutional, infrastructural and spatial aspects of development;
   b) Provide for the development of formal and informal settlements;
   c) Discourage illegal occupation of land;
   d) Encourage the participation of all sectors of the economy and promote partnerships so as to maximize development;
   e) Ensure that organs of state co-ordinate the interests of the various sectors involved in or affected by development so as to minimize conflicting demands on scarce resources;
   f) Promote efficient and rapid development.

The concepts and principles highlighted above can be directly linked to and, in some cases, are similar to those of the DFA discussed above. Common elements are:
• To combat urban sprawl and strive for compact cities
• To correct the urban ills of the past – distorted urban settlements
• To promote integrated development
• To promote the efficient use of existing resources
• To promote efficient and speedy development of land
• To balance all development considerations, especially environment
• To ensure safe utilization of land
• To establish viable communities

The above mentioned principles and concepts should be kept in mind in terms of densification across the City and its settlements, whether the area under consideration is established, developing or informal. These concepts should be enabled through the process of densification in the short, medium and long terms.

ii. Looking Forward (in line with Current Development Policy)

In assessing policies developed and accepted by the EMM, it has been seen that there exists a ‘policy vacuum’ in terms of policy implementation and enablement. Policies are not enforced and implemented in a rapid, speedy manner. This phenomenon is known as a policy-lag. Officials, developers and other professionals use policy which is familiar to them, be it previous, outdated policies or Town Planning Schemes.

For this reason it is imperative that current, accepted policies are consulted in this process and that densification is used in a manner, which not only supports these various developmental policies but also assists in the enablement thereof and participation therein.

The EMM has a wide range of developmental policies which should be consulted and supported in this process. The consultants have studied these documents and the following documents are highlighted as they emphasize and attempt to convey the vision and path of development of the EMM.

**Ekurhuleni Growth and Development Strategy 2025**

The GDS 2025 Executive Summary gives a problem statement, which needs to be addressed, regarding the settlement issues of the City. This extract is illustrated overleaf.

The EMM lacks a clear identity and a primary core area. The EMM is spatially fragmented. EMM’s GDS outlines a Growth and Development Agenda, which is driven by four key principles which the Residential Densification Strategy should adhere to and build on. These are:
The above-mentioned principles are based on the themes of the SACN Framework to implement a consistent development rationale across the country and especially in member cities of SACN.

The Ekurhuleni Metropolitan Spatial Development Framework 2005

The Ekurhuleni MSDF builds on other broader policies and strategies of Gauteng and Ekurhuleni, such as the Gauteng GDS and Ekurhuleni IDP and GDS. The MSDF however, has a more focused area, namely the spatial form of the City.

The 2005 MSDF has eight primary objectives in terms of its spatial structure and development. These are illustrated in the extract below (EMM MSDF 2005, p96).

The spatial development of the EMM is based on a number of concepts and components. It is important to consider these in the formulation of the Residential Densification Strategy, as these concepts and components form the urban morphology and structure.
• **Implement a statutory Urban Development Boundary**
• Formalize and protect the Metropolitan Open Space System
• Focus on promoting economic activity within the Metropolitan Activity Area
• Establish a system of functionally defined (specialized) and geographically demarcated activity nodes within the Metropolitan Activity Area
• Optimize linkages and connectivity within the Metropolitan Activity Area
• Link disadvantaged communities to the Metropolitan Activity Area via a system of Public Transport Corridors
• **Promote mixed-use high density development along linkages (development corridors) and in and around the activity nodes**
• Structure the passenger transport system to support linkages (development corridors)
• Extend economic activities into marginalized residential areas to become part of the Metropolitan Activity Area
• **Promote infill residential development in vacant areas within the Metropolitan Activity Area as a priority and within the Urban Development Boundary in general**
• Focus on upgrading of engineering and social infrastructure in disadvantaged areas
• **Maintain and upgrade residential quality in rest of area**
• Promote social and municipal service delivery by an evenly distributed system of Service Delivery Centres

MSDF 2005, p97-101

The above-mentioned concepts and components all work hand in hand and cannot be implemented or achieved in isolation from each other. The Residential Densification Strategy should be formulated in such a manner as to support and enhance these concepts and components, especially those that have been highlighted above.

It should also be noted that at the time of the formulation of the Residential Densification Strategy, the MSDF 2005/6 was scheduled for review.

**The Regional Spatial Development Frameworks**

**Map 1: Regional SDF Areas**

EMM is currently divided into three service delivery regions, namely the Eastern, Northern and Southern Service Delivery Regions. These three respective frameworks apply the broader MSDF concepts and components at a more localized level, without too much detail, as this is promoted in the Local Spatial Development Frameworks. These Regional Frameworks therefore only build on and apply the MSDF principles and concepts without introducing new concepts.

Other developmental policies considered for this study include:

a. EMM IDP (2007 – 2011)
b. Housing Sector Plans
   a. Fast Tracking a Housing Solution
   b. Restriction of Access to Public Places for Safety and Security Places
   c. Bulk Water Services Contribution
d. Air Quality Management Plan
The next three ‘principles’ (strategic densification, sustainability, and quality environments) are already contained in the above mentioned principles. However, they need to be reiterated and fleshed out to ensure that all stakeholders and users of this document have a clear understanding of all elements informing this particular policy and study.

### iii. Strategic Densification

Strategic densification has been chosen as a principle of this policy because **densification should not occur randomly but in an organised, strategic manner.**

Many stakeholders voiced their concerns over densification occurring haphazardly and in an uncoordinated, unmanaged fashion. Through the implementation of strategic densification, it is anticipated that densification can be accomplished in a positive manner with positive results. Therefore, densification must be implemented with the knowledge and understanding of the following issues:

**Social Infrastructure**

It is imperative that, through the process of densification, the provision and maintenance of social infrastructure needs to be accomplished. By placing higher densities of people in smaller areas without adequately providing for basic social needs and facilities, higher quality living environments cannot be achieved. This would also compromise other areas of the built and natural environment.

**Environmentally Sensitive Areas**

Through strategic densification, environmentally sensitive areas will be protected as chances of encroachment are decreased. Environmentally sensitive areas should be treated as a resource which cannot easily be rehabilitated once it has been damaged. Therefore, strategic densification should be used as a method of protecting environmentally sensitive areas within the EMM.

**Transportation**

The urban form found in the EMM, which is not uncommon to settlements formed in South Africa, is designed around private vehicle usage with limited, undeveloped public transport opportunities. This can be remedied with strategic densification as discussions with various stakeholders in the public transport sector, especially the rail sector, have indicated that investment can only occur once commuter thresholds are achieved. Therefore, densification should ideally occur around areas of public transport provision and transport modal interchanges.

**Protection of Low Density Areas**

Not all areas are conducive to higher density developments, due to the character and nature of neighbourhoods, environmental considerations and infrastructure and
servicing issues. Certain areas should be preserved and protected for the varying life cycle needs which people have. Lower density areas with larger erven are usually the choice location for homes for families with young children. Such issues should also be considered in terms of densification.

Correcting Spatial Imbalances of the Past

The legislation and policies described above all promote the idea of correcting the spatial form of the past through integrated development. An holistic approach to planning and the development of higher density residential housing should be taken, to ensure that development occurs to support the whole community in a fair manner.

Demand vs Supply

Due to land being such a scarce resource in the EMM, the supply of land is questionable in terms of development potential. Demand for development must be offset against the actual supply of land and should be done in such a manner as to ensure sustainable use and development of land.

Land as a Resource

In terms of its geographical position, Ekurhuleni is situated over large areas, which are underlain by dolomite or are undermined. Developable land is scarce and limited and should be used in a manner which addresses the scarcity of land as a resource. Through strategic densification, land can be used in an efficient manner which limits risks and optimises the use of land. This is very important in Ekurhuleni’s situation, as there is currently a huge backlog in housing which does not take into account the normal annual growth rates experienced in the Metro.

iv. Sustainability

Sustainability is a fairly complicated concept to deal with, yet it is very important in terms of development. Densification needs to be planned and implemented in such a manner that not only the specific higher density development is sustainable, but that the urban and natural environment is sustainable, that financial sustainability is achieved for the development, the municipal entity and the residents of such a development and that social and service infrastructure is maintained and used sustainably.

v. Quality Environments

This concept hinges on all of the above mentioned principles as well as elements of good quality urban and structural design. Densification is usually associated with monotonous, unsightly buildings which show no imagination or good function as buildings and are usually aesthetically unpleasing. Therefore an holistic design approach should be encouraged to ensure that the quality of living and natural environments is enhanced.
3. EMM DENSITY TARGETS

3.1 Trend vs Target

Until the approval of this Strategy, the EMM did not have a proactive density policy, which resulted in densification happening in an ad-hoc, unco-ordinated manner which is unsustainable and not based on the sound principles of densification in strategic locations.

If one analyses the current housing backlog (subsidised housing), the following is seen:
- There are approximately 300 000 households on the waiting list
- Subsidised housing requires a standalone erf of approximately 250m$^2$
- 300 000 homes on 250m$^2$ of land translate to a land requirement of 75 000 000m$^2$ to build all subsidised housing (7 500 hectares)
- This calculation is done without taking into account the annual growth rates (approximately 3%) and migration patterns.

In terms of the current average population growth rate in the EMM, the following increase in population can be projected over a 15 year time period at five year intervals:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>POPULATION</th>
</tr>
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<tbody>
<tr>
<td>Current</td>
<td>2 528 303</td>
</tr>
<tr>
<td>2010</td>
<td>2 682 276</td>
</tr>
<tr>
<td>2015</td>
<td>3 109 793</td>
</tr>
<tr>
<td>2020</td>
<td>3 604 754</td>
</tr>
<tr>
<td>2025</td>
<td>4 178 898</td>
</tr>
</tbody>
</table>

A 60% population growth is seen between 2008 and 2025, assuming an average growth rate of 3% per annum. By the year 2025, approximately 1 650 595 people will have to be housed. The current figures of 1 313 people per km$^2$ will increase to 2 172 people per km$^2$ by 2025. This is almost double the current population and will result in increased densities.

Approximately 40% of EMM (as illustrated on the Geotechnical Maps – Section 5c) are underlain by dolomite, which is deemed undevelopable land in terms of higher density residential developments. Therefore, approximately 1 200km$^2$ is developable, on which development has occurred and small pockets of land are available for development. This issue around developable land therefore pushes up the required density to 3 482 people per km$^2$ on 60% of the land. This would include moving people from dolomitic underlain areas which are deemed unsafe.

However, not all dolomitic areas are undevelopable. The dolomite classification will determine levels of safety and would most likely be more conducive to lower density residential developments or other uses.

The current EMM density trends have been discussed in the Status Quo Report and, in summary, it was shown that limited high rise buildings or higher density developments are occurring throughout the City. Areas of highest densities include Bedfordview and Alberton and very limited areas in Germiston.

The Table 3 illustrates the projections made in terms of the current trend analysis of applications received for higher densities per residential category (as per the Status Quo). The following variables have informed the anticipated trend analysis:
• Difference in population between 2008 and 2025 = 1,650,595 people
• It is assumed that one household consists of approximately 5 people amounting to 330,119 additional households by 2025 to be housed (20% growth rate over five years for households)
• Therefore a 1.25% increase in density per annum is anticipated with current trends.

It is proposed that residential density targets increase in line with these projections over the stipulated time frame to reach targets and house the necessary population expansion. However, this projection does not include the backlog of state provided housing, as mentioned previously.

Due to Germiston’s good rail infrastructure, these areas should see most increased densities. Due to lack of developable land, infill and redevelopment should occur within current urban areas and around the specified strategic densification areas, as discussed in Section 4.

A trend seen in the EMM is the growing lack of open space and green areas per head of population and with higher densities, the availability of these for public use will be critical. Therefore, all open space areas, as defined by the Department of Environment, must be kept intact and additional open space, whether public or private, must be created to ensure sustainable, healthy living environments.
## Table 3: Target Densities – Dwelling Units Per Hectare

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<tr>
<th></th>
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<th>2015</th>
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<th>2025</th>
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</table>

**NOTE:** No information provided for Nigel
3.2 LSDF Areas

The setting of density targets, whether by LSDF area, functional area, wards or any other means is difficult. However, in order to meet the needs to accommodate the growing population close to facilities and amenities it is essential to have strategic densification targets in designated areas. De-densification will have to occur in Previously Disadvantaged Areas and informal settlement areas, especially where opportunities for employment, transport and social facilities are limited, as well as in areas on dolomite.

Targets for specific areas will have to be set through the Local Spatial Development Frameworks in line with the projections indicated above but taking into account more localised conditions and needs for the areas.

3.3 Urban Development Boundary

With the establishment of “wall to wall” municipalities, there are no longer peri-urban areas in which limited infrastructure is provided, but Cities cannot afford to provide full infrastructure and social services throughout the Municipality area. Urban Development Boundaries (UDBs) are a mechanism to contain urban sprawl and to define an “Urban Development Boundary” beyond which only limited services are provided. The definition of an Urban Development Boundary assists in urban compaction and also in keeping cities manageable. UDBs also play an important role in protection of conservation areas. Urban Development Boundaries need to be used to assist in controlling the unsustainable growth of cities and urban areas. Urban Development Boundaries assist in:

- Limiting the City’s footprint and “density sprawl” to prevent excessive consumption of land within the city limits
- Focusing on in-fill, redevelopment and mixed use/densification strategies
- Supporting cost efficient infrastructure provision
- Supporting an urban form that is supportive of efficient public transport usage
- Protecting environmentally sensitive regions and areas
- Providing strategic direction in terms of infrastructure capital investments.

Urban Development Boundaries need to be used with other strategic tools to ensure rational integrated development and strategic densification in planned locations. The Urban Development Boundary needs to be accompanied by other strategies and interventions, which influence planning and development direction to achieve a city’s desired morphology. Strategies might include promoting Mixed Use Developments to ensure better land use management and control, the improvement of infrastructure co-ordination, development incentives and public transport orientated development.

An Urban Development Boundary does not prohibit development outside the UDB, but any development outside of the UDB should be considered on merit. It is unlikely that intensive development can be motivated outside of the UDB.

With the increase in allowable densities in strategic areas, there should be more opportunity to densify in areas close to infrastructure, social and other services. As a result, there should be less pressure on development beyond the Urban Development Boundary.

Provincial Government has indicated that no development should occur east of the Urban Development Boundary in EMM due to natural constraints, especially in terms of the area’s
geology. The boundary may therefore not be moved in the near future, due to these
constraints.

The boundary to the north may be moved in consultation with Provincial Government, due to
the development pressures around OR Tambo International Airport and the Albertina Sisulu
(R21) Development Corridor.

No southern boundary movement should occur in the near future as this area is also
geologically sensitive and further to this, it was indicated that cross boundary planning and
infrastructure provision could become problematic and costly, especially for the EMM
(between Municipalities). Provincial Government has therefore warned against moving
development south.

The Ekurhuleni Urban Development Boundary, 2005 is illustrated by the light blue line in Map
2. Please note that small changes were made to the Ekurhuleni Urban Development
Boundary in 2007. These are not reflected on Map 2. The insert illustrates the areas which
are undermined (yellow) or are underlain by dolomite (light blue). Higher residential
densification can not be accomplished in a sustainable manner in the following exclusion
areas:

• Outside the Urban Development Boundary;
• On dolomitic land; and
• On shallow undermined land.

Priority areas for increased densification to occur are within the strategic areas already
identified by the EMM. These would include the Core Economic Development Triangle and
priority infill areas.
Map 2: Urban Development Boundary
Map 3 illustrates of the generalised land use in Ekurhuleni. The map illustrates the current economic areas, major roads and rail lines. These should be areas of focus for densification in the short, medium and long term. This would ensure that the Urban Development Boundary remains in place for the short term (five to ten years) in the event that higher densities are met. Revision of the Boundary can therefore occur in the long term, to assess the effects and success of the strategic densification.

Map 3: Generalised Land Use
3.4 Infrastructure Services

Infrastructure availability or potential availability is a pre-requisite for densification. However, current infrastructure alone should not dictate future areas for densification. The locational criteria for densification, such as in nodes and along activity corridors, need to be used for the planning of future infrastructure provision.

Discussions with the various infrastructure departments revealed that if a principle-based approach is taken, servicing could follow densification and strategic investment in infrastructure could occur. Due to the non-finalisation of infrastructure master plans at the time of this document’s development, alignment of budget allocations and priority projects could not be finalised. However, an estimate of servicing costs per residential unit has been obtained from an independent engineer.

The cost of bulk services per residential unit is currently (May 2008) estimated in the region of R41 330.00. The cost breakdown per stand includes:

- Roads and Earthworks
  Cost per stand= R17 483.00

- Water Reticulation
  Cost per stand= R3 069.00

- Telkom
  Cost per stand= R2 319.00

- Sewer
  Cost per stand= R6 626.00

Storm Water Drainage
  Cost per stand= R11 831.00

Increased densities which are efficiently designed could decrease this amount due to economies of scale.

(WSP Engineering Consultants)

In terms of estimated capital expenditure on infrastructure provision per unit, based on the current projections of approximately 330 000 new residential units within the next fifteen years, the cost of infrastructure provisions and/or upgrading could be in the region of R19 800 000 000.00. Please note that these are estimates done on current trends and inflation has not been taken into account. A complete engineering audit should however be undertaken to establish what services are currently available and where improvements or new installations would have to occur and budgetary requirements should be calculated in terms of the trend projections in Section 3(a).

Bulk Services Contributions

Bulk Services Contributions need to be maintained at a level such that they effectively contribute to the upgrading of local infrastructure as well as bulk supplies. This may result in higher bulk services contributions in certain areas. The infrastructure planning should indicate which areas require higher contributions.
4. CATEGORIES OF DENSIFICATION AND CONTROLS

Densification is very often perceived as an exercise where homogeneous residential units are produced, aimed at providing for limited income groups (often associated with low-income groups). Ekurhuleni is currently striving for a unified identity across the City, whereby all citizens can feel included.

This section of the strategy will outline the various categories of densification and locational criteria. This is aimed at providing the City with unified densification criteria, which should be applied across the City and to the relevant LSDFs.

The Residential Densification Strategy aims to be easily implementable, adaptable and easily integrated with existing and future policies. Due to strategic densification as a principle, densification should occur around areas where investment has occurred and social and engineering infrastructure is already established. For this reason, strategies for densification are developed around the current urban spatial structuring elements identified in developmental policies such as the MSDF.

A description will be given of each category, which will be followed by examples of suggested development controls for higher density residential development.

The section in Annexure A on Mixed Use Developments can be integrated into the various categories of densification. It merely assists with creating “24 hour” sustainable developments across the Metropolitan Area.

The most appropriate urban spatial structuring elements to which residential densification can be linked are Nodes (areas of concentrated economic activity), Transport Oriented Development (corridors/movement system) and Residential Areas, where certain degrees of densification can be accommodated.

Each of these areas will be discussed in turn below with its relevant densification strategies.

4.1 CATEGORY 1: NODES

Nodes are one of the major structuring elements of cities, together with movement networks and corridors. The strength of a node will have a major effect on the surrounding area. Nodes are where both the private sector and public sector concentrate development. Nodes are associated with higher residential densities and also the intensity of all other relevant land uses in that node.

Nodes can be of a single use type, such as industrial, commercial, residential or even conservation, or they can be mixed in use. In all cases, viable nodes need to promote:

- Clustering of activities and higher intensity of investment and use, to achieve economic and infrastructure efficiency.
- Multi-modal transportation and pedestrian accessibility.
- A sense of place within a defined area. Mixed-use nodes should be small enough such that one can walk from end to end, but not so small that economies of scale cannot be achieved.

Table 4 reflects the Ekurhuleni Nodal Classification as defined in the MSDF and RSDF.
<table>
<thead>
<tr>
<th>NODAL TYPE</th>
<th>DEFINITION</th>
<th>CHARACTERISTICS</th>
<th>EXAMPLES OF BUSINESS CENTRES</th>
</tr>
</thead>
</table>
| PRIMARY² | Central Business District – This node is a concentration of activities and serves a national and international community. Uses could include offices, retail, general business, recreation, entertainment, light service industries, residential uses, parks and open space | • This area is the most accessible area within a city  
• A multitude of functions, services and goods are found within such a centre and range from primary to tertiary services  
• This area will have the most public transport facilities  
• High density residential uses  
• Best serviced area in terms of infrastructure and services | • Specialist/Theme Centre  
• Super Regional Centre  
• Regional Centres  
• All 9 EMM CBDs |
| SECONDARY⁴ | These nodes serve a District or Sub-Regional Area | • Larger than Neighbourhood Nodes  
• Contain functions found in Neighbourhood nodes as well as other functions | • Small Regional  
• Value Centre  
• Hyper Centre  
• Specialist/Theme Centre |
| TERTIARY⁵ | This type of node occurs at a neighbourhood or local levels but may serve more than one neighbourhood. | • Convenience stores and related activities  
• Daily needs are usually served by such a node  
• Strong pedestrian presence and activities  
• Should not be allowed to be of an intensity that would “cannibalise” trade from the CBD | • Filling Station Stores  
• Spaza  
• Small Free-Standing Centres  
• Neighbourhood Centres  
• Community Centres |

¹ Business Centre Classification as per Table 4.1 in MSDF 2005  
² Urban Renewal/Redevelopment (conversion of office to residential buildings) primarily in this category  
³ Specialist/Theme Centres may differ in size and fall into all nodal categories, however, have a specialist function and support economies of scale. These function are general better suited in primary and secondary nodes where economies of scale can be achieved.  
⁴ Urban Renewal, Greenfield or Infill Development  
⁵ Infill or redevelopment most likely
Table 5 reflects criteria linked to the Ekurhuleni Nodal types.

**Table 5. Table Nodal Assessment Criteria**

<table>
<thead>
<tr>
<th>Nodal Type</th>
<th>Area (ha)</th>
<th>Service Radius (km)</th>
<th>Accessibility</th>
<th>Functions</th>
<th>Retail</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY (CBD)</td>
<td>35+</td>
<td>20</td>
<td>Most accessible area in City</td>
<td>Multiple diverse functions</td>
<td>-Super Regional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Urban motorways</td>
<td></td>
<td>Shops: 150+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>High accessibility streets</td>
<td></td>
<td>Leasable area: 175 000m²+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>High level of public transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SECONDARY (Regional District)</td>
<td>20+</td>
<td>5</td>
<td>Urban motorways</td>
<td>Functions in addition to those found in Neighbourhood Nodes</td>
<td>-Super Regional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mobility spines</td>
<td></td>
<td>-Regional</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mobility Roads</td>
<td></td>
<td>Shops: 150+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Leasable area: 30-175 000m²</td>
</tr>
<tr>
<td>TERTIARY (Neighbourhood)</td>
<td>2-6</td>
<td>2.5</td>
<td>Mobility Roads or Activity Streets</td>
<td>Service daily needs</td>
<td>-Community</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intersection</td>
<td></td>
<td>-Neighbourhood</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pedestrian access</td>
<td></td>
<td>Shops: 25-75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Leasable area: 5 000 - 23 000m²</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6 allocates proposed densities per EMM nodal type based on population projections.

**Table 6. Proposed Densities per Nodal Category**

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MINIMUM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRIMARY</td>
<td>80</td>
<td>*</td>
<td>90</td>
<td>*</td>
</tr>
<tr>
<td>SECONDARY</td>
<td>70</td>
<td>130</td>
<td>80</td>
<td>140</td>
</tr>
<tr>
<td>TERTIARY</td>
<td>60</td>
<td>110</td>
<td>70</td>
<td>120</td>
</tr>
<tr>
<td><strong>MAXIMUM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRIMARY</td>
<td></td>
<td></td>
<td>100</td>
<td>110</td>
</tr>
<tr>
<td>SECONDARY</td>
<td></td>
<td></td>
<td>90</td>
<td>150</td>
</tr>
<tr>
<td>TERTIARY</td>
<td></td>
<td></td>
<td>80</td>
<td>130</td>
</tr>
</tbody>
</table>

* No maximum densities will be defined for Primary Nodes (CBD Areas). Each application should be assessed on merit and decisions should be informed by infrastructure availability, constraints and future LSDFs.
The following illustrations and accompanying notes illustrate the densities which are targeted around these areas of economic concentration measured from the recognised nodal boundary (which is to be demarcated in future LSDFs).

**PRIMARY**

- **PRIMARY NODE (CBD)** = Densities Obtainable as per Table 6
- **WITHIN 250m FROM RECOGNISED NODAL BOUNDARY** = Minimum Densities Obtainable as per Table 6 minus 15du/ha
- **WITHIN 500m FROM RECOGNISED NODAL BOUNDARY** = Minimum Densities Obtainable as per Table 6 minus 20du/ha

**SECONDARY**

- **SECONDARY NODE** = Densities Obtainable as per Table 6
- **WITHIN 250m FROM RECOGNISED NODAL BOUNDARY** = Minimum Densities Obtainable as per Table 6 minus 10du/ha
- **WITHIN 500m FROM RECOGNISED NODAL BOUNDARY** = Minimum Densities Obtainable as per Table 6 minus 15du/ha

**TERTIARY**

- **TERTIARY NODE** = Densities Obtainable as per Table 6
- **WITHIN 250m FROM RECOGNISED NODAL BOUNDARY** = Minimum Densities Obtainable as per Table 6 minus 10du/ha
- **WITHIN 500m FROM RECOGNISED NODAL BOUNDARY** = Minimum Densities Obtainable as per Table 6 minus 15du/ha
The examples of Land Use Controls below are for illustrative purposes only and the Town Planning/Zoning Schemes should be consulted. The examples are based on maximum densities achievable in 2015.

**Examples of Land Use Controls – Areas of Economic Activity (Erf Sizes of 1000m2)**

- **PRIMARY NODES:** Application for 160du/ha on 1000m² (2015)
  - 16 Units Obtainable
  - FAR: 2.8
  - Height: 4 Storeys
  - Coverage: 70% (4 Storeys); 80% (3 Storeys)
  - Parking: 1 bay per 2 bedrooms
  - 1 visitors bay per 3 units

- **SECONDARY NODES:** Application for 140du/ha on 1000m² (2015)
  - 14 Units Obtainable
  - FAR: 1.8
  - Height: 3 Storeys
  - Coverage: 60% (3 Storeys); 70% (2 Storeys)
  - Parking: 1 bay per 2 bedrooms
  - 1 visitors bay per 3 units

- **TERTIARY NODES:** Application for 120du/ha on 1000m² (2015)
  - 12 Units Obtainable
  - FAR: 1.5
  - Height: 3 Storeys
  - Coverage: 50% (3 Storeys); 60% (2 Storeys)
  - Parking: 1 bay per 2 bedrooms
  - 1 visitors bay per 3 units

The urban design guidelines, as set out in Section 5, should be met as far as possible, which on assessment could qualify the developer for an incentive as set out in Section 7.
4.2 CATEGORY 2: TRANSPORT ORIENTED DEVELOPMENT

The movement system of a city is the backbone of its own economy. Furthermore, its design and movement patterns also determine its levels of convenience for users, be it local residents or visitors from other cities or regions. What also makes a movement system and its infrastructure viable, are the levels at which it is used in an efficient and convenient manner. During the study of the status quo of the current densities of the EMM, many officials, especially those lobbying for public movement systems, said that the densities in the city are too low to make public transportation systems viable and therefore investment has been limited in this sector.

In many of the international examples reviewed in the Status Quo Document, densification supported public transport systems. Due to the success illustrated by these reviewed examples, densification should be encouraged along public transportation routes and in areas of extensive public investment in road and transportation infrastructure.

The EMM currently has a draft ITP (Integrated Transport Plan) which is being finalised. On completion and adoption of this plan, this section of the Residential Densification Strategy should be read in conjunction with the ITP. However, this section is based on the Executive Summary of the Draft ITP Report and discussions with the relevant transport and infrastructure departments in the EMM and should be consulted as such. During these discussions, it was agreed that a principled based approach should be taken, in the absence of finalisation of the ITP.

The transportation network in Ekurhuleni is based on the various transportation modes used in the City and, as such, densification strategies and recommendations will be made in these various sub-categories of transportation. The Strategic Public Transport Network (SPTN) has also been revised in the Draft ITP report. The SPTN is illustrated in Map 4 (as extracted from the Draft ITP).

The red lines illustrate the SPTN which consists of both rail and road infrastructure (for further detail please refer to the ITP). The SPTN links previously disadvantaged areas (PDAs) to areas of economic activity. The identified SPTN movement routes are:

- Thokoza – Alberton
- Katlehong – Germiston
- Vosloorus – Boksburg
- Tsakane – Brakpan
- KwaThema – Brakpan
- KwaThema – Springs
- Duduza – Nigel
- Daveyton – Germiston
- Tembisa – Kempton Park

The densification strategies discussed below should be applied to these routes as priority projects to enforce investment in public transport infrastructure. Densification should further follow additional public transport strategies proposed over the next fifteen years.
Map 4: Ekurhuleni Strategic Public Transport Network
4.2.1 Rail

EMM has an extensive rail network within the City which not only links various parts of the City, but also links the City to neighbouring cities and regions. This is emphasized in Section 3.5.5 of the Status Quo Document of this Residential Densification Strategy. Map 5 illustrates the rail network in EMM schematically.

In order for additional investment and rail upgrading programmes to be successful, densification should occur in strategic areas along this rail network, especially where the ITP has also defined areas of strategic development.

Map 5: Rail Network in Ekurhuleni
Railways stations act as the areas in which rail users enter and exit trains and these must be conveniently located and pedestrian friendly. However, to make stations more viable, modal transport facilities should be implemented. These should have some of the following characteristics:

- **High density residential uses** (a variety of housing typologies should be used)
- Modal interchanges should be present (between rail and vehicles)
- Mixed use developments should be present (presenting economic opportunities for some of the immediate area’s residents)
- Limited private vehicle parking should be provided (forces the public to make use of other public transport modes)

The Draft ITP has identified the following stations in EMM as stations at which Mode Transfer Facilities should be developed:

- Boksburg
- Daveyton
- Dunswart
- Isando
- Kempton Park
- Rhodesfield
- Springs
- Oakmoor

Densification should be encouraged around railway stations, however, design guidelines must be strictly adhered to due to noise pollution and as a safety precaution. The highest densities should be concentrated around points of modal transfer and adjacent to existing stations, which are currently used by commuters.

Through the investment in these identified areas, broader social, economic and environmental impacts can be expected. These expected positive impacts include:

- Economic investment, opportunity and convenience for users of the facility, the community and broader region
- Minimising/reducing commuter distances
- Minimising/reducing vehicle emissions
- Increasing the threshold of public infrastructure/transportation investments and maximising the usage of such investments

From Map 5 it is evident that most of the stations identified as priority projects are in the central east west line in of the City. It is strongly recommended that densification projects be developed and implemented in the Germiston area, as this is where the major rail infrastructure is centred in the EMM and the Germiston area has been earmarked as a Presidential Project. Densification will have a positive impact on this project.

Higher density residential developments may also be incorporated into mixed-use developments (refer to Category 2) around stations. In the case of residential units on the ground floor, these units must be designed as live-work units to assist in economic upliftment in these respective areas as well.

Rail extensions are also identified in the ITP, including Daveyton – Etwatwa extension, Angelo – Knights extension, Kwesine – Zonkesizwe extension and the Thembisa loop extension. After completion of these rail extensions, as discussed in the Draft ITP, consideration should be given to implementing Mode Transfer Facilities at the respective stations to maximise the investments to these line extensions.
Table 7 allocates density targets around railway stations.

### Table 7: Density Targets around Proposed & Existing Railway Stations

<table>
<thead>
<tr>
<th>Proposed Density up to 500m from the Station</th>
<th>Dwelling Units Per Hectare (Minimum – Maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2015</td>
</tr>
<tr>
<td>80 - 150</td>
<td>90 - 160</td>
</tr>
<tr>
<td></td>
<td>100 - 170</td>
</tr>
<tr>
<td></td>
<td>110 – 200</td>
</tr>
<tr>
<td>2020</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Density Targets between 500m &amp; 1000m from the Station</th>
<th>Dwelling Units Per Hectare (Minimum – Maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>2015</td>
</tr>
<tr>
<td>60 - 130</td>
<td>70 - 140</td>
</tr>
<tr>
<td>2020</td>
<td></td>
</tr>
<tr>
<td>2025</td>
<td>80 - 150</td>
</tr>
<tr>
<td></td>
<td>90 - 160</td>
</tr>
</tbody>
</table>

**EXAMPLE OF LAND USE CONTROLS – RAIL (ONLY HIGHER DENSITY RESIDENTIAL)**

- **Coverage**: 60%
- **Floor Area Ratio**: 2.5
- **Parking**:
  - 1 bay per 2 bedrooms to be provided on site/in building
  - Visitors parking to be provided on site – 1 bay per 3 units
- **Height**: 4 storeys excluding basements and lofts.
- **Special Conditions**:
  - A Site Development Plan must be submitted and approved prior to the approval of building plans for erven within 500m from stations and for any non-residential uses or residential uses of 20 Dwelling units per hectare or higher on erven opposite or adjacent to a node.
  - Site Development Plans (SDPs) to contain all requirements stipulated for SDPs by the Municipality as well as landscaping of pavements incorporating paved pedestrian paths on pavements, a minimum of 15% landscaped areas on all erven and placement of buildings to mitigate against overlooking and encroachment of privacy.
  - An Environmental Management Plan indicating specifically management of the environment during and after construction must be approved prior to the approval of building plans.
- **Pedestrian Access Controls**:
  - Pedestrian access to be located at a point closest to public transport facilities.
  - Pedestrian access to be separated from vehicular access.
- **Vehicular Access Controls**:
  - Vehicular access may not conflict with public transport or pedestrian routes.
  - Access points to be safe and comply with relevant regulations and legislation.
- **Security Controls**:
  - All new buildings to comply with security requirements stipulated by local law enforcement authorities.
  - It is recommended that owners join local City Improvement District SPVs or similar organizations.
- **Building Lines**: 5 metres on street/rail frontage (could be relaxed with Consent from Council)
- **Housing Typologies**: Flats/Apartments preferable

### 4.2.2 Road

As previously mentioned (as well as in the Status Quo Document), the Strategic Public Transport Network consists of various modes of transport infrastructure. The strategies regarding rail infrastructure have been discussed above.

The EMM has identified a road classification system, which can be studied in the MSDF 2005/6 and the revised ITP. The Draft ITP includes these classifications in the SPTN. The classifications are simplified into a Freeway Network and a Second Order Road Network as well as a proposed Third Order Road Network. The EMM uses this classification which is derived and defined by the Provincial Department of Roads.
**Freeway Network**

The Freeway Network consists of major routes, which link and provide high mobility to road users to other areas in the province and beyond. The EMM Freeway Network connects the EMM with the City of Johannesburg and other areas in the region. Plans are in place to extend this network to create better, more efficient linkages with other cities. These roads include Class 1 and 2 roads. Most of these routes are identified in the Gauteng Strategic Road Network as K-Routes. The various road classifications are:

- Freeways
- Conventional Principal Arterials (mainly rural)
- Conventional Major Arterials

Due to the high mobility and limited access of freeway traffic, increased densification would not be suitable at interchanges on this road network. (Please note that no clear definitions are available for the above-mentioned road classifications. Please refer to the revised ITP once available.)

**Second Order Road Network**

The main objectives of this road network are to:

- Facilitate movement in the metropolitan area in the north-south and east-west direction
- Link residential areas to one another and to the core areas of economic activity
- Link areas of economic activity to one another
- Promote mixed use and high density developments adjacent to these routes (subject to road access management requirements)
- Promote transport along these routes as a priority

The Second Order Road Network comprises road classifications such as:

- Collector Roads
- Activity Streets (in the CBD and Industrial Areas)
- Residential Streets

This classification group is most conducive to higher residential densities as these roads link residential areas to nodes and other areas of economic activities and other residential areas.

**Third Order Road Network**

This Road Network consists of Class 3 roads, which include minor arterials and activity arterials. These roads serve a local area or the broader metropolitan area where indicated. The two types of roads have different attributes as indicated in Table 8.

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SPEED</th>
<th>ACCESS SPACING</th>
<th>PEDESTRIAN FRIENDLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Arterials</td>
<td>70 – 80km/h</td>
<td>450m to 500m</td>
<td>NO</td>
</tr>
<tr>
<td>Activity Arterials</td>
<td>40 – 50km/h</td>
<td>200m to 300m</td>
<td>YES</td>
</tr>
</tbody>
</table>

Minor arterials also belong to the Mobility Roads Group but have the characteristics of lower speeds and smaller access spacing.

From the MSDF 2005/6 the following roads were identified:

- Transportation Corridors (focus is on mobility and the movement of people and goods)
- Activity/Development Corridors (focus on high population numbers and mixed land uses)
- Activity Spine (focus on high density residential development along road and rail)
- Activity Street (high density residential development to be encouraged with a focus on pedestrian movement and accessibility – not high mobility roads)
Table 9: Road Classifications

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>LAND USE</th>
<th>FUNCTION AND DESIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeway</td>
<td>ü No direct access to land uses.</td>
<td>ü Accommodates mainly national, regional and longer distance metropolitan trips. ü Access is restricted to the interchanges only.</td>
</tr>
<tr>
<td>Transportation Corridors</td>
<td>ü Mixed land uses at identified intersection nodal points. ü Higher density residential.</td>
<td>ü Mainly for inter regional and metropolitan trips. ü No direct access should be allowed. ü Access from side roads or services roads. ü Consider pedestrian movement and public transport services. ü Provision of pavements for pedestrians. ü Restrictions on frontage access to be controlled. ü Provide public transport facilities. ü Incorporate designated SPTN routes. ü Ensure managed pedestrian access.</td>
</tr>
<tr>
<td>Activity Development Corridors</td>
<td>ü Local nodal development ü Higher density residential</td>
<td>ü Shorter distance distribution and mainly metropolitan trips. ü Incorporate future SPTN feeder and distributor routes. ü Limited direct access. ü Ensure managed pedestrian access. ü Provide public transport facilities. ü Provision of pavements for pedestrians.</td>
</tr>
<tr>
<td>Activity Spine</td>
<td>ü Residential ü Business ü Retail ü All uses to be of a local and fine grain nature</td>
<td>ü Accommodate pedestrian intensive uses. ü High levels of (direct) access. ü Speed calming measures. ü Provide public transport facilities. ü Activity preferably one erf deep. ü Include rail as activity spine.</td>
</tr>
<tr>
<td>Activity Street</td>
<td>ü Residential uses ü Low intensity non-residential uses</td>
<td>ü Provision of pavements for pedestrians. ü Provides direct access to residential property. ü Facilitates mixed traffic within neighbourhoods safely and at low speed. ü Feeds into greater road network.</td>
</tr>
</tbody>
</table>

Table 9 indicates the characteristics of the various categories of roads and further provides the different land uses, which could be contiguous to it. Table 10 allocates proposed densities to the different types of corridors to encourage Transit Orientated Development and Corridor Development.

Table 10: Proposed Densities for Corridors

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>Density Targets – Dwelling Units Per Hectare (Minimum – Maximum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeway</td>
<td>2010  2015  2020  2025</td>
</tr>
<tr>
<td>NOT APPLICABLE</td>
<td></td>
</tr>
<tr>
<td>Transportation Corridors</td>
<td>60 - 80  70 - 90  80 - 100  90 - 110</td>
</tr>
<tr>
<td>Activity Development Corridors</td>
<td>80 – 100  90 - 110  100 – 120  110 - 130</td>
</tr>
<tr>
<td>Activity Spine</td>
<td>25 - 40  30 - 45  35 - 50  40 - 60</td>
</tr>
<tr>
<td>Activity Street</td>
<td>15 - 20  20 - 25  25 - 30  30 - 35</td>
</tr>
</tbody>
</table>
The following illustrations and accompanying notes illustrate the densities which are targeted abutting these identified spines and corridors as defined in the ITP. The densities in Table 10 are applicable to erven directly adjacent to the identified nodes and corridors, therefore one erf into a block (see illustration below).

![Diagram of residential street/road and corridor/spine/street]

- Properties directly adjacent to Corridor = densities as per Table 10
- Properties within 250m from Corridor = densities as per Table 10 minus 15du/ha
- Properties beyond 250m from Corridor = residential densities as per Category 3

TRANSPORTATION CORRIDORS
### ACTIVITY DEVELOPMENT CORRIDOR

- Properties directly adjacent to Corridor = densities as per Table 10
- Properties within 250m from Corridor = densities as per Table 10 minus 10du/ha
- Properties between 250m – 500m from Corridor = densities as per Table 10 minus 15du/ha

### ACTIVITY SPINES & STREETS

- Properties directly adjacent to Corridor = densities as per Table 10
- Properties within 250m from Corridor = densities as per Table 10 minus 5du/ha
- Properties beyond 250m from Corridor = residential densities as per Category 3
Table 11: Examples of Land Use Controls for Transport Oriented Development

<table>
<thead>
<tr>
<th>ROAD CLASSIFICATION</th>
<th>LAND USE</th>
<th>PROPOSED DENSITY (2015)</th>
<th>LAND USE CONTROLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transportation Corridors</td>
<td>ü Mixed land uses at identified intersection nodal points. ü Higher density residential.</td>
<td>90</td>
<td>1 bay per 2 bedrooms to be provided on site/in building • Visitors parking to be provided on site – 1 bay per 3 units • 15% of property to be landscaped • No direct access from corridor (access to be provided from side or service road) • Pedestrian access to be provided at closest point of development to public transport routes/facilities • Pedestrian and vehicular access to be independent from each other • Coverage: 50% • FAR: 2 • Maximum Height: 4 storeys (excluding basements/lofts)</td>
</tr>
<tr>
<td>Activity Development Corridors</td>
<td>ü Local nodal development ü Higher density residential</td>
<td>110</td>
<td>1 bay per 2 bedrooms to be provided on site/in building • Visitors parking to be provided on site – 1 bay per 3 units • 15% of property to be landscaped • No direct access from mobility spine (access to be provided from side or service road) • Pedestrian access to be provided at closest point of development to public transport routes/facilities • Pedestrian and vehicular access to be independent from each other • Coverage: 50% • FAR: 2 • Maximum Height: 4 storeys (excluding basements/lofts)</td>
</tr>
<tr>
<td>Activity Spine</td>
<td>ü Residential ü Business ü Retail ü All uses to be of a local and fine grain nature</td>
<td>45</td>
<td>1 bay per 2 bedrooms to be provided on site/in building • Visitors parking to be provided on site – 1 bay per 3 units • 15% of property to be landscaped • Limited direct access (left in left out) • Pedestrian access to be provided at closest point of development to public transport routes/facilities • Pedestrian and vehicular access to be independent from each other • Coverage: 50% • FAR: 1.5 • Maximum Height: 3 storeys (excluding basements/lofts)</td>
</tr>
<tr>
<td>Activity Street</td>
<td>ü Residential uses ü Low intensity non-residential uses</td>
<td>25</td>
<td>1 bay per 2 bedrooms to be provided on site/in building • Visitors parking to be provided on site – 1 bay per 3 units • 15% of property to be landscaped • Direct access • Coverage: 40% • FAR: 0.8 • Maximum Height: 2 storeys (excluding lofts)</td>
</tr>
</tbody>
</table>
4.2.3 Aerodromes

The EMM has five airports throughout its area of jurisdiction. One of these is OR Tambo International Airport. The noise contours for this particular airport are illustrated to the left.

In line with legislation, the Civil Aviation Authority (CAA) has a stringent set of rules and regulations, which need to be adhered to in the event of development in close proximity to an airport or airfield.

The information document, attached as Annexure C to this document, must be consulted before any densification can occur around airfields/airports. Densification around these areas should be in line with the other structuring elements’ criteria and densities consulted with CAA's requirements.

4.2.4 Gautrain

There are two Gautrain Stations in Ekurhuleni. The OR Tambo International Station will service the Airport and will not have a direct impact on residential densification.

The second station is located in Rhodesfield. This station will serve the residential communities of Ekurhuleni. Residential Densification should be encouraged at this station to levels similar to those in Primary Activity Nodes.
4.3 CATEGORY 3: RESIDENTIAL AREAS

Due to the historical value and settlement pattern in the EMM, three different categories of residential areas have been identified:

- Formal Residential Areas (suburbs),
- Previously Disadvantaged Areas (townships), and
- Informal Settlements (squatter areas).

Due to each of these areas being so different in character, layout, general morphology, environmental and infrastructure issues and systems at work, each one is discussed independently and different recommendations are made for each area.

4.3.1 Formal Residential Areas (suburbs)

Some of the areas in Ekurhuleni have a long history and local area knowledge will be critical in understanding and applying the Residential Densification Strategy. The strategy is built strongly around urban structuring elements in these particular areas and local area knowledge and planning expertise is required to ensure sustainable development.

Base densities across metropolitan areas are seen to be a norm in South African cities. However, experience has shown that this can become problematic in certain parts of these metropolitan areas. Such complications are usually associated with environmental sensitivities, the urban development boundary and infrastructure constraints.

Base densities do, however, have some positive attributes, such as encouraging infill development and the redevelopment of brown fields. It also provides owners of agricultural holdings with limited agricultural potential, to maximize the value of their land through densification processes (be it subdivision or increased residential densities).

Established residential areas should be evaluated on merit and with local knowledge, based on the evaluation criteria listed below:

a) Proximity to economic centres should be considered.

The closer residential areas are to CBDs or nodes, the higher the residential densities may be. All CBD and nodal boundaries must be defined in future spatial planning documents to eliminate any confusion or disparities in planning decisions regarding densification measures. The diagram is merely used for illustrative purposes.

b) Surrounding areas, sites and developments must be considered.

This is related to design aesthetics and quality as well as issues of privacy of abutting land owners.

c) Sizes of properties

The subdivision of properties in well established residential areas should be limited to minimum erf sizes where densification is concerned. Minimum erf sizes should be determined in LSDF documents after local trends have been researched and
established. This should also be based on the performance of a residential area in terms of its growth rate, demand for property and infrastructure availability. Densification should not occur to the detriment of the environment, infrastructure or other residents in an area.

d) Critical Site Assessment
   A critical site assessment must accompany any application for densification and should address and assess the following aspects:
   - The position, height and privacy of buildings on adjacent properties.
   - Environmental elements such as slopes, water presence etc.
   - Accessibility

e) Site Development Plans
   All infill developments must be evaluated against a Draft Site Development Plan, which must indicate the following aspects:
   - Landscaping (current vegetation and planned future vegetation – 10% of property to be landscaped)
   - Vehicular access
   - Pedestrian access
   - Surrounding properties building positions
   - Building lines
   - Current building footprints
   - Proposed building footprints
   - Indicate conceptually present infrastructure service
   - Indicate prevention and mitigation measures in terms of any foreseen problems and/or disasters in terms of any of the above

Applications for residential densification should only be prepared after points (a) to (e) have been considered and it is the opinion of a professional town planner that densification in the subject area would not be to the detriment of the area or its residents.

The appointed city official, with local area knowledge, should critically assess such applications on merit with the aid of the guidelines provided above and proposed land use controls provided.

4.3.2 Previously Disadvantaged Areas

The four major identified Previously Disadvantaged Areas in Ekurhuleni are:
- Kwatzaduza
- Daveyton – Etwatwa
- Thembisa
- Khatorus

These areas are primarily located on dolomitic underlain land where densification becomes a dangerous practice (if not conducted in the correct manner). Densification on this type of land will have serious financial and cost implications on construction and end user affordability.

Further to this environmental constraint, is the issue of placing people closer to employment opportunities. In densifying these areas, the apartheid style development trend will be perpetuated by placing the majority of the population in marginalized areas away from economic opportunity. However, other circumstances need to be understood, such as local support networks, which have been built in these areas among residents, as well as the affordability of their current housing situation.

Densification should definitely be encouraged around transportation centres/stations, where it safe from a geotechnical perspective. These areas should be designed in such a manner that the integration of land uses and transport modes are supportive of and supported by higher residential development. Clustering of activities is therefore necessary and densities should be highest at these ‘nodal’ cores, descending gradually from the core area, but remaining relatively high adjacent to the public transport routes, whether rail or road.
Within mixed use developments/nodes, provision should also be made for ‘work from home’ opportunities as outlined in Section 5.5 of the Guideline Document for Higher Density Residential Development, 2005, p42. An illustration from this section is provided to the left.

The Guideline Document for Higher Density Residential Development (as mentioned in this document and the Status Quo document), has been developed for the subsidized housing market and gives very clear and specific detail pertaining to design and typologies. That document should be consulted in conjunction with this policy document for further detail on design aspects and layouts.

4.3.3 Informal Settlements

Within informal settlement areas, higher residential densities are most likely to be achieved through public sector investment (subsidised housing schemes) or institutional investments (Institutional Housing Initiatives). In situ upgrading would seem the most likely development to occur in such area. However, densification should not be encouraged in these areas as they are usually removed from economic and transport opportunities and densification will not result in sustainable development. Furthermore, these areas are primarily located on dolomitic or undermined land.

Should densification occur in such areas in the future, the following aspects must have careful consideration:

a) Proximity to transportation facilities (railways stations, bus routes, mini-bus taxi ranks and routes).

b) Affordability levels of the end users.

c) Proximity to social facilities and open spaces.

d) Physical attributes of the land (which must all be documented on a draft site development plan):

i. Topography
ii. Vegetation  
iii. Water courses  
iv. Geology (many of the informal settlements and Previously Disadvantaged Areas are located on dolomitic areas)  
e) Site assessment and surrounding areas  
i. Site in its immediate context (privacy, overlooking, building orientation, etc.)  
ii. Pedestrian and vehicular access  
iii. Provision of infrastructure (water, electricity, sewage etc.)

Due to current trends and the vision to provide all citizens with adequate housing within the EMM, it is strongly advised that higher density residential development occurs in areas that are economically, socially and environmentally suitable. Densification should only be considered in these areas once all other land possibilities have been exhausted.

4.3.4 PROPOSED DENSITIES

The proposed densities for this category have been derived from Table 3. The densities have been categorised according to Residential zoning categories as contained in the Town Planning Schemes, namely Residential 1, 2, 3, 4 and 5.

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential 4</td>
<td>&gt;50du/ha</td>
<td>&gt;50du/ha</td>
<td>&gt;70du/ha</td>
<td>&gt;80du/ha</td>
<td>&gt;85du/ha</td>
</tr>
</tbody>
</table>

NOTE: THESE TARGET DENSITIES ARE MERELY GUIDELINES FOR RESIDENTIAL AREAS AND MUST BE ADJUSTED TO LOCAL CONDITIONS. AREAS WITHIN THE EMM DIFFER GREATLY AND DUE TO THE BROAD SCOPE OF THIS STRATEGY TARGETS MUST BE REACHED PER LSDF AREA.

4.3.5 Proposed Land Use Controls

<table>
<thead>
<tr>
<th>Locational Criteria</th>
<th>Formal Residential Areas</th>
<th>Land Use Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Density (2025)</td>
<td></td>
</tr>
</tbody>
</table>
| On local Activity Streets | 25                       | • 1 bay per 2 bedrooms to be provided on site/in building  
|                     |                          | • Visitors parking to be provided on site – 1 bay per 3 units  
|                     |                          | • 10% of property to be landscaped  
|                     |                          | • Direct access  
|                     |                          | • Coverage: 40%  
|                     |                          | • FAR: 0.8  
|                     |                          | • Maximum Height: 2 storeys (excluding lofts)  
| Between 500 and 1000m from a classified/identified node’s nodal boundaries (nodal boundaries must be specified) | 140 120 80 | As per TPS/Zoning Scheme  
| Within Residential Suburbs (residential streets) | Maximum of 25du/ha, single detached houses | 1 bay per 2 bedrooms to be provided on site/in building  
|                     |                          | • 10% of property to be landscaped  
|                     |                          | • Direct access  
|                     |                          | • Coverage: 80%  
|                     |                          | • Maximum Height: 1 storeys  

Settlement Planning & Dludla Development cc.  
Ekurhuleni Residential Densification Strategy  
July 2008
Category 1 and 2 will apply, should densification be around nodes and transport oriented developments, which conform to the various criteria.

The land use controls and considerations for densification in these areas are highlighted below. Please note that these are only examples. The critical assessment of the site and surrounding areas must be taken into account in the decision making process, to ensure that sustainable housing developments at high densities are achieved.

**Example LAND USE CONTROLS (Previously Disadvantaged Areas)**

<table>
<thead>
<tr>
<th>Coverage</th>
<th>60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Area Ratio</td>
<td>2</td>
</tr>
</tbody>
</table>
| Parking | • 1 bay per 2 bedrooms to be provided on site/in building  
• Visitors parking to be provided on site – 1 bay per 3 units |
| Height | Minimum 3 storeys excluding basements and lofts. |
| Special Conditions | • A Site Development Plan must be submitted and approved prior to the approval of building plans for erven within 500m from stations and for any non-residential uses or residential uses of 20 Dwelling units per hectare or higher on erven opposite or adjacent to a node.  
• Site Development Plans (SDPs) to contain all requirements stipulated for SDPs by the Municipality as well as landscaping of pavements incorporating paved pedestrian paths on pavements, a minimum of 15% landscaped areas on all erven and placement of buildings to mitigate against overlooking and encroachment of privacy.  
• An Environmental Management Plan indicating specifically management of the environment during and after construction must be approved prior to the approval of building plans. |
| Pedestrian Access Controls | • Pedestrian access must be separated from vehicular access  
• Pedestrian access must be provided at the closest point to a public transport route, taxi rank or railway station |
| Vehicular Access Controls | • Vehicular access must be separated from the pedestrian access  
• Vehicular access may not interfere with mobility of public transport routes |
| Security Controls | • All new buildings to comply with security requirements stipulated by local law enforcement authorities.  
• It is recommended that owners join local City Improvement District, SPVs or similar organizations. |
| Building Lines | • 2 meter street frontages  
• 1.5 meters on all boundaries |
| Housing Typologies | • All housing typologies |
4.4 CATEGORY 4: CORE ECONOMIC DEVELOPMENT TRIANGLE

The EMM derived an economic strategy linked to development in 2004, in which the Core Economic Development Triangle of Ekurhuleni was defined. The region is central to Ekurhuleni as a Metropolitan area and hosts the most infrastructure and potential for development and investment. The following areas have been identified which link up to form the triangle. These are:

- The Kempton Park CBD & Rhodesfield
- OR Tambo International Airport
- Germiston CBD
- Boksburg CBD
- Benoni CBD
- The Mining Belt from Germiston to Benoni

Each of these areas has been identified for a specific ‘purpose’ of development in the sense that each area could be used/developed for a different market sector which in turn compliments surrounding areas niche activities.

The Rhodesfield area has been earmarked for redevelopment due to the location of the Gautrain Station and also its close proximity to the airport. The area surrounding the station has been set aside for mixed use development, including offices, high density residential development with which Ekurhuleni hopes to provide professionals and companies with a business address in the metro area.

The Pomona Agricultural Holdings Area to the North of OR Tambo International Airport is seen to have the potential to pick up and develop any possible economic spin-offs the airport might have.

The Bardene-Bartlett Area is in very close proximity to the current local activity node in Boksburg, namely the East Rand Mall. This area, found to the south of the OR Tambo International Airport, is seen to be ideal for high tech industry parks or light industrial parks.

The above areas are very closely concentrated in the vicinity of the airport and business and industry opportunities of a different nature have been identified for them.

The one major linkage area, which has been identified, is the mining belt between Germiston and Benoni which is currently occupied by informal settlers. This area is seen to be the perfect opportunity for Transit Oriented Development to ensure the upgrading and sustainable development of human settlements in this area and also to provide the viable linkage the metro requires across the area. No direct linkage is currently seen between these two major areas of the EMM and complimentary activities can be developed as Germiston harbours the most rail infrastructure within the metro area.

In terms of supporting the economic investment, which in turn will create employment opportunities, this area, demarcated as the Core Economic...
Development Triangle, will be most suitable for higher density residential developments. It will contribute to the efficient use of infrastructure in the area and it will contribute to the sustainability of public transport investment and use. It will also bring people’s homes closer to employment opportunities.

This area will therefore have increased densities in terms of nodal development and transit oriented development and the same incentives would apply in the meeting of any special conditions. However, additional incentives may be granted due to the location of the higher residential developments in the demarcated area of the Core Economic Development Triangle.

The proposed densities for the Core Economic Development Triangle are illustrated in Table 12.

**Table 12. Proposed Densities – Core Economic Development Triangle**

<table>
<thead>
<tr>
<th>Category</th>
<th>Units per hectare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Nodes</td>
<td>Table 6 values PLUS 10 units per hectare</td>
</tr>
<tr>
<td>Secondary Nodes</td>
<td>Table 6 values PLUS 10 units per hectare</td>
</tr>
<tr>
<td>Tertiary Nodes</td>
<td>Table 6 values PLUS 10 units per hectare</td>
</tr>
<tr>
<td>Railway Stations (up to 500m)</td>
<td>Table 7 values PLUS 10 units per hectare</td>
</tr>
<tr>
<td>Railway Stations (500m – 1000m)</td>
<td>Table 7 values PLUS 10 units per hectare</td>
</tr>
<tr>
<td>Transportation Corridors</td>
<td>Table 10 values PLUS 10 units per hectare</td>
</tr>
<tr>
<td>Activity Development Corridors</td>
<td>Table 10 values PLUS 10 units per hectare</td>
</tr>
<tr>
<td>Activity Spines</td>
<td>Table 10 values PLUS 5 units per hectare</td>
</tr>
<tr>
<td>Activity Streets</td>
<td>Table 10 values PLUS 5 units per hectare</td>
</tr>
</tbody>
</table>

All land use controls applicable to the previous categories are applicable to this category (Core Economic Development Triangle). However, due to the strategic nature of this triangle, higher densities and intensity of uses must be reached, as these areas are earmarked for increased investment, whether public or private. These should be done in consultation with the relevant Town Planning/Zoning Scheme and LSDFs.
### 4.5 SUMMARY OF DENSITY PROPOSALS

Table 13 contains a summary of the proposed density per category.

**TABLE 13: SUMMARY TABLE OF DENSITY PROPOSALS**

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>2008</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 250m from nodal boundary</td>
<td>65 75 80 85 90 95 100 105</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 250m and 500m from nodal boundary</td>
<td>60 70 80 85 90 95 100 105</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SECONDARY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 250m from nodal boundary</td>
<td>70 130 140 150 160 170 180 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 250m and 500m from nodal boundary</td>
<td>65 125 130 140 150 160 170 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TERTIARY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 250m from nodal boundary</td>
<td>60 120 130 140 150 160 170 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 250m and 500m from nodal boundary</td>
<td>55 110 115 120 130 140 150 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATEGORY 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAIL (&amp; WITHIN 500m)</td>
<td>60 80 100 120 140 160 180 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAIL (BETWEEN 500m and 1000m)</td>
<td>60 80 100 120 140 160 180 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRANSPORTATION CORRIDOR</td>
<td>N/A N/A N/A N/A N/A N/A N/A N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 250m from corridor</td>
<td>45 65 75 85 95 105 115 120</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beyond 250m</td>
<td>As per Category 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTIVITY DEVELOPMENT CORRIDOR</td>
<td>70 90 100 110 120 130 140 150</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 250m from corridor</td>
<td>60 80 100 120 140 160 180 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 250m and 500m corridor</td>
<td>55 75 95 115 135 155 175 200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACTIVITY SPINE</td>
<td>20 35 30 40 45 50 60 65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within 250m from corridor</td>
<td>15 30 25 40 45 50 60 65</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beyond 250m</td>
<td>As per Category 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATEGORY 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESIDENTIAL 1</td>
<td>10 15 10 15 20 25 25 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESIDENTIAL 2</td>
<td>10 15 10 15 20 25 25 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESIDENTIAL 3</td>
<td>10 15 10 15 20 25 25 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESIDENTIAL 4</td>
<td>&gt;50du/ha &gt;50du/ha &gt;70du/ha &gt;80du/ha &gt;85du/ha</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESIDENTIAL 5</td>
<td>10 15 10 15 20 25 25 30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATEGORY 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AS PER CATEGORY TABLES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. URBAN DESIGN GUIDELINES

5.1 What is the Purpose of the Guidelines?

The urban design guidelines strive to optimise the positive impact that residential densification can have on the performance of urban living areas for the people of Ekurhuleni Municipality. They aim to achieve this through the improved planning and design of the structure and built form of urban residential areas and, in so doing, strive to contribute to the achievement of the overarching development goals and principles of the Municipal Integrated Development Plan.

In particular, they strive to achieve:

- **Liveable Environments** – i.e. improved safety, security, comfort and convenience for residents and visitors
- **Sustainable Urban Environments** – i.e. residential environments that are resource efficient for the municipality and cost effective for residents.
- **Legibility and Imageability** – i.e. improved residential neighbourhood identity and character and improved sense of community

Accordingly, these guidelines highlight the various design principles that need to be considered in relation to a number of aspects in the development of residential developments, particularly higher density developments, and they attempt to indicate where they become particularly relevant with respect to the categories of densification area identified in the main body of the Ekurhulemi Residential Densification Strategy i.e. Concentrated Economic Areas, Mixed Use Developments, Transport Oriented Development, Housing Developments and Core Economic Triangle.

5.2 Who should use the Guidelines?

The guidelines are written for use by:

- Municipalities, in their evaluation and assessment of residential development applications and in their planning of urban areas.
- Developers, in their planning for residential developments.
- Built Environmental Professionals, in the design of residential developments.

5.3 When should the Guidelines be used?

Densification will be achieved in a number of ways, one of which is through the increase in the number of building units within the municipal boundaries. This will occur either through the introduction of increased densities in existing areas and / or through the infill of undeveloped Greenfield sites.

Densification will occur through both large scale and small scale developments and the guidelines will have different applications in each instance.

5.4 Form of the Guidelines

The guidelines have been prepared so as to provide guidance at different stages of the planning and design of higher density residential development and also for the different scales at which the environment is experienced by people viz.:-

- The Neighbourhood (Public Domain)
- The Development Site (Semi Public / Semi Private Domain)
- The Building (Semi Private and Private Domain)
5.5 Neighbourhood Integration

Linkage and Connectivity
- Establish urban block sizes that improve/enhance permeability of the neighbourhood
- Avoid gated communities which decrease permeability
- Avoid long cul-de-sacs (i.e. > 40-50m) with no pedestrian through-link.
- Create new link or connector roads through larger development sites.
- Provide through-site links for pedestrians and cyclists on larger sites where through roads are not practical.
- Ensure that layouts respond appropriately to adjacent uses, activities and buildings
- Establish a pleasant, safe and well connected network of paths and roads that support walking and cycling to public transport and local facilities.

Distribution of Use and Activity (Parking / non residential uses / Service Areas)
- Protect new or existing residential uses from high impact uses (e.g. restaurants and service areas) and visual intrusions by buffering them with compatible uses or through the use of landscape or architectural features and structures.
- Structure non residential uses along high access street frontages
- Locate car parking areas and structures so that they do not dominate the development or street frontage.
- Reduce impacts of large parking areas with trees, buildings, landscape features or different surface treatments.
- Provide car parking underground or in semi-basement where practical.
- Locate the multi-storey component of a development towards the road with single storey or car parking at the rear where this will limit impact on the amenity of adjacent residents’ secluded private open spaces.

Urban Character (Legibility, Imageability, Landscaping, Building Form and Massing)
- Establish and or retain visual connections to adjacent activities, features, landmarks and/or amenities.
- Use built form to identify or signal gateways into new, different or special districts.
- Avoid high fences or walls in front of residential buildings along main streets or pedestrian walkways.
- Avoid establishing buildings with large scale massing and or monotonous detailing along public streets.
- Include existing and or new landmark buildings and or distinctive architectural features to assist with environmental legibility.
- Acknowledge the scale and character of existing buildings and or an area when designing new infill buildings and features.
- Ensure that new buildings front onto existing building frontages across streets and public spaces and ensure a high degree of compatibility of building styles and types.
Major changes in building type or scale along common street frontages should be adequately modulated.

Provide similar type or mix of buildings on both sides of a street to generate a consistent streetscape.

Design new or redeveloped residential buildings to front onto existing and/or proposed new roads.

Retain and incorporate architecturally or historically significant buildings into the development.

5.6 Site Planning

Public and Private Interfaces

- Buildings should have clearly defined public fronts and private rear areas.
- Public frontages should interact with public streets or spaces through the appropriate location of entrances, windows and balconies which overlook streets and spaces.
- Buildings which do not have non residential uses on ground floor should be set back off main streets to ensure privacy for ground floor units.

Communal/Site Facilities

- Adequate refuse storage and recycling areas should be located within the site and should be adjacent to a lane or street frontage and not protrude into public streets or spaces.
- The refuse storage area and recycling areas should be integrated with the design of the development and have minimum visual impact on the streetscape and should be screened and protected by suitable wall/fencing and roof elements.
- Refuse storage and recycling areas should be well ventilated, have access to water and drainage facilities for cleaning and maintenance and should be easily accessible for refuse removal vehicles.
- If individual laundries are not provided then a common or shared laundry facilities should be provided in areas that are accessible, visible.
- Clothes drying facilities should be provided at ground level and or roof level but should be suitably screened from public streets and space. These facilities should be integrated with the building design and should not detrimentally affect the appearance of the building or its immediate surrounds.
- Residential units should have a single common or limited number of television/radio antenna which is/are not visually intrusive to the developments common space or the surrounding streetscape.

Parking Layout

- Make parking structures and carports visually compatible with the character of the main development.
- Minimise the amount of public street frontage given over to parking facilities.
- Ensure that vehicles can exit the development in a forward direction.
- Ensure that visitor parking is available and that it does not compromise internal circulation and access arrangements

Landscaping

- Landscape features, elements and styles should:
  - integrate the development with the streetscape and common open space;
  - contribute to personal safety by ensuring good visibility along streets, paths and driveways and avoid clutter near building entrances;
  - Contribute to energy efficiency and amenity by providing shade in summer and/or permitting winter sunlight to outdoor and indoor living areas;
  - Create and or enhance privacy between residential buildings and between residential buildings and public streets and spaces.
- On-site management of storm water run-off should be promoted by the optimisation of unsealed landscaped areas.
- Significant existing vegetation should be retained and incorporated into the layout design.
- All high traffic areas such as walkways, cycle paths, refuse disposal areas, entrances and clothes line areas should be adequately paved.
- Pedestrian ways, entrances, driveways, car parking, common open space should be adequately lit to ensure security for residents and visitors at night.
- Lighting should be designed to minimise impacts on living areas and adjacent developments.

Private/Communal Open Space
- Communal space should be provided particularly if there is not easy access to public space.
- It should be usable from a slope, sunlight and shade, landscaping seating and can contain play equipment.
- Communal space should not be used for parking during daytime.
- Communal space should be designed as a positive space and integrated with the layout of the development by way of landscaping, access paths and lighting.
- It should be overlooked by residential units for safety and security.

Safety and Security
- Maximise the number of windows and balconies facing onto public streets and lanes.
- Minimise high fences and walls along streets.
- Provide lighting, good visibility and surveillance of entrances, communal areas, pedestrian and cycle lanes, side lanes.
- Protect private spaces from inappropriate use as public thoroughfares.
- Minimise obscured, overgrown shrubby areas along streets and paths.
- Enhance prevention and mitigation in terms of possible hazards and/or disasters whilst promoting development.

5.7 Building Guidelines
Massing, Height and Human Scale
- Building heights and massing should acknowledge and respond to height and form of adjacent buildings and spaces in the street and should reinforce the shape and form of the topography of the site.
- Building massing and heights should contribute to the sense of character and spatial definition of adjacent streets.
- Massing and height of buildings should ensure a human scale at the street level and particularly at building entrances.
- Building height and massing should be distributed on site to minimise overshadowing of public spaces and pedestrian walkways.
- Massing and height should be used to create landmark elements and neighbourhood legibility.

Frontages and Facades
- Minimise parking structures, ground level car parks and blank walls fronting the road.
- Ensure front facades are well articulated by suitably scaled fenestration and building modulation elements such as cornices, plinths and roof lines.
- Incorporate balconies into upper level development frontages to provide surveillance of the street.
- Locate lower height developments in areas abutting residential back gardens.
- Incorporate contextual cues associated with existing streetscapes into new buildings relating to roof form, wall treatment, balcony and fenestration details, choice of material and colour, building scale etc.
- Building facades should address and define the street through building elements such as terraces, balconies and verandas and porticoes and highly textured surfaces.
- Encourage building facades to respond to street corners and public spaces.

Entrances
• Entrances should be well lit and clearly visible from surrounding development to promote security.
• Entrances should be clearly articulated through landscaping and architectural features.

Walls and Fences
• Fences and walls should be constructed as part of the main building and should not dominate the overall built form.
• Walls and Fencing should enable views of the street or public spaces for security i.e. low walls in fronts and higher for sides and rear.

Parking
• Break up large parking areas with trees, buildings, or different surface treatments.
• Provide residents’ car parking underground or in semi basements where practical.
• Semi-basement car parking should be designed so that it can be ventilated naturally.
• Exposed semi-basement car parking should be detailed with facade treatments particularly on main street frontages.
• Minimise access to parking off streets that act as main pedestrian routes.

Visual Privacy
• Locate upper storey living room windows and balconies so that views are towards the road or to outdoor spaces within the development.
• Locate the windows of one building so that they do not provide direct and close views into the windows of another.
• Use upward sloping louvres as an external screen to avoid direct viewing.
• Incorporate the use of well designed screening elements to minimise views into units from public spaces and streets.
• Step up or set back ground floor units which face public streets.

Acoustic Privacy
• Use noise resistant materials between units.
• Locate parking, access ways and communal open space away from bedrooms.

Energy Efficiency
• Use, or provide for the future use of, renewable energy sources such as solar energy where practical.
• Encourage the use of building materials which are environmentally friendly.
• Encourage the use of appliances and systems which conserve water.
• Decrease building operational energy requirements by incorporating low energy lighting.
• Maximise the use of natural lighting and ventilation.
• Design building form and fenestrations to allow sunlight into habitable rooms and private open spaces.
• Design buildings and fenestrations to maximise natural ventilation.
• Use textures and colours on surfaces to optimise micro climate control.
• Incorporate building elements such as overhangs, vertical screens, heat absorbing materials reflective glass etc to manage micro climate of buildings.
Illustrations

Building Frontages/Facades

Building facades should address and define the street through building elements such as terraces, balconies and verandas and porticoes and highly textured surfaces.

Building Articulation

Ensure front facades are well articulated by suitably scaled fenestration and building modulation elements such as cornices, plinths and roof lines.
Massing and Street Frontage

Building massing and heights should contribute to the sense of character and spatial definition of adjacent streets.

Building Scale, Massing and Height

Acknowledge the scale and character of existing buildings and or an area when designing new infill buildings and features.

Building heights and massing should acknowledge and respond to height and form of adjacent buildings and spaces in the street and should reinforce the shape and form of the topography of the site.
Building massing and heights should contribute to the sense of character and spatial definition of adjacent streets.

Entrances should be clearly articulated through landscaping and architectural features.

Massing and height of buildings should ensure a human scale at the street level and particularly at building entrances.
6. DENSIFICATION MANAGEMENT SYSTEMS

Many different management systems could be employed for the management of densification. However, the systems employed would need to match the system to be managed in terms of requisite variety. That is, the more complex the system to be managed, the more complex the management system needs to be. Different systems would also need to be employed within the public and private sectors. As any density policy is relatively complex and may require more resources than are currently available within the Municipality Systems, an option may be to establish “Special Purpose Vehicles” (SPVs) for the management and implementation of new policy and approaches to density. Management of densification could occur at public, private or joint management levels. Ownership of developments becomes important in the management of developments.

6.1 Private Sector Management/Initiatives

Various management options are currently available for development in general and especially residential development. Ownership of units plays a large role in the various management options which could be explored for managing higher densities. The ownership options associated with higher density residential development are usually linked to the housing typology of the development. Ownership can range from freehold title (usually typologies which are freestanding) to sectional title ownership (usually related to typologies which are attached in some way or another).

Sectional Title Ownership

This section will give a brief description of what Sectional Title Ownership is, why there is such an ownership type and in what way it determines the manner in which these developments are run. Many websites provide information on this subject, such as:

- [http://www.propertymanagementservices.co.za/agent.htm](http://www.propertymanagementservices.co.za/agent.htm), cited 3 April 2008

In terms of Sectional Title Ownership, one owns the ‘inside of the property’, ie, all that is contained within one’s particular unit. This is the only area where structural alterations may be made without the consent of the Body Corporate (discussed overleaf) but which may not contravene any by-laws of a city. Therefore, ownership will be of that particular section of the development.
Sectional Title ownership does not exclude an owner of a section from the ownership of the Common Property, but the owner of the section is joint owner of the Common Property.

The Common Property is managed and controlled by the Body Corporate. This management structure is explained below.

The Trustees are chosen by the Body Corporate and they work on a voluntary basis. There may be no less than two Trustees per scheme, but no maximum is listed in the Act. The Trustees will vote for the various positions on the ‘management body’.

The rules of the scheme (development) are established on inception of the scheme and are in accordance with the Act. The Trustees can change these rules but no rule may go against the spirit of the Act. The rules can only be changed once the Body Corporate has been consulted and a vote has been passed. Some instances (as set out in the Act) will require a unanimous vote, whereas others will require special resolutions.

Levies are paid by all owners to the Body Corporate These:

- Rates and taxes (only until July 2009)\(^6\)
- Water and electricity used on the Common Property
- Sewerage
- Insurance premiums for the Common Property
- Repairs and maintenance of the Common Property
- Wages and salaries of the cleaners and other staff
- Security

Special levies (usually in the event of emergencies or special projects) may be instituted by the Body Corporate if deemed necessary.

Management Agents may be appointed by the Body Corporate of a scheme if this is deemed necessary. The Management Agent’s functions are discussed overleaf.

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\(^6\) The Municipal Property Rates Act 6 of 2004 requires all Sectional Title Owners to register with the Municipality and to be liable for their own rates and taxes.
Residents' Associations

Residents' Associations can also be established for a neighbourhood or neighbourhoods. These structures are usually voluntary and residents pay a membership fee to be a part of the association. The association usually manages aspects of additional security in areas, ensures that parks, open spaces and public areas are maintained and kept clean and generally arranges meetings or activities for the residents of an area.

A range of ownership types can be associated with this 'management structure' as complexes, their units and houses can be part of this structure.

Residents' Associations are more of a general body for neighbourhoods and will not have a direct link to the running of higher density developments per se, but members join these organisations to protect and enhance their environments. These organisations are essential in ensuring that the general urban environment and safety of residents is up to par.

City Improvement Districts

Just as it is important to maintain developments on the inside, it is important for developments to be part of an urban area which is well functioning and maintained. City Improvement Districts are therefore areas which are maintained and 'governed' by a collective body of property owners which ensures that the urban environment directly relating to their properties is well maintained.

An Improvement District is a defined geographic area within which property owners agree to pay for certain services to enhance the physical and social environment of the area. The services provided are supplementary to those provided by the Municipality and usually include safety and security patrol officers, pavement cleaning, litter collection, maintenance of public space and the removal of illegal posters.

Benefits of CID's, as posted on [http://www.joburgcentral.co.za/about_detail.php?PHPSESSID=9e8157ef9e9760879cd19fc7ab68b5](http://www.joburgcentral.co.za/about_detail.php?PHPSESSID=9e8157ef9e9760879cd19fc7ab68b5), are:

- The improvement district approach is holistic
- Enhancement of the environment and strengthening investor confidence
- The improvement district supports investment by business
- An improvement district creates a positive identity for the area

MANAGEMENT AGENTS

Here it should be noted that the responsibility of the Managing Agent is to the common property and not to the individual homes within the common property. A managing agent cannot be held liable for repairs to the inside of homes, individual security requirements or the settlement of electricity accounts – all of which remain the duty of the home owner. Leases between owners and tenants are also not the responsibility of the Managing Agent nor is the collection of levies and rentals from tenants. This must be done by home owners and then paid over to the Managing Agents.

There are no specific qualifications for a managing agent, but a good managing agent should be associated with the National Association of Managing Agents (NAMA) who are the umbrella body for this industry.

The advantages of the appointment of an NAMA member is that they will have had to satisfy an independent body of their competence and, as a condition of their membership, will be required to abide by a code of practice. Bodies Corporate and Home Owner’s Associations will also have recourse to NAMA in the case of a complaint against one of their members.


The Managing Agents collect the monthly levies and all other moneys due by owners to the Body Corporate. They keep the books, recover unpaid debts, prepare the annual budgets, arrange for quotations for repairs and maintenance, send out notices and generally assist the Trustees with the numerous time consuming tasks that arise in administering a Scheme. A good Managing Agent can save the Body Corporate a lot of time, trouble and expense.

The improvement district offers private sector management and accountability. The effectiveness of the improvement district is constantly measurable. CIDs monitor any new major developments or interventions that impact the area. Improvement districts have effective working relationships with appropriate bodies or associations. The improvement district is able to put forward ideas for change to council.

CIDs have to be legislated. As such, the following steps are usually followed before CIDs can be implemented:

- The geographic boundaries of the improvement districts have to be established.
- All property owners and major tenants within a defined area must be identified and exposed to the proposed intervention.
- A referendum has to be held and a pre-determined majority must be achieved in order to legally establish an improvement district.
- Whilst the application to the Municipality to establish an improvement district may be made by 25% of property owners, final approval will not be considered unless more than 50% of relevant property owners are in agreement.
- Once a district is authorised, 100% of property owners within a district have to contribute financially.
- Once legally constituted the improvement district authorises the council to levy an additional tax on improvement district members, who are required to pay them just as they have to pay rates.
- The council collects the levy on behalf of the improvement district and pays the money received directly over to the improvement district without deduction or gives agency status to an approved agency to collect levies on its behalf.
- Each district has its own board of directors elected from the contributors and they effectively control the district within the terms of their original improvement district business plan.
- The board appoints a specialist urban management company such as Kagiso Urban Management to manage the day-to-day operations within the district.
- The services to be provided by the improvement district reflect the actual needs of the area and are negotiated with the Municipality.
- An agreement as to the level to which the Municipality will be providing services out of the normal rates base has to be negotiated.
- The improvement district is established for an initial period of three years but its life can continue indefinitely unless members move for material changes to the original business plan.

(http://www.joburgcentral.co.za/about_detail.php?PHPSESSID=9e8157ef98a0b0f879cd19c7ab63b5, cited 5 April 2008)
6.2 Public Sector Management/ Initiatives

Local Authorities, including the EMM, all generally experience a lack in capacity in terms of the day to day running of the Municipality. For this reason, it is important that partnerships be developed between the public and private sectors to ensure that densification throughout the metropolitan area is managed efficiently. The high density developments/schemes should be managed by the developer/owner/accredited management agent. The role of the Municipality should be to ensure that the public areas and infrastructure are maintained on a continuous basis and to assist in the setting up and management of CIDs where necessary or when assistance is requested.

In the event of the Municipality noticing that any high density residential development is not being maintained at a satisfactory level (examples being that gardens aren't maintained, security risks are detected or the buildings are in a state of disrepair), and complaints are received by the municipality, interventions may occur. Maintenance Plans should be prepared for high density areas to ensure satisfactory maintenance.

This will require that the Municipality has in place, a capacitated Law Enforcement and Inspectorate Body which can do inspections and investigations where necessary and make recommendations on the way forward. An essential part of the Law Enforcement process is for the Municipality to institute Municipal Courts to deal with Municipal related matters such as these.

The establishment of a Housing Agency must also be considered to facilitate the provision of public sector housing. Such Agency must focus on the provision of subsidised and/or low income housing in areas and in line with principles as set out in this Strategy. Agency should also facilitate the management of such housing areas in co-operation with the municipality.

6.3 Aesthetics

The Aesthetics Committee should adjudicate SDPs and Building Plans against the urban design guidelines as set out in this report, as well as any subsequent reports which might become available, comments and recommendations made and also the decision of the Municipality.

6.3.1 Aesthetics Manual

The Aesthetics Manual will be an important tool to be used by developers to understand and see what the standards and outcomes of these types of development are for the EMM. It should give an overall vision of these developments and provide examples of what should be taken into account in terms of the broader development vision of the EMM. It should further emphasise, through the examples, the feel and nature of the desired urban form and the interaction between uses and between developments to ensure a diverse and rich urban environment.
The Aesthetics Manual will only be used to assist decision makers in assessing development concepts on merit. Therefore, the decision makers, who will form part of the Aesthetics Committee, should be professionals and officials in the built environment, who have a sound knowledge of local area dynamics and character.

The Aesthetics Manual should build on and be a continuation of Section 5 of this report where the generic design guidelines are applied and expanded on in more details and illustrated in a more graphic manner. Examples of acceptable and unacceptable densification developments should be used as an additional means of illustrating the desirable and undesirable means of densification.

6.3.2 Aesthetics Committee

The Purpose of the Aesthetics Committee
The Aesthetics Committee should review development concepts at the stage of Site Development Plan evaluation. This should be after an application for higher density residential development is approved in terms of town planning standards and requirements as stipulated in the Town Planning/Zoning Scheme.

The Aesthetics Committee will review the development concept/Site Development Plan in terms of the guidelines in the Aesthetics Manual. The Aesthetics Committee will also review the building plans once submitted, to ensure the aesthetics and design guidelines are adhered to.

The Members of the Aesthetics Committee
The Aesthetics Committee should be a body of professionals, involved in the built environment, as well as local authority officials who have a local area knowledge and knowledge of the applications. Professionals could include Architects, Engineers, Town and Development Planners, Urban Designers, Landscape Architects and Transportation Engineers. The mix of independent professionals and City Officials will ensure a balanced view regarding broader development concepts of the City, as well as more localised issues.

Aesthetics Committee Process(es)
The Aesthetics Committee should review design issues in terms of higher density residential developments. Therefore, the Aesthetics Committee will only become part of the densification process after the Town Planning Application has been assessed and approved.

The Aesthetics Committee will therefore assess the following, in terms of subsequent application procedures as contained in the Town Planning/Zoning Scheme:

- The Site Development Plan
  - This stage should involve the assessment of the development in terms of the Aesthetics Manual’s guidelines for integration and compatibility with the broader urban fabric and general design parameters.

- The Building Plans
  - This stage will focus on detailed design issues related to the aesthetics of the building and its relationship to the surrounding properties and the street.

A recommendation on the Aesthetics Committee would be to further refine and define the functions of the body and its members, as not all members would have to be involved in both stages of the design review. The processes could also be refined and aligned to other committees in the EMM.
7. INCENTIVES

It is imperative that higher densities be sought throughout the EMM as limited developable land is available for development. Current figures and trends illustrate that increased densities must be sought in strategic locations to not only make the urban fabric more sustainable but also ensure that the population growth rates and needs are accommodated for in the future.

As such, current residents and developers should be ‘enticed’ to develop at higher densities. Increased densities will not only increase property values and returns on investments, but will further expand the rates base of the EMM.

Therefore, the following proposals are made to the EMM to incentivise higher density developments:

a) Increase in bulk/FAR to be given to developers at discounted service contribution and rates in the event that densities exceed a minimum set requirement in a category.

b) In each of the categories described in the document, minimum densities have been set which must be met in the event of development applications being prepared and submitted. An incentive policy should be developed where applicants/developers receive an increase in FAR at discounted rates and services contributions if the minimum set density plus an additional percentage over and above the set minimum is reached.

c) In the event that Council owned land is strategically located and no plans exist for the development of the land by Council, the option of selling the land at a discounted rate to a residential developer may be explored.

b) The sale of Council owned land at a discounted price in strategic locations for the development of higher density residential development only.

c) Urban Regeneration Incentives should be developed for redevelopment of inner city areas where residential stock exceeds 60% of the development.

d) Urban Renewal Tax (as per the Income Tax Act) should be applied in the event of urban regeneration in CBD areas. Further to this rate deductions can be given in the event where a property has been redeveloped and caters for more than 70% residential use.

e) Special incentives to offset the development and operational cost of higher density development in dolomitic areas. All such development must take place in accordance with the set standards for development in dolomitic areas.

It is proposed that an appropriate incentive scheme for higher density residential developments be developed in conjunction with the EMM Finance Department should the need arise.
8. CONCLUSION

Densification is an activity which must be conducted in a holistic, integrated manner. Therefore social, environmental and infrastructural issues must be understood and provided for during the course of densification. This Strategy has shown that densification must occur in order for Ekurhuleni to be sustainable and able to house all of its residents in the long term.

This Strategy has not focused on site or area specific densification, but has rather proposed principles to which densification should adhere, in order to achieve the vision and desired urban morphology of a sustainable, well balanced city. Cognisance must be taken that not all areas are conducive to densification and that areas have different social, economic and environmental issues to cope with in the greater development paradigm. Therefore, the principles of this Strategy must be transferred to and applied to other spatial plans of more detail, to begin to translate what this Strategy wishes to achieve, across a metro wide scale on local area levels.

This Strategy highlights density targets within strategic areas and sets minimum requirements, which could evolve over the medium to long term as densification is experienced and measured. Densification is not an instant type of development with instant results. Therefore, it is not the aim of this document to achieve the set targets in the short term.

By increasing densities, the municipality will further encourage developers and land owners to utilise their land to the maximum potential and also assist in the redevelopment of Ekurhuleni. Homogenous densification is not encouraged through this process, but a diverse range of design guidelines should provide developers with various options to ensure that good quality living environments are achieved, which cater for a diverse range of people.

The management of these higher density residential developments is of critical importance. Good management of these developments will not only enhance the urban environment, but also the lives of the occupants of these developments. This should be a co-operative venture between the public and private sectors, which will enhance the governance of the urban form.

In conclusion, the following recommendations to the right are made:

RECOMMENDATIONS

1. THAT the Ekurhuleni Residential Densification Strategy, 2008 be APPROVED.

2. THAT the following policies be RESCINDED during the drafting of the LSDFs for those areas:
   • Residential 1 Densification Policy for Meyersdal Study Area;
   • Residential Densification in Alberton (21 May 1996);
   • Residential Densification in New Redruth: Policy;
   • Densification Policy for Multi-Unit Residential Development in Bedfordview.

3. THAT all approved LSDFs are to BE RESPECTED and are not to be overridden by the Ekurhuleni Residential Densification Strategy, 2008 until they are reviewed.

4. THAT all future LSDFs:
   • IDENTIFY developable land for higher density residential development;
   • DETERMINE base densities in each LSDF area;
   • APPLY the Ekurhuleni Residential Densification Strategy, 2008 to each LSDF area.

5. THAT other EMM Departmental Policies BE ALIGNED with the Residential Densification Strategy.

6. THAT an Aesthetics Committee BE ESTABLISHED.

7. THAT a manual BE DEVELOPED for the Aesthetics Committee based on the guidelines in this Strategy.

8. THAT all projects and programmes listed in the implementation plan BE IMPLEMENTED by the relevant departments.
Annexure A
MIXED USE DEVELOPMENTS
MIXED USE DEVELOPMENTS

In the EMM, Mixed Use Nodes should be promoted, as the mixture of uses helps to create sustainable developments. A number of definitions of Mixed Use Development exist. Two examples of this appear below:

i. “Mixed Use Development refers to the practice of containing more than one type of use in a building or set of buildings. In zoning terms, this can mean some combination of residential, commercial, industrial, office, institutional or other uses”. (http://mixed-use-development.zdnet.co.za)

ii. “Mixed Use Development

• A maximum of three significant revenue producing areas (such as retail, office, residential, hotel/motel and recreation) – which, in well planned projects, are mutually supporting.
• Significant functional and physical integration components (and thus a highly intensive use of land), including uninterrupted pedestrian connections, and,
• Development in conformance with a coherence plan (which frequently stipulates the type and scale of uses permitted densities and related items).”
  (Ethekwini Metropolitan Municipality 2007, www.durbantransformation.co.za)

A new element has recently become an important aspect of Mixed Use Developments, namely, a mixture of income groups. This is a direct result of new public sector policies, including the “Breaking New Ground Policy” (BNG) and the development of the National and Provincial “Inclusionary Housing Policy”.

The mixing of income groups within developments and within buildings is generally seen as a positive factor for social integration and the breaking of the ‘NIMBY’ mindset. However, recent research by the Banking Council has cautioned against the possible negative economic implications of mixing housing types where the cost differential is large, as this creates what has become known as “price cliffs”.

Based on the above, the important elements for a Mixed Use Development include:

1) More than one type of use in a building or group of buildings. (Horizontal and vertical mixture of uses.)
2) Pedestrian connections
3) Compliance with a “Spatial Plan”
4) Integration of a limited range of residential income groups

Mixed use developments also contribute to “24 hour” city environments which ensure that people are active and present in these areas throughout the day and night. This assists with various aspects of development over the long and short terms, such as security and surveillance between tenants of the various uses (day time business activity, night time residential and entertainment activity).

Mixed Use Developments should ideally occur within or directly adjacent to nodal areas and close to transit oriented development areas (transport stations).
(Guideline Document for Higher Density Residential Development, p48, 2005)
Annexure B
Shopping Centre Guidelines
Shopping Centre Classification Guidelines*

<table>
<thead>
<tr>
<th>Super Regional</th>
<th>Regional</th>
<th>Community</th>
<th>Neighbourhood</th>
<th>Local</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides mainly shopping and speciality stores, with support convenience facilities. Normally three or more department stores, plus one or more national grocers.</td>
<td>Provides durable and specialised goods. Have one or more Department Store and one or more supermarkets.</td>
<td>Provides convenience goods, personal services, clothing and appliances. Anchor stores are normally a departmental store and large supermarket.</td>
<td>Primarily convenience shopping and numerous personal service orientated shops. Anchor store usually a small supermarket.</td>
<td>Convenience and limited speciality shops. Usually contains a national franchise supermarket or regional supermarket.</td>
<td>Multi-tenant mix including specialised retailers providing products at competitive prices. Centre usually has basic finishes in order to deliver lower prices to consumer. Usually contains a national franchise supermarket or regional supermarket chain.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Trade Area Population</th>
<th>150000+</th>
<th>4000-20000</th>
<th>30000-60000</th>
<th>10000-30000</th>
<th>4000-20000</th>
<th>4000-20000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Leasable Area</td>
<td>±75 000m²</td>
<td>30 000-75000</td>
<td>15 000-23000</td>
<td>5 000-15000</td>
<td>2 000-10000</td>
<td>2 000-10000</td>
</tr>
<tr>
<td>Service Radius</td>
<td>5 km+</td>
<td>3Km+</td>
<td>2.5Km</td>
<td>1.5Km</td>
<td>0.5Km</td>
<td>0.5Km</td>
</tr>
<tr>
<td>Number Of Shops</td>
<td>150+</td>
<td>75+</td>
<td>50-75</td>
<td>25-50</td>
<td>10-25</td>
<td>10-25</td>
</tr>
<tr>
<td>Size</td>
<td>20 ha+</td>
<td>20 Ha+</td>
<td>6-12 Ha</td>
<td>2-6 Ha</td>
<td>1.4Ha</td>
<td>1.4Ha</td>
</tr>
</tbody>
</table>

*Based on “Regional Retail Sector Investigation”, Urban Econ 2005
Annexure C
Guidelines for Development Around Aerodromes
RESIDENTIAL DENSIFICATION STRATEGY

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Settlement Planning & Dludla Development cc
Ekurhuleni Residential Densification Strategy
JULY 2008
This document is the Executive Summary of the Ekurhuleni Residential Densification Strategy. Part 1 (Status Quo Report), Part 2 (Public Participation Report) and Part 3 (Residential Densification Strategy) are stand-alone documents and are available on request from the Ekurhuleni City Development Department.
DEFINITIONS

ACTIVITY SPINE
A linear area of mixed use developments along streets with heavy traffic and pedestrian flows. Activity Spines are indicated on the relevant Spatial Frameworks.

ACTIVITY STREET
A local street where pedestrian movement and access is encouraged as a priority over mobility.

BACK PACKER ESTABLISHMENT
A residential accommodation establishment which provides low-cost accommodation to travellers whose primary needs are for sleeping facilities in a residential house, flat or other suitable building, providing only a bed, pillow and a kitchen for self-help.

BED AND BREAKFAST ESTABLISHMENT
An establishment which provides low-cost accommodation to travellers in a residential house, flat or other suitable building, providing only basic facilities for sleeping, ablutions and cooking.

CENTRAL BUSINESS DISTRICT
This node is a concentration of activities and serves a national and international community. E.g. Offices, Rental, General business, Recreational, Entertainment, Light service industry, Residential uses, Parks and open spaces.

COMMUNE
A dwelling house or dwelling units where people, not necessarily related to one another, live together.

COVERAGE
The area of a property which may be covered by buildings, as seen vertically from above and is expressed as a percentage of the area of the property.

DISTRICT NODES
These are higher order functional areas, with good access from motorways and a concentration of activities, services and amenities.

DUPLEX DWELLING
A suite of rooms forming a complete, living unit situated on two floors, having an internal stair case giving access to the upper floor, designed or used as a residence by a household, contained in a building consisting of two or more such living units, each having direct access to a garden on ground level.

DWELLING HOUSE
A free standing unit in which people live.

DWELLING UNIT
An interconnected suite of rooms including one kitchen, designed for residential occupation by a single family, including such outbuildings and servants’ quarters as are ordinarily incidental thereto.

ESTABLISHMENT
A place of business or residence.

FLAT
Any suite of rooms, not being a single dwelling house but constituting a complete dwelling unit designed for use by a single family, contained in a building consisting of two or more such
dwelling units and having a common entrance.

GROSS DENSITY
Density on a specific site where public roads and public spaces are included (usually measured in terms of dwelling units per hectare).

GUEST HOUSE
A residential accommodation establishment with a distinct individual character, offering resident guests the exclusive use of the facilities, including accommodation and breakfast, as well as lunch and dinner by prior arrangement, without a public bar, managed by the owner or host, who resides on the property with his or her family with a maximum of sixteen and minimum of three bedrooms.

HOTEL
A building that is registered as a hotel in terms of section 1 of the Hostel Act, 1965 (Act 70 of 1965).

HOSTEL
A building designed or used for human habitation, other than a house or dwelling unit, which consists of a number of bedrooms, as well as communal ablution and dining facilities for use by the residents.

LIVING ROOM
A room designed or used for human occupation in accordance with the standards prescribed in the By-laws. This does not include a storeroom, kitchen, scullery, toilet, bathroom or passage.

LOCAL ACCESS STREET
Minor streets, local streets, urban local access, activity street.

MOBILE DWELLING UNIT
A prefabricated, combined suite of rooms, which may not include more than one (1) kitchen, designed for occupation and use by a single family as a permanent residence, which is provided with the necessary service connecting points and so manufactured that it can be moved as a unit or units on wheels.

MOBILITY SPINE
An arterial along which through traffic flows with minimum interruption whilst development abutting the spine is in terms of specific policy criteria relating to the types of land use to be accommodated and to level of access.

NEIGHBOURHOOD NODE
This type of node occurs at a neighbourhood level but may serve more than one neighbourhood.
PEDESTRIAN MALL
Any part of a site used as a thoroughfare for pedestrians, with no or limited vehicular access, as approved by the Local Authority. There may be buildings on, above or below the Pedestrian Mall, as the Local Authority may determine.

PERMANENT RESIDENT
A person residing at a house or dwelling unit.

RESIDENTIAL BUILDING
A building, other than a house or hotel, designed for use, or used for human habitation, which includes a boarding house, a residential club, a hostel or tenements but does not include any building mentioned, whether by way of inclusion or exclusion, in the definitions of “Place of instruction”, Institution and “Dwelling unit”.

ROOMING OR LODGING FACILITIES
An informal accommodation establishment offering a room or rooms available for accommodation in a building for guests where no meals are prepared and facilities are shared.

SELF CATERING ACCOMMODATION
A room or rooms, including a facility for the preparation of meals and an ablution facility, rented out on a temporary basis for the private use of guests catering for themselves, consisting of not less than four units.

SOCIAL HALL
A building designed for use as or used for social assemblies, gatherings, meetings and recreational purposes, including a non-residential club but excluding a “Place of amusement”.

SPECIAL BUILDING
A building used or designed for special use and located in an area zoned for “Special Use”.

SPECIALITY NODE
The node that serves a specific market and it serves sub-regional areas, districts or even regional areas.

STOREY
The space in a building between one floor level and the following floor level or ceiling or roof above.

STRATEGIC DENSIFICATION
Residential densification taking place in areas strategically chosen to enhance the urban form and the functioning thereof.

STREET FRONTAGE
The portion of a building, which is visible from the street.

URBAN COLLECTOR
Local distributor, Minor collector, Neighbourhood connector, CBD road, Industrial road, Lower
mobility activity spine, Activity street.

**URBAN DISTRICT DISTRIBUTOR**  
Minor arterial, Major collector, Higher mobility activity spine.

---

**ABBREVIATIONS**

- **BNG:** Breaking New Ground
- **GDS:** Growth and Development Strategy
- **LSDF:** Local Spatial Development Framework
- **MSDF:** Metropolitan Spatial Development Framework
- **PDA:** Previously Disadvantaged Area
- **RSDF:** Regional Spatial Development Framework
- **ORTIA:** OR Tambo International Airport
1. INTRODUCTION

The “Status Quo: Analysis and Findings” Document highlighted the current trends and approaches to densification across the globe and in South Africa and its various cities.

The trend of densification across the world is driven by a vision for more sustainable cities and largely by a movement for the protection of the environment. Urban sprawl is a worldwide phenomenon and densification is part of the urban compaction movement, which strives for high density, mixed-use developments, promoting and enhancing efficient public transport systems and enhancing the quality of life of residents in cities across the world. To achieve sustainable densification, a number of selected issues need consideration:

- The cost, availability and location of land
- Transportation and accessibility
- Socio-economic issues
- Environmental considerations
- Cultural issues
- Political position of government
- Infrastructure planning and availability

This document will highlight the key proposals in terms of densification for the EMM.

1.1 Purpose of the Residential Densification Strategy

The project brief stipulated the formulation of a specific product, which should be versatile enough to inform the spatial planning in the Ekurhuleni Metropolitan Municipality, especially with the revision of the MSDF and which should also be used as part of the Town Planning Scheme (or rather Land Use Management Scheme) which will be developed by Ekurhuleni over a period of time.

The document should therefore be guiding in nature and should provide guidelines on densification in terms of strategic development initiatives, as well as development controls in terms of densification throughout the city. However, this should not be a static document but one which evolves over time and with development.

The overall aim of this Strategy is therefore to provide guidance to Ekurhuleni Officials, Planners, Developers and the public in the densification of Ekurhuleni. This document is a broad metro-wide strategy, which is to be incorporated into and applied to any new or revised policy documents and which takes cognizance of all current policy and framework documents.

This document is not produced for the evaluation of individual residential densification applications, but is produced to guide the drafting of LSDFs and other metropolitan policies. The principles and proposals of this strategy may however be used in the evaluation of residential densification applications in areas where there is no LSDF.

The Residential Densification Strategy’s principles, guidelines and controls must be applied with discretion and local knowledge to more localized plans for specific areas, especially at LSDF level.

1.2 Users of the Residential Densification Strategy

The Residential Densification Strategy should be used by built environment officials and Municipality officials in the compilation of Local Spatial Development Frameworks and other policies and plans. This document forms part of the greater family of plans and frameworks and should be read in conjunction with metropolitan or areas based plans, such as the LSDF, in order to align thoughts and apply for appropriate densities according to the local situation.

1.3 Structure of Residential Densification Strategy

The Residential Densification Strategy consists of a number of sections, each of which deals with certain aspects of densification. The Strategy begins by highlighting the approach and informing principles of densification used in deriving this Strategy. The Strategy sets out the current trends of densification in the EMM and highlights some of the anticipated trends and
possible targets for the future. It further relates the issues of density to the broader Ekurhuleni policy framework, which needs to be enhanced through densification.

The Strategy then addresses specific categories of densification and provides guidelines in terms of design and control measures for densification to occur. It will further provide guidelines in terms of managing densification throughout the metropolitan area and at various scales and will address issues of short, medium and long terms concern, such as the movement of the Urban Development Boundary.

2. RESIDENTIAL DENSIFICATION STRATEGY

2.1 EMM Vision & Densification

The EMM is formed by nine former towns on the East Rand, resulting in a fragmented metropolitan area, which lacks a clear identity in terms of urban form and function. Furthermore, documentation and policy in the metropolitan area are not aligned, nor do they have a holistic approach, which can be applied to all distinct areas.

The vision for Ekurhuleni, as stated in the GDS 2025, is:

**The Smart, Creative and Developmental City**

The approach to densification in Ekurhuleni should build on this vision and strive to provide a clear direction for the City’s morphology and development, which supports the ideals and objectives of creating a sustainable, inclusive and productive city through densification.

2.2 Densification Objectives & Strategies

The table below illustrates the proposed objectives and strategies to achieve sustainable densification throughout the Metropolitan area.

<table>
<thead>
<tr>
<th>OBJECTIVES</th>
<th>STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) To ensure safe, quality living environments for all residents in Ekurhuleni</td>
<td>1a) To create clear guidelines for Urban Design in higher density residential developments  1b) To create guidelines for suitable housing options and typologies</td>
</tr>
<tr>
<td>2) To ensure sustainable densification in terms of infrastructure capacities and provision</td>
<td>2a) To align densification in EMM with bulk infrastructure service delivery and maintenance</td>
</tr>
<tr>
<td>3) To ensure environmental protection in the process of densification</td>
<td>3a) To create clear guidelines for densification to occur in non-sensitive areas  3b) To provide decision makers/officials, town planners, developers and residents with guidelines and policy which is to be consulted in terms of environmental consideration and procedure  3c) To formulate criteria for the protection of environmental assets</td>
</tr>
<tr>
<td>4) To ensure effective and appropriate decision making in terms of density proposals</td>
<td>4a) To establish clear assessment criteria for decision making officials in terms of density proposals across EMM  4b) To establish an Aesthetics Committee(s) for assessment/review of building design and urban design principles</td>
</tr>
<tr>
<td>5) To ensure effective and efficient management of higher density residential developments</td>
<td>5a) To establish management criteria for various densification classification</td>
</tr>
<tr>
<td>6) To ensure balanced growth in terms of densification by providing residents with</td>
<td>6a) To place residential densification in close proximity to economic and employment opportunities</td>
</tr>
</tbody>
</table>
opportunities close to economic activities

| 7) To ensure balanced growth in terms of densification by providing residents with opportunities close to social facilities | 7a) To align densification to areas where adequate social infrastructure is available
7b) In the event that social infrastructure is limited, provide guidelines for aligning densification with social infrastructure service provision |

2.3 Approach to Densification

After consultation occurred and comments were received on previous drafts of this document, an approach was adopted in consultation with the client. This approach is based on the principles listed below and discussed in turn, in terms of its relevance to Densification.

i. Adherence to National & Provincial Legislation
ii. Looking Forward (in line with Current Development Policy)
iii. Strategic Densification
iv. Sustainability
v. Quality Environments

3. EMM DENSITY TARGETS

3.1 Trend vs Target

Until the approval of this Strategy, the EMM did not have a proactive density policy, which resulted in densification happening in an ad-hoc, unco-ordinated manner which is unsustainable and not based on the sound principles of densification in strategic locations.

If one analyses the current housing backlog (subsidised housing), the following is seen:
- There are approximately 300 000 households on the waiting list
- Subsidised housing requires a standalone erf of approximately 250m$^2$
- 300 000 homes on 250m$^2$ of land translate to a land requirement of 75 000 000m$^2$ to build all subsidised housing (7 500 hectares)
- This calculation is done without taking into account the annual growth rates (approximately 3%) and migration patterns.

In terms of the current average population growth rate in the EMM, the following increase in population can be projected over a 15 year time period at five year intervals:

Table 2: Population Projection

<table>
<thead>
<tr>
<th>YEAR</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>2 528 303</td>
</tr>
<tr>
<td>2010</td>
<td>2 682 276</td>
</tr>
<tr>
<td>2015</td>
<td>3 109 793</td>
</tr>
<tr>
<td>2020</td>
<td>3 604 754</td>
</tr>
<tr>
<td>2025</td>
<td>4 178 898</td>
</tr>
</tbody>
</table>

A 60% population growth is seen between 2008 and 2025, assuming an average growth rate of 3% per annum. **By the year 2025, approximately 1 650 595 people will have to be housed. The current figures of 1 313 people per km$^2$ will increase to 2 172 people per km$^2$ by 2025. This is almost double the current population and will result in increased densities.**

Approximately 40% of EMM (as illustrated on the Geotechnical Maps – Section 5c) are underlain by dolomite, which is deemed undevelopable land in terms of higher density.
residential developments. Therefore, approximately 1 200 km\(^2\) is developable, on which development has occurred and small pockets of land are available for development. This issue around developable land therefore pushes up the required density to 3 482 people per km\(^2\) on 60% of the land. This would include moving people from dolomitic underlain areas which are deemed unsafe.

However, not all dolomitic areas are undevelopable. The dolomite classification will determine levels of safety and would most likely be more conducive to lower density residential developments or other uses.

The current EMM density trends have been discussed in the Status Quo Report and, in summary, it was shown that limited high rise buildings or higher density developments are occurring throughout the City. Areas of highest densities include Bedfordview and Alberton and very limited areas in Germiston.

### 3.2 LSDF Areas

The setting of density targets, whether by LSDF area, functional area, wards or any other means is difficult. However, in order to meet the needs to accommodate the growing population close to facilities and amenities it is essential to have strategic densification targets in designated areas. De-densification will have to occur in Previously Disadvantaged Areas and informal settlement areas, especially where opportunities for employment, transport and social facilities are limited, as well as in areas on dolomite.

Targets for specific areas will have to be set through the Local Spatial Development Frameworks in line with the projections indicated above but taking into account more localised conditions and needs for the areas.

### 3.3 Urban Development Boundary

With the establishment of “wall to wall” municipalities, there are no longer peri-urban areas in which limited infrastructure is provided, but Cities cannot afford to provide full infrastructure and social services throughout the Municipality area. Urban Development Boundaries (UDBs) are a mechanism to contain urban sprawl and to define an “Urban Development Boundary” beyond which only limited services are provided. The definition of an Urban Development Boundary assists in urban compaction and also in keeping cities manageable. UDBs also play an important role in protection of conservation areas. Urban Development Boundaries need to be used to assist in controlling the unsustainable growth of cities and urban areas. Urban Development Boundaries assist in:

- Limiting the City’s footprint and “density sprawl” to prevent excessive consumption of land within the city limits
- Focusing on in-fill, redevelopment and mixed use/densification strategies
- Supporting cost efficient infrastructure provision
- Supporting an urban form that is supportive of efficient public transport usage
- Protecting environmentally sensitive regions and areas
- Providing strategic direction in terms of infrastructure capital investments.

Urban Development Boundaries need to be used with other strategic tools to ensure rational integrated development and strategic densification in planned locations. The Urban Development Boundary needs to be accompanied by other strategies and interventions.
which influence planning and development direction to achieve a city’s desired morphology. Strategies might include promoting Mixed Use Developments to ensure better land use management and control, the improvement of infrastructure co-ordination, development incentives and public transport orientated development.

An Urban Development Boundary does not prohibit development outside the UDB, but any development outside of the UDB should be considered on merit. It is unlikely that intensive development can be motivated outside of the UDB.

With the increase in allowable densities in strategic areas, there should be more opportunity to densify in areas close to infrastructure, social and other services. As a result, there should be less pressure on development beyond the Urban Development Boundary.

 Provincial Government has indicated that no development should occur east of the Urban Development Boundary in EMM due to natural constraints, especially in terms of the area’s geology. The boundary may therefore not be moved in the near future, due to these constraints.

The boundary to the north may be moved in consultation with Provincial Government, due to the development pressures around OR Tambo International Airport and the Albertina Sisulu (R21) Development Corridor.

No southern boundary movement should occur in the near future as this area is also geologically sensitive and further to this, it was indicated that cross boundary planning and infrastructure provision could become problematic and costly, especially for the EMM (between Municipalities). Provincial Government has therefore warned against moving development south.

The Ekurhuleni Urban Development Boundary, 2005 is illustrated by the light blue line in Map 2. Please note that small changes were made to the Ekurhuleni Urban Development Boundary in 2007. These are not reflected on Map 2. The insert illustrates the areas which are undermined (yellow) or are underlain by dolomite (light blue). Higher residential densification can not be accomplished in a sustainable manner in the following exclusion areas:

- Outside the Urban Development Boundary;
- On dolomitic land; and
- On shallow undermined land.

Priority areas for increased densification to occur are within the strategic areas already identified by the EMM. These would include the Core Economic Development Triangle and priority infill areas.

### 3.4 Infrastructure Services

Infrastructure availability or potential availability is a pre-requisite for densification. However, current infrastructure alone should not dictate future areas for densification. The locational criteria for densification, such as in nodes and along activity corridors, need to be used for the planning of future infrastructure provision. Discussions with the various infrastructure departments revealed that if a principle-based approach is taken, servicing could follow densification and strategic investment in infrastructure could occur. Due to the non-finalisation of infrastructure master plans at the time of this document’s development, alignment of budget allocations and priority projects could not be finalised. However, an estimate of servicing costs per residential unit has been obtained from an independent engineer.

The cost of bulk services per residential unit is currently (May 2008) estimated in the region of **R60 000.00**. This includes water, sewerage and electricity for the servicing of a ‘site’/unit. Increased densities which are efficiently designed could decrease this amount due to economies of scale.

(WSP Engineering Consultants)
1. CATEGORIES OF DENSIFICATION AND CONTROLS

Densification is very often perceived as an exercise where homogeneous residential units are produced, aimed at providing for limited income groups (often associated with low-income groups). Ekurhuleni is currently striving for a unified identity across the City, whereby all citizens can feel included.

This section of the strategy will outline the various categories of densification and locational criteria. This is aimed at providing the City with unified densification criteria, which should be applied across the City and to the relevant LSDFs.

The Residential Densification Strategy aims to be easily implementable, adaptable and easily integrated with existing and future policies. Due to strategic densification as a principle, densification should occur around areas where investment has occurred and social and engineering infrastructure is already established. For this reason, strategies for densification are developed around the current urban spatial structuring elements identified in developmental policies such as the MSDF.

A description will be given of each category, which will be followed by examples of suggested development controls for higher density residential development.

The section in Annexure A on Mixed Use Developments can be integrated into the various categories of densification. It merely assists with creating “24 hour” sustainable developments across the Metropolitan Area.

The most appropriate urban spatial structuring elements to which residential densification can be linked are Nodes (areas of concentrated economic activity), Transport Oriented Development (corridors/movement system) and Residential Areas, where certain degrees of densification can be accommodated.

Each of these areas will be discussed in turn below with its relevant densification strategies.

4.1 CATEGORY 1: NODES

Nodes are one of the major structuring elements of cities, together with movement networks and corridors. The strength of a node will have a major effect on the surrounding area. Nodes are where both the private sector and public sector concentrate development. Nodes are associated with higher residential densities and also the intensity of all other relevant land uses in that node.

Nodes can be of a single use type, such as industrial, commercial, residential or even conservation, or they can be mixed in use. In all cases, viable nodes need to promote:

- Clustering of activities and higher intensity of investment and use, to achieve economic and infrastructure efficiency.
- Multi-modal transportation and pedestrian accessibility.
- A sense of place within a defined area. Mixed-use nodes should be small enough such that one can walk from end to end, but not so small that economies of scale cannot be achieved.
4.2 CATEGORY 2: TRANSPORT ORIENTED DEVELOPMENT

The movement system of a city is the backbone of its own economy. Furthermore, its design and movement patterns also determine its levels of convenience for users, be it local residents or visitors from other cities or regions. What also makes a movement system and its infrastructure viable, are the levels at which it is used in an efficient and convenient manner. During the study of the status quo of the current densities of the EMM, many officials, especially those lobbying for public movement systems, said that the densities in the city are too low to make public transportation systems viable and therefore investment has been limited in this sector.

In many of the international examples reviewed in the Status Quo Document, densification supported public transport systems. Due to the success illustrated by these reviewed examples, densification should be encouraged along public transportation routes and in areas of extensive public investment in road and transportation infrastructure.

The EMM currently has a draft ITP (Integrated Transport Plan) which is being finalised. On completion and adoption of this plan, this section of the Residential Densification Strategy should be read in conjunction with the ITP. However, this section is based on the Executive Summary of the Draft ITP Report and discussions with the relevant transport and infrastructure departments in the EMM and should be consulted as such. During these discussions, it was agreed that a principled based approach should be taken, in the absence of finalisation of the ITP.

The transportation network in Ekurhuleni is based on the various transportation modes used in the City and, as such, densification strategies and recommendations will be made in these various sub-categories of transportation. The Strategic Public Transport Network (SPTN) has also been revised in the Draft ITP report. The SPTN is illustrated in Map 4 (as extracted from the Draft ITP).

The red lines illustrate the SPTN which consists of both rail and road infrastructure (for further detail please refer to the ITP). The SPTN links previously disadvantaged areas (PDAs) to areas of economic activity. The identified SPTN movement routes are:

- Thokoza – Alberton
- Katlehong – Germiston
- Vosloorus – Boksburg
- Tsakane – Brakpan
- KwaThema – Brakpan
- KwaThema – Springs
- Duduza – Nigel
- Daveyton – Germiston
- Tembisa – Kempton Park

The densification strategies discussed below should be applied to these routes as priority projects to enforce investment in public transport infrastructure. Densification should further follow additional public transport strategies proposed over the next fifteen years.
4.2.1 Rail

EMM has an extensive rail network within the City which not only links various parts of the City, but also links the City to neighbouring cities and regions. This is emphasized in Section 3.5.5 of the Status Quo Document of this Residential Densification Strategy. Map 5 illustrates the rail network in EMM schematically.

In order for additional investment and rail upgrading programmes to be successful, densification should occur in strategic areas along this rail network, especially where the ITP has also defined areas of strategic development.

Railways stations act as the areas in which rail users enter and exit trains and these must be conveniently located and pedestrian friendly. However, to make stations more viable, modal transport facilities should be implemented. These should have some of the following characteristics:

- **High density residential uses** (a variety of housing typologies should be used)
- Modal interchanges should be present (between rail and vehicles)
- Mixed use developments should be present (presenting economic opportunities for some of the immediate area’s residents)
- Limited private vehicle parking should be provided (forces the public to make use of other public transport modes)

The Draft ITP has identified the following stations in EMM as stations at which Mode Transfer Facilities should be developed:

- Boksburg
- Daveyton
- Dunsware
- Isando
- Kempton Park
- Rhodesfield
- Springs
- Oakmoor

Densification should be encouraged around railway stations, however, design guidelines must be strictly adhered to due to noise pollution and as a safety precaution. The highest densities should be concentrated around points of modal transfer and adjacent to existing stations, which are currently used by commuters.

Most of the stations identified as priority projects are in the central east west line in of the City. It is strongly recommended that densification projects be developed and implemented in the Germiston area, as this is where the major rail infrastructure is centred in the EMM and the Germiston area has been earmarked as a Presidential Project. Densification will have a positive impact on this project.

Higher density residential developments may also be incorporated into mixed-use developments (refer to Category 2) around stations. In the case of residential units on the ground floor, these units must be designed as live-work units to assist in economic upliftment in these respective areas as well.

Rail extensions are also identified in the ITP, including Daveyton – Etwatwa extension, Angelo – Knights extension, Kwesine – Zonkesizwe extension and the Thembisa loop extension. After completion of these rail extensions, as discussed in the Draft ITP, consideration should be given to implementing Mode Transfer Facilities at the respective stations to maximise the investments to these line extensions.
4.2.2 Road

As previously mentioned (as well as in the Status Quo Document), the Strategic Public Transport Network consists of various modes of transport infrastructure. The strategies regarding rail infrastructure have been discussed above.

The EMM has identified a road classification system, which can be studied in the MSDF 2005/6 and the revised ITP. The Draft ITP includes these classifications in the SPTN. The classifications are simplified into a Freeway Network and a Second Order Road Network as well as a proposed Third Order Road Network. The EMM uses this classification which is derived and defined by the Provincial Department of Roads.

**Freeway Network**

The Freeway Network consists of major routes, which link and provide high mobility to road users to other areas in the province and beyond. The EMM Freeway Network connects the EMM with the City of Johannesburg and other areas in the region. Plans are in place to extend this network to create better, more efficient linkages with other cities. These roads include Class 1 and 2 roads. Most of these routes are identified in the Gauteng Strategic Road Network as K-Routes. The various road classifications are:

- Freeways
- Conventional Principal Arterials (mainly rural)
- Conventional Major Arterials

Due to the high mobility and limited access of freeway traffic, increased densification would not be suitable at interchanges on this road network. (Please note that no clear definitions are available for the above-mentioned road classifications. Please refer to the revised ITP once available.)

**Second Order Road Network**

The main objectives of this road network are to:

- Facilitate movement in the metropolitan area in the north-south and east-west direction
- Link residential areas to one another and to the core areas of economic activity
- Link areas of economic activity to one another
- Promote mixed use and high density developments adjacent to these routes (subject to road access management requirements)
- Promote transport along these routes as a priority

The Second Order Road Network comprises road classifications such as:

- Collector Roads
- Activity Streets (in the CBD and Industrial Areas)
- Residential Streets

This classification group is most conducive to higher residential densities as these roads link residential areas to nodes and other areas of economic activities and other residential areas.

**Third Order Road Network**

This Road Network consists of Class 3 roads, which include minor arterials and activity arterials. These roads serve a local area or the broader metropolitan area where indicated. The two types of roads have different attributes as indicated in Table 8.

**Table 8: Third Order Road Network - Attributes**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SPEED</th>
<th>ACCESS SPACING</th>
<th>PEDESTRIAN FRIENDLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor Arterials</td>
<td>70 – 80km/h</td>
<td>450m to 500m</td>
<td>NO</td>
</tr>
<tr>
<td>Activity Arterials</td>
<td>40 – 50km/h</td>
<td>200m to 300m</td>
<td>YES</td>
</tr>
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</table>
Minor arterials also belong to the Mobility Roads Group but have the characteristics of lower speeds and smaller access spacing.

From the MSDF 2005/6 the following roads were identified:

- Transportation Corridors (focus is on mobility and the movement of people and goods)
- Activity/Development Corridors (focus on high population numbers and mixed land uses)
- Activity Spine (focus on high density residential development along road and rail)
- Activity Street (high density residential development to be encouraged with a focus on pedestrian movement and accessibility – not high mobility roads)

4.2.3 Aerodromes

The EMM has five airports throughout its area of jurisdiction. One of these is OR Tambo International Airport. The noise contours for this particular airport are illustrated to the left.

In line with legislation, the Civil Aviation Authority (CAA) has a stringent set of rules and regulations, which need to be adhered to in the event of development in close proximity to an airport or airfield.

The information document, attached as Annexure C to this document, must be consulted before any densification can occur around airfields/airports. Densification around these areas should be in line with the other structuring elements’ criteria and densities consulted with CAA’s requirements.

4.2.4 Gautrain

There are two Gautrain Stations in Ekurhuleni. The OR Tambo International Station will service the Airport and will not have a direct impact on residential densification.

The second station is located in Rhodesfield. This station will serve the residential communities of Ekurhuleni. Residential Densification should be encouraged at this station to levels similar to those in Primary Activity Nodes.
4.3 CATEGORY 3: RESIDENTIAL AREAS

Due to the historical value and settlement pattern in the EMM, three different categories of residential areas have been identified:

- Formal Residential Areas (suburbs),
- Previously Disadvantaged Areas (townships), and
- Informal Settlements (squatter areas).

Due to each of these areas being so different in character, layout, general morphology, environmental and infrastructure issues and systems at work, each one is discussed independently and different recommendations are made for each area.

4.3.1 Formal Residential Areas (suburbs)

Some of the areas in Ekurhuleni have a long history and local area knowledge will be critical in understanding and applying the Residential Densification Strategy. The strategy is built strongly around urban structuring elements in these particular areas and local area knowledge and planning expertise is required to ensure sustainable development.

Base densities across metropolitan areas are seen to be a norm in South African cities. However, experience has shown that this can become problematic in certain parts of these metropolitan areas. Such complications are usually associated with environmental sensitivities, the urban development boundary and infrastructure constraints.

Base densities do, however, have some positive attributes, such as encouraging infill development and the redevelopment of brown fields. It also provides owners of agricultural holdings with limited agricultural potential, to maximize the value of their land through densification processes (be it subdivision or increased residential densities).

Established residential areas should be evaluated on merit and with local knowledge, based on the evaluation criteria listed below:

a) Proximity to economic centres should be considered.

The closer residential areas are to CBDs or nodes, the higher the residential densities may be. All CBD and nodal boundaries must be defined in future spatial planning documents to eliminate any confusion or disparities in planning decisions regarding densification measures. The diagram is merely used for illustrative purposes.

b) Surrounding areas, sites and developments must be considered.

This is related to design aesthetics and quality as well as issues of privacy of abutting land owners.

c) Sizes of properties

The subdivision of properties in well established residential areas should be limited to minimum erf sizes where densification is concerned. Minimum erf sizes should be
d) Critical Site Assessment
A critical site assessment must accompany any application for densification and should address and assess the following aspects:
- The position, height and privacy of buildings on adjacent properties.
- Environmental elements such as slopes, water presence etc.
- Accessibility

e) Site Development Plans
All infill developments must be evaluated against a Draft Site Development Plan, which must indicate the following aspects:
- Landscaping (current vegetation and planned future vegetation – 10% of property to be landscaped)
- Vehicular access
- Pedestrian access
- Surrounding properties building positions
- Building lines
- Current building footprints
- Proposed building footprints
- Indicate conceptually present infrastructure service
- Indicate prevention and mitigation measures in terms of any foreseen problems and/or disasters in terms of any of the above

Applications for residential densification should only be prepared after points (a) to (e) have been considered and it is the opinion of a professional town planner that densification in the subject area would not be to the detriment of the area or its residents.

The appointed city official, with local area knowledge, should critically assess such applications on merit with the aid of the guidelines provided above and proposed land use controls provided.

4.3.2 Previously Disadvantaged Areas
The four major identified Previously Disadvantaged Areas in Ekurhuleni are:
- Kwatzaduza
- Daveyton – Etwatwa
- Thembisa
- Khatorus

These areas are primarily located on dolomitic underlain land where densification becomes a dangerous practice (if not conducted in the correct manner). Densification on this type of land will have serious financial and cost implications on construction and end user affordability.

Further to this environmental constraint, is the issue of placing people closer to employment opportunities. In densifying these areas, the apartheid style development trend will be perpetuated by placing the majority of the population in marginalized areas away from economic opportunity. However, other circumstances need to be understood, such as local support networks, which have been built in these areas among residents, as well as the affordability of their current housing situation.

Densification should definitely be encouraged around transportation centres/stations, where it safe from a geotechnical perspective. These areas should be designed in such a manner that the integration of land uses and transport modes are supportive of and supported by higher residential development. Clustering of activities is therefore necessary and densities should
be highest at these ‘nodal’ cores, descending gradually from the core area, but remaining relatively high adjacent to the public transport routes, whether rail or road.

Within mixed use developments/nodes, provision should also be made for ‘work from home’ opportunities as outlined in Section 5.5 of the Guideline Document for Higher Density Residential Development, 2005, p42. An illustration from this section is provided to the left.

The Guideline Document for Higher Density Residential Development (as mentioned in this document and the Status Quo document), has been developed for the subsidized housing market and gives very clear and specific detail pertaining to design and typologies. That document should be consulted in conjunction with this policy document for further detail on design aspects and layouts.

4.3.3 Informal Settlements

Within informal settlement areas, higher residential densities are most likely to be achieved through public sector investment (subsidised housing schemes) or institutional investments (Institutional Housing Initiatives). In situ upgrading would seem the most likely development to occur in such area. However, densification should not be encouraged in these areas as they are usually removed from economic and transport opportunities and densification will not result in sustainable development. Furthermore, these areas are primarily located on dolomitic or undermined land.

Should densification occur in such areas in the future, the following aspects must have careful consideration:

a) Proximity to transportation facilities (railways stations, bus routes, mini-bus taxi ranks and routes).

b) Affordability levels of the end users.

c) Proximity to social facilities and open spaces.
d) Physical attributes of the land (which must all be documented on a draft site development plan):
   i. Topography
   ii. Vegetation
   iii. Water courses
   iv. Geology (many of the informal settlements and Previously Disadvantaged Areas are located on dolomitic areas)

e) Site assessment and surrounding areas
   i. Site in its immediate context (privacy, overlooking, building orientation, etc.)
   ii. Pedestrian and vehicular access
   iii. Provision of infrastructure (water, electricity, sewage etc.)

Due to current trends and the vision to provide all citizens with adequate housing within the EMM, it is strongly advised that higher density residential development occurs in areas that are economically, socially and environmentally suitable. Densification should only be considered in these areas once all other land possibilities have been exhausted.
4.4 CATEGORY 4: CORE ECONOMIC DEVELOPMENT TRIANGLE

The EMM derived an economic strategy linked to development in 2004, in which the Core Economic Development Triangle of Ekurhuleni was defined. The region is central to Ekurhuleni as a Metropolitan area and hosts the most infrastructure and potential for development and investment. The following main areas have been indentified which link up to form the triangle. These are:

- The Kempton Park CBD & Rhodesfield
- OR Tambo International Airport
- Germiston CBD
- Boksburg CBD
- Benoni CBD
- The Mining Belt from Germiston to Benoni

Each of these areas has been identified for a specific ‘purpose’ of development in the sense that each area could be used/developed for a different market sector which in turn compliments surrounding areas niche activities.

The Rhodesfield area has been earmarked for redevelopment due to the location of the Gautrain Station and also its close proximity to the airport. The area surrounding the station has been set aside for mixed use development, including offices, high density residential development with which Ekurhuleni hopes to provide professionals and companies with a business address in the metro area.

The Pomona Agricultural Holdings Area to the North of OR Tambo International Airport is seen to have the potential to pick up and develop any possible economic spin-offs the airport might have.

The Bardene-Bartlett Area is in very close proximity to the current local activity node in Boksburg, namely the East Rand Mall. This area, found to the south of the OR Tambo International Airport, is seen to be ideal for high tech industry parks or light industrial parks.

The above areas are very closely concentrated in the vicinity of the airport and business and industry opportunities of a different nature have been identified for them.

The one major linkage area, which has been identified, is the mining belt between Germiston and Benoni which is currently occupied by informal settlers. This area is seen to be the perfect opportunity for Transit Oriented Development to ensure the upgrading and sustainable development of human settlements in this area and also to provide the viable linkage the metro requires across the area. No direct linkage is currently seen between these two major areas of the EMM and complimentary activities can be developed as Germiston harbours the most rail infrastructure within the metro area.

In terms of supporting the economic investment, which in turn will create employment opportunities, this area, demarcated as the Core Economic Development Triangle, will be most suitable for higher density residential developments. It will contribute to the efficient use of infrastructure in the area and it will contribute to the sustainability of public transport investment and use. It will also bring people’s homes closer to employment opportunities.

This area will therefore have increased densities in terms of nodal development and transit oriented development and the same incentives would apply in the meeting of any special conditions. However, additional incentives may be granted due to the location of the higher residential developments in the demarcated area of the Core Economic Development Triangle.
### 4.5 SUMMARY OF DENSITY PROPOSALS

Table 13 contains a summary of the proposed density per category.

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5. URBAN DESIGN GUIDELINES

5.1 What is the Purpose of the Guidelines?

The urban design guidelines strive to optimise the positive impact that residential densification can have on the performance of urban living areas for the people of Ekurhuleni Municipality.

They aim to achieve this through the improved planning and design of the structure and built form of urban residential areas and, in so doing, strive to contribute to the achievement of the overarching development goals and principles of the Municipal Integrated Development Plan.

In particular, they strive to achieve:

- Liveable Environments – i.e. improved safety, security, comfort and convenience for residents and visitors
- Sustainable Urban Environments – i.e. residential environments that are resource efficient for the municipality and cost effective for residents.
- Legibility and Imageability – i.e. improved residential neighbourhood identity and character and improved sense of community

Accordingly, these guidelines highlight the various design principles that need to be considered in relation to a number of aspects in the development of residential developments, particularly higher density developments, and they attempt to indicate where they become particularly relevant with respect to the categories of densification area identified in the main body of the Ekurhuleni Residential Densification Strategy i.e. Concentrated Economic Areas, Mixed Use Developments, Transport Oriented Development, Housing Developments and Core Economic Triangle.

5.2 Who should use the Guidelines?

The guidelines are written for use by:

- Municipalities, in their evaluation and assessment of residential development applications and in their planning of urban areas.
- Developers, in their planning for residential developments.
- Built Environmental Professionals, in the design of residential developments.

5.3 When should the Guidelines be used?

Densification will be achieved in a number of ways, one of which is through the increase in the number of building units within the municipal boundaries. This will occur either through the introduction of increased densities in existing areas and / or through the infill of undeveloped Greenfield sites.

Densification will occur through both large scale and small scale developments and the guidelines will have different applications in each instance.

5.4 Form of the Guidelines

The guidelines have been prepared so as to provide guidance at different stages of the planning and design of higher density residential development and also for the different scales at which the environment is experienced by people viz.:-

- The Neighbourhood (Public Domain)
- The Development Site (Semi Public / Semi Private Domain)
- The Building (Semi Private and Private Domain)
5.5 Neighbourhood Integration

Linkage and Connectivity
- Establish urban block sizes that improve/enhance permeability of the neighbourhood
- Avoid gated communities which decrease permeability
- Avoid long cul-de-sacs (i.e. > 40-50m) with no pedestrian through-link.
- Create new link or connector roads through larger development sites.
- Provide through-site links for pedestrians and cyclists on larger sites where through roads are not practical.
- Ensure that layouts respond appropriately to adjacent uses, activities and buildings
- Establish a pleasant, safe and well connected network of paths and roads that support walking and cycling to public transport and local facilities.

Distribution of Use and Activity (Parking / non residential uses /Service Areas)
- Protect new or existing residential uses from high impact uses (e.g. restaurants and service areas) and visual intrusions by buffering them with compatible uses or through the use of landscape or architectural features and structures.
- Structure non residential uses along high access street frontages
- Locate car parking areas and structures so that they do not dominate the development or street frontage.
- Reduce impacts of large parking areas with trees, buildings, landscape features or different surface treatments.
- Provide car parking underground or in semi-basement where practical.
- Locate the multi-storey component of a development towards the road with single storey or car parking at the rear where this will limit impact on the amenity of adjacent residents’ secluded private open spaces.

Urban Character (Legibility, Imageability, Landscaping, Building Form and Massing)
- Establish and or retain visual connections to adjacent activities, features, landmarks and/or amenities.
- Use built form to identify or signal gateways into new, different or special districts.
- Avoid high fences or walls in front of residential buildings along main streets or pedestrian walkways.
- Avoid establishing buildings with large scale massing and or monotonous detailing along public streets.
- Include existing and or new landmark buildings and or distinctive architectural features to assist with environmental legibility.
- Acknowledge the scale and character of existing buildings and or an area when designing new infill buildings and features.
- Ensure that new buildings front onto existing building frontages across streets and public spaces and ensure a high degree of compatibility of building styles and types.
• Major changes in building type or scale along common street frontages should be adequately modulated.
• Provide similar type or mix of buildings on both sides of a street to generate a consistent streetscape.
• Design new or redeveloped residential buildings to front onto existing and/or proposed new roads.
• Retain and incorporate architecturally or historically significant buildings into the development.

5.6 Site Planning

Public and Private Interfaces
• Buildings should have clearly defined public fronts and private rear areas.
• Public frontages should interact with public streets or spaces through the appropriate location of entrances, windows and balconies which overlook streets and spaces.
• Buildings which do not have non residential uses on ground floor should be set back off main streets to ensure privacy for ground floor units.

Communal/Site Facilities
• Adequate refuse storage and recycling areas should be located within the site and should be adjacent to a lane or street frontage and not protrude into public streets or spaces.
• The refuse storage area and recycling areas should be integrated with the design of the development and have minimum visual impact on the streetscape and should be screened and protected by suitable wall/fencing and roof elements.
• Refuse storage and recycling areas should be well ventilated, have access to water and drainage facilities for cleaning and maintenance and should be easily accessible for refuse removal vehicles.
• If individual laundries are not provided then a common or shared laundry facilities should be provided in areas that are accessible, visible.
• Clothes drying facilities should be provided at ground level and or roof level but should be suitably screened from public streets and space. These facilities should be integrated with the building design and should not detrimentally affect the appearance of the building or its immediate surrounds.
• Residential units should have a single common or limited number of television/radio antenna which is/are not visually intrusive to the developments common space or the surrounding streetscape.

Parking Layout
• Make parking structures and carports visually compatible with the character of the main development.
• Minimise the amount of public street frontage given over to parking facilities.
• Ensure that vehicles can exit the development in a forward direction.
• Ensure that visitor parking is available and that it does not compromise internal circulation and access arrangements.

Landscaping
• Landscape features, elements and styles should:
  - integrate the development with the streetscape and common open space;
  - contribute to personal safety by ensuring good visibility along streets, paths and driveways and avoid clutter near building entrances;
  - Contribute to energy efficiency and amenity by providing shade in summer and/or permitting winter sunlight to outdoor and indoor living areas;
  - Create and or enhance privacy between residential buildings and between residential buildings and public streets and spaces.
• On-site management of storm water run-off should be promoted by the optimisation of unsealed landscaped areas.
• Significant existing vegetation should be retained and incorporated into the layout design.
• All high traffic areas such as walkways, cycle paths, refuse disposal areas, entrances and clothes line areas should be adequately paved.
• Pedestrian ways, entrances, driveways, car parking, common open space should be adequately lit to ensure security for residents and visitors at night.
• Lighting should be designed to minimise impacts on living areas and adjacent developments.

Private/Communal Open Space
• Communal space should be provided particularly if there is not easy access to public space.
• It should be usable from a slope, sunlight and shade, landscaping seating and can contain play equipment.
• Communal space should not be used for parking during daytime.
• Communal space should be designed as a positive space and integrated with the layout of the development by way of landscaping, access paths and lighting.
• It should be overlooked by residential units for safety and security.

Safety and Security
• Maximise the number of windows and balconies facing onto public streets and lanes.
• Minimise high fences and walls along streets.
• Provide lighting, good visibility and surveillance of entrances, communal areas, pedestrian and cycle lanes, side lanes.
• Protect private spaces from inappropriate use as public thoroughfares.
• Minimise obscured, overgrown shrubby areas along streets and paths.
• Enhance prevention and mitigation in terms of possible hazards and/or disasters whilst promoting development.

5.7 Building Guidelines
Massing, Height and Human Scale
• Building heights and massing should acknowledge and respond to height and form of adjacent buildings and spaces in the street and should reinforce the shape and form of the topography of the site.
• Building massing and heights should contribute to the sense of character and spatial definition of adjacent streets.
• Massing and height of buildings should ensure a human scale at the street level and particularly at building entrances.
• Building height and massing should be distributed on site to minimise overshadowing of public spaces and pedestrian walkways.
• Massing and height should be used to create landmark elements and neighbourhood legibility.

Frontages and Facades
• Minimise parking structures, ground level car parks and blank walls fronting the road.
• Ensure front facades are well articulated by suitably scaled fenestration and building modulation elements such as cornices, plinths and roof lines.
• Incorporate balconies into upper level development frontages to provide surveillance of the street.
• Locate lower height developments in areas abutting residential back gardens.
• Incorporate contextual cues associated with existing streetscapes into new buildings relating to roof form, wall treatment, balcony and fenestration details, choice of material and colour, building scale etc.
• Building facades should address and define the street through building elements such as terraces, balconies and porticoes and highly textured surfaces.
• Encourage building facades to respond to street corners and public spaces.

Entrances
• Entrances should be well lit and clearly visible from surrounding development to promote security.
• Entrances should be clearly articulated through landscaping and architectural features.

Walls and Fences
• Fences and walls should be constructed as part of the main building and should not dominate the overall built form
• Walls and Fencing should enable views of the street or public spaces for security i.e. low walls in fronts and higher for sides and rear.

Parking
• Break up large parking areas with trees, buildings, or different surface treatments.
• Provide residents’ car parking underground or in semi basements where practical.
• Semi-basement car parking should be designed so that it can be ventilated naturally.
• Exposed semi-basement car parking should be detailed with facade treatments particularly on main street frontages.
• Minimise access to parking off streets that act as main pedestrian routes.

Visual Privacy
• Locate upper storey living room windows and balconies so that views are towards the road or to outdoor spaces within the development.
• Locate the windows of one building so that they do not provide direct and close views into the windows of another.
• Use upward sloping louvres as an external screen to avoid direct viewing.
• Incorporate the use of well designed screening elements to minimise views into units from public spaces and streets.
• Step up or set back ground floor units which face public streets.

Acoustic Privacy
• Use noise resistant materials between units.
• Locate parking, access ways and communal open space away from bedrooms.

Energy Efficiency
• Use, or provide for the future use of, renewable energy sources such as solar energy where practical.
• Encourage the use of building materials which are environmentally friendly.
• Encourage the use of appliances and systems which conserve water.
• Decrease building operational energy requirements by incorporating low energy lighting.
• Maximise the use of natural lighting and ventilation.
• Design building form and fenestrations to allow sunlight into habitable rooms and private open spaces.
• Design buildings and fenestrations to maximise natural ventilation.
• Use textures and colours on surfaces to optimise micro climate control.
• Incorporate building elements such as overhangs, vertical screens, heat absorbing materials reflective glass etc to manage micro climate of buildings.
6. DENSIFICATION MANAGEMENT SYSTEMS

Many different management systems could be employed for the management of densification. However, the systems employed would need to match the system to be managed in terms of requisite variety. That is, the more complex the system to be managed, the more complex the management system needs to be. Different systems would also need to be employed within the public and private sectors. As any density policy is relatively complex and may require more resources than are currently available within the Municipality Systems, an option may be to establish “Special Purpose Vehicles” (SPVs) for the management and implementation of new policy and approaches to density. Management of densification could occur at public, private or joint management levels. Ownership of developments becomes important in the management of developments.

6.1 Private Sector Management/Initiatives

Various management options are currently available for development in general and especially residential development. Ownership of units plays a large role in the various management options which could be explored for managing higher densities. The ownership options associated with higher density residential development are usually linked to the housing typology of the development. Ownership can range from freehold title (usually typologies which are freestanding) to sectional title ownership (usually related to typologies which are attached in some way or another).

SECTIONAL TITLE MANAGEMENT

A Sectional Title life-style brings together people from diverse backgrounds, age-groups, interests and philosophies. Often, the only common factor is ownership of a Unit in the Scheme in which they live. Inevitably, integrating such diverse backgrounds into a stable, happy and successful Scheme presents problems. The Sectional Title Act No. 95 of 1986 prescribed Management and Conduct rules that apply to every Sectional Title Scheme and laid down the framework for running such a Scheme.

(http://www.maxprop.co.za/needtoknow.asp, cited 3 April 2008)

MANAGEMENT AGENTS

A managing agent is a person or firm that is appointed by the entity that has control of a property to manage that property on their behalf. The managing agent is only the agent of the entity, with the contractual responsibility for the management of the property. The ultimate responsibility for the full and proper management of the property will always remain with the Trustees and Directors of the Body Corporate or Home Owner’s Association.

(http://www.propertymanagementservices.co.za/agent.htm, cited 3 April 2008)

RESIDENTS’ ASSOCIATIONS

Residents’ Associations are voluntary groups of residents of a geographic area (houses & complexes may join) who are members, paying monthly/annual membership fees towards the general upkeep of an area. The committee of such an association has the function to oversee day to day activities regarding security, cleaning, organization of meetings and activities for residents.


The Body Corporate is the collective name given to all the owners of Units in a Scheme. It comes into existence as soon as the developer of the Scheme transfers a Unit to a new owner. All registered owners of Units in a Scheme are members of the Body Corporate. The Body Corporate controls and runs the Scheme. Day-to-day administration of the Scheme is vested in TRUSTEES who are appointed by the Body Corporate. Major decisions regarding the Scheme are made by the Body Corporate, usually at the ANNUAL GENERAL MEETING (AGM), or at a SPECIAL GENERAL MEETING. At these meetings, matters which affect the Scheme are discussed, Budgets are approved, Rules can be changed and Trustees are appointed. Each member of a Body Corporate is entitled to vote at these meetings, providing that the member is not in arrears with levy payments or in serious breach of the Rules. Members in default can only vote in certain circumstances. An individual member’s voting power is governed by the member’s percentage ownership of the common property. This percentage is known as the PARTICIPATION QUOTA.

(http://www.maxprop.co.za/needtoknow.asp, cited 3 April 2008)
City Improvement Districts

Just as it is important to maintain developments on the inside, it is important for developments to be part of an urban area which is well functioning and maintained. City Improvement Districts are therefore areas which are maintained and ‘governed’ by a collective body of property owners which ensures that the urban environment directly relating to their properties is well maintained.

An Improvement District is a defined geographic area within which property owners agree to pay for certain services to enhance the physical and social environment of the area. The services provided are supplementary to those provided by the local authority and usually include safety and security patrol officers, pavement cleaning, litter collection, maintenance of public space and the removal of illegal posters.

Benefits of CIDs, as posted on [http://www.joburgcentral.co.za/about_detail.php?PHPSESSID=9e8157ef98a0b0ff879cd19fc7ab68b5](http://www.joburgcentral.co.za/about_detail.php?PHPSESSID=9e8157ef98a0b0ff879cd19fc7ab68b5), are:

- The improvement district approach is holistic
- Enhancement of the environment and strengthening investor confidence
- The improvement district supports investment by business
- An improvement district creates a positive identity for the area
- The improvement district offers private sector management and accountability
- The effectiveness of the improvement district is constantly measurable
- CIDs monitor any new major developments or interventions that impact the area
- Improvement districts have effective working relationships with appropriate bodies or associations
- The improvement district is able to put forward ideas for change to council

CIDs have to be legislated. As such, the following steps are usually followed before CIDs can be implemented:

### 6.2 Public Sector Management/Initiatives

Local Authorities, including the EMM, all generally experience a lack in capacity in terms of the day to day running of the Local Authority. For this reason, it is important that partnerships be developed between the public and private sectors to ensure that densification throughout the metropolitan area is managed efficiently. The high density developments/schemes should be managed by the developer/owner/accredited management agent. The role of the Local Authority should be to ensure that the public areas and infrastructure are maintained on a continuous basis and to assist in the setting up and management of CIDs where necessary or when assistance is requested.

In the event of the Local Authority noticing that any high density residential development is not being maintained at a satisfactory level (examples being that gardens aren’t maintained, security risks are detected or the buildings are in a state of disrepair), and complaints are received by the municipality, interventions may occur.

This will require that the Local Authority has in place, a capacitated Law Enforcement and Inspectorate Body which can do inspections and investigations where necessary and make recommendations on the way forward. An essential part of the Law Enforcement process is for the Local Authority to institute Municipal Courts to deal with Municipal related matters such as these.
6.3 Aesthetics

The purpose, function and objectives of the Aesthetics Committee (AC), as well as the members of this committee, are discussed overleaf. Prior to the establishment of such a committee, of great importance is the development of an Aesthetics Manual. This is to be used by the developer, to develop his/her higher density residential development’s aesthetic and integration concept, as well as by the Aesthetics Committee, in reviewing development concepts of higher density residential developments.

6.3.1 Aesthetics Manual

The Aesthetics Manual will be an important tool to be used by developers to understand and see what the standards and outcomes of these types of development are for the EMM. It should give an overall vision of these developments and provide examples of what should be taken into account in terms of the broader development vision of the EMM. It should further emphasise, through the examples, the feel and nature of the desired urban form and the interaction between uses and between developments to ensure a diverse and rich urban environment.

The Aesthetics Manual will only be used to assist decision makers in assessing development concepts on merit. Therefore, the decision makers, who will form part of the Aesthetics Committee, should be professionals and officials in the built environment, who have a sound knowledge of local area dynamics and character.

The Aesthetics Manual should build on and be a continuation of Section 5 of this report where the generic design guidelines are applied and expanded on in more details and illustrated in a more graphic manner. Examples of acceptable and unacceptable densification developments should be used as an additional means of illustrating the desirable and undesirable means of densification.

6.3.2 Aesthetics Committee

The Purpose of the Aesthetics Committee

The Aesthetics Committee should review development concepts at the stage of Site Development Plan evaluation. This should be after an application for higher density residential development is approved in terms of town planning standards and requirements as stipulated in the Town Planning/Zoning Scheme.

The Aesthetics Committee will review the development concept/Site Development Plan in terms of the guidelines in the Aesthetics Manual. The Aesthetics Committee will also review the building plans once submitted, to ensure the aesthetics and design guidelines are adhered to.

The Members of the Aesthetics Committee

The Aesthetics Committee should be a body of professionals, involved in the built environment, as well as local authority officials who have a local area knowledge and knowledge of the applications. Professionals could include Architects, Engineers, Town and Development Planners, Urban Designers, Landscape Architects and Transportation Engineers. The mix of independent professionals and City Officials will ensure a balanced view regarding broader development concepts of the City, as well as more localised issues.

Aesthetics Committee Process(es)

The Aesthetics Committee should review design issues in terms of higher density residential developments. Therefore, the Aesthetics Committee will only become part of the densification process after the Town Planning Application has been assessed and approved.

The Aesthetics Committee will therefore assess the following, in terms of subsequent application procedures as contained in the Town Planning/Zoning Scheme:

7. The Site Development Plan
• This stage should involve the assessment of the development in terms of the Aesthetics Manuals’s guidelines for integration and compatibility with the broader urban fabric and general design parameters.

8. The Building Plans
• This stage will focus on detailed design issues related to the aesthetics of the building and its relationship to the surrounding properties and the street.

7. INCENTIVES

It is imperative that higher densities be sought throughout the EMM as limited developable land is available for development. Current figures and trends illustrate that increased densities must be sought in strategic locations to not only make the urban fabric more sustainable but also ensure that the population growth rates and needs are accommodated for in the future.

As such, current residents and developers should be ‘enticed’ to develop at higher densities. Increased densities will not only increase property values and returns on investments, but will further expand the rates base of the EMM. Therefore, the following proposals are made to the EMM to incentivise higher density developments:

a) Increase in bulk/FAR to be given to developers at discounted service contribution and rates in the event that densities exceed a minimum set requirement in a category.

b) The sale of Council owned land at a discounted price in strategic locations for the development of higher density residential development only.

c) Urban Regeneration Incentives should be developed for redevelopment of inner city areas where residential stock exceeds 60% of the development.

d) Special incentives to offset the development and operational cost of higher density development in dolomitic areas. All such development must take place in accordance with the set standards for development in dolomitic areas.

e) Decision making regarding exemption from or relaxation in the payment of Parks Contributions.

It is proposed that an appropriate incentive scheme for higher density residential developments be developed in conjunction with the EMM Finance Department should the need arise.
8. CONCLUSION

Densification is an activity which must be conducted in a holistic, integrated manner. Therefore social, environmental and infrastructural issues must be understood and provided for during the course of densification. This Strategy has shown that densification must occur in order for Ekurhuleni to be sustainable and able to house all of its residents in the long term.

This Strategy has not focused on site or area specific densification, but has rather proposed principles to which densification should adhere, in order to achieve the vision and desired urban morphology of a sustainable, well balanced city. Cognisance must be taken that not all areas are conducive to densification and that areas have different social, economic and environmental issues to cope with in the greater development paradigm. Therefore, the principles of this Strategy must be transferred to and applied to other spatial plans of more detail, to begin to translate what this Strategy wishes to achieve, across a metro wide scale on local area levels.

This Strategy highlights density targets within strategic areas and sets minimum requirements, which could evolve over the medium to long term as densification is experienced and measured. Densification is not an instant type of development with instant results. Therefore, it is not the aim of this document to achieve the set targets in the short term.

By increasing densities, the municipality will further encourage developers and land owners to utilise their land to the maximum potential and also assist in the redevelopment of Ekurhuleni. Homogenous densification is not encouraged through this process, but a diverse range of design guidelines should provide developers with various options to ensure that good quality living environments are achieved, which cater for a diverse range of people.

The management of these higher density residential developments is of critical importance. Good management of these developments will not only enhance the urban environment, but also the lives of the occupants of these developments. This should be a co-operative venture between the public and private sectors, which will enhance the governance of the urban form.

In conclusion, the following recommendations to the right are made:

RECOMMENDATIONS

1. THAT the Ekurhuleni Residential Densification Strategy, 2008 be APPROVED.

2. THAT the following policies be RESCINDED during the drafting of the LSDFs for those areas:
   - Residential 1 Densification Policy for Meyersdal Study Area;
   - Residential Densification in Alberton (21 May 1996);
   - Residential Densification in New Redruth: Policy;
   - Densification Policy for Multi-Unit Residential Development in Bedfordview.

3. THAT all approved LSDFs are to BE RESPECTED and are not to be overridden by the Ekurhuleni Residential Densification Strategy, 2008 until they are reviewed.

4. THAT all future LSDFs:
   - IDENTIFY developable land for higher density residential development;
   - DETERMINE base densities in each LSDF area;
   - APPLY the Ekurhuleni Residential Densification Strategy, 2008 to each LSDF area.

5. THAT other EMM Departmental Policies BE ALIGNED with the Residential Densification Strategy.

6. THAT an Aesthetics Committee BE ESTABLISHED.

7. THAT a manual BE DEVELOPED for the Aesthetics Committee based on the guidelines in this Strategy.

8. THAT all projects and programmes listed in the implementation plan BE IMPLEMENTED by the relevant departments.