POLOKWANE DENSIFICATION POLICY FOR URBAN AREAS

Prepared for

POLOKWANE LOCAL MUNICIPALITY
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Compiled by:
LADUMA TAPP
Tel/Fax : 013 750 0360

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1 INTRODUCTION

1.1 Background

The Polokwane Municipality experienced vast residential growth over the past decade mainly caused by the status thereof as provincial capital and economic hub. The Polokwane Municipality is committed to managing the challenges associated with high population growth and, at the same time, enhancing the sustainability and liveability of the City. Important to this is the development and implementation of a densification policy seeking to achieve a more sustainable and consolidated urban form.

Laduma TAPP was appointed to undertake the drafting of a densification policy for the Polokwane Municipality. The densification policy focuses on the built up areas (Urban Areas) which include the proclaimed townships areas for future residential development growth within the strategic development areas (SDA's)

The sections below provide an overview of the aims and objectives of the project and the approach of the consulting team.

1.2 The aim of the Densification Policy

The Densification Policy seeks to:

- ✓ encourage the delivery of well-designed higher density residential development in appropriate locations,
- ✓ improve the sustainability of the built up areas in the Polokwane municipal area
- ✓ enhance the quality of the built environment
- ✓ promote public transportation
- ✓ promote the efficient delivery of engineering and social services, and
- ✓ consequently, increase the overall average density of residential development in urban areas within the Polokwane Municipality.

1.3 Definition of Densification

Densification is defined as:

"The increased use of space, both horizontally and vertically, within existing areas/properties and new developments, accompanied by an increased number of units and/or population threshold. (City of Cape Town, 2012)"

Incremental densification, in turn, denotes the following:

"Small-scale densification that has a relatively low impact on the character of an area, e.g. the subdivision of a residential property or construction of a second dwelling. (City of Cape Town, 2012)"

Densification is not an end in itself, but a means of improving the sustainability of the city as well as the vitality of urban precincts. It is a relative indicator of the intensity of development and the population thresholds that could support economic activity, public transport services and the like. (City of Cape Town, 2012)

1.4 Motivation for Densification

Densification can contribute to the creation of good-quality, efficient and sustainable urban form in a number of ways, including the following:

- ✓ Densification reduces land take up
- ✓ By encouraging higher densities, future land requirements for new developments could be reduced and the housing unit demand could be accommodated on much less land compared to the same number of units accommodated at lower densities.
- ✓ Densification reduces the consumption of valuable/non-renewable resources
- ✓ By encouraging development upwards rather than outwards, densification helps reduce the consumption of valuable resources such as agricultural land, areas of mineral potential, aquifer re-charge areas and valuable biodiversity areas. It can also reduce the consumption of non-renewable fuels by lessening car dependence.
- ✓ Densification reduces distance between work place and place of living
- ✓ Higher densities in appropriate locations, especially those close to urban opportunities (services, facilities, jobs) and public transport, help rationalise the housing pattern in the city, and improve access

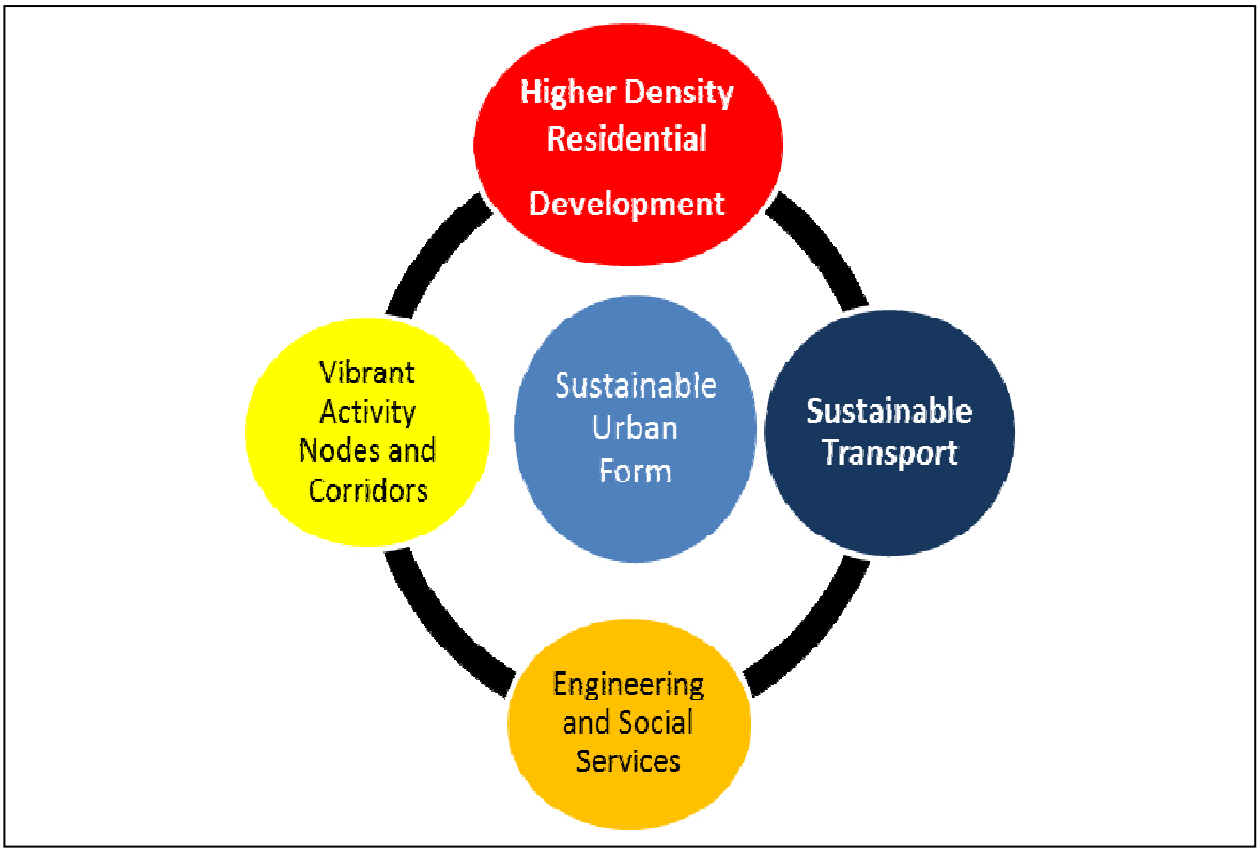
to the city's amenities and facilities. They help reduce travel distances and times, as well as the associated costs.

- ✓ Densification encourages increased use of sustainable public transport
- ✓ Higher densities, accompanied by increased population thresholds and mixed-use development, support the efficient functioning and viable provision of public transport services, especially on major line-haul routes for mass and rapid transit.
- ✓ Densification promotes efficient and on-going utilisation of infrastructure
- ✓ Higher densities, accompanied by increased population thresholds, create sufficient consumers to generate the development of economic opportunities, social facilities and services, and enable the cost-effective provision and optimal use of infrastructure especially where there is excess service capacity or where increased thresholds are required to provide services and infrastructure.
- ✓ Densification improves housing patterns and choice of house type
- ✓ A mix of residential densities ensures diversification and choice of housing types and tenure options.
- ✓ Densification contributes to urban place-making and improves safety
- ✓ Appropriately designed and located higher densities (in terms of form, scale, height, orientation) can provide an opportunity for place-making and the creation of attractive and safe urban environments, particularly those in proximity to public spaces (both natural and built).
- ✓ Densification encourages balanced and viable communities
- ✓ Higher densities are not a guarantee of quality urban environments, appropriate built form or good urban design. However, the extremes of either very high or low densities often result in negative urban environments. Appropriate regulations, local development policies and urban design policies can be used to help prevent negative built environments.
- ✓ Densification enhances economic vitality of activity nodes and corridors
- ✓ Higher densities along existing and future activity nodes and corridors support efficient and optimum use of existing infrastructure and enhance the economic vitality of an area.

Source: Laduma Tapp, 2012, City of Cape Town, 2012

Figure 1-1 illustrates the elements needed to create a sustainable urban form accomplished through densification.

Figure 1-1 Illustration Elements needed for a Sustainable Urban Form through Densification



1.5 Approach

A Densification Policy requires a holistic approach involving the integration of all other municipal systems and sectors to ensure the long-term applicability on an environment consisting of economic, physical, social, political, institutional and natural aspects. To ensure integration, density policy planning should deal with all relevant processes and functions of the municipality within the broader developmental framework and should specifically support the following:

- ✓ **Economic Development**
  This is probably the most important aspect on which policies is based. If a policy does not support economic principles, it will not function effectively and efficiently and will be stillborn. The following aspects provide the economic inputs to the densification plan:
  - ✓ Economic sector and market trends and demands translated to land use densities
  - ✓ The strengthening of nodes and development corridors through densification

- ✓ **Social Development**
  This aspect involves the recognition of need to develop human resources and provide an environment, which is conducive for the development of people and sustainability in the enhancement of quality of life. Density planning needs to aim at providing environments, which will be beneficial to people development in order to provide them with more choices.

- ✓ **Infrastructure Development**
  Density Planning is supported by the provision of sustainable engineering and social infrastructure. Land Densification supporting the sustainability of community livelihoods and economic development nodes cannot take place unless acceptable provision of water, sanitation, electricity, roads and transportation has been made. Sustainable communities need to be supported by a system of social facilities.

- ✓ **Environmental Management**
  The sustainable management of the natural environment is needed in order to ensure a proper balance between economic, natural and social systems. The incorporation of environmental management guidelines as part of the density policy is therefore necessary.

- ✓ **Institutional Development**
  The densification policy and process needs to support capacity building within the institutional system including all relevant spheres of government. Alignment with all relevant processes and policies is required.

The Densification Policy has the aim and purpose of integrating the outcomes into one comprehensive plan.

The strategy aims to achieve this by:

- ✓ presenting relevant contextual information in order to identify issues and opportunities for providing higher density residential development
- ✓ articulating the benefits of higher density residential development in the municipality's urban areas
- ✓ defining criteria for appropriately locating higher density residential development
- ✓ defining design principles for higher density residential development
- ✓ identifying key precincts and corridors considered suitable for higher density residential development; and
- ✓ identifying initiatives to encourage higher density residential development.

1.6 Measuring Residential Density

1.6.1 Measurement assumptions

Density assumptions play an important part in estimating the development land requirements arising from a new dwelling requirement / forecast. Indeed, without an assumption about how many units can be accommodated in a given area, it would be impossible to move from forecast demand to an estimate of how much land will be needed. (Government of Ireland, 2009)

Whilst the principle of the approach is straightforward - a site area multiplied by a density assumption to produce an estimate of site capacity - the practical application is more complicated and is dependent in particular on the appropriate definitions of site / development areas, as well as to a lesser extent, on using the correct density measure. Selecting the appropriate definition of site / development area is important.
Where non-residential uses, such as main roads, retail, employment and major open spaces are being planned in conjunction with housing, an allowance needs to be made in the density assumption for the land that will be occupied by such uses which may be upwards of 25% at the neighbourhood scale.

At the site-specific level, if density controls are to produce the expected results, a density standard must be carefully related to the area accommodating the development. At different stages in the planning of a new development area, standards and measurement can be refined from an overall density which embraces the full range of uses down to one which includes only the residential component of an individual site. As the focus narrows and the area become smaller, the residential density assumption in terms of the number of dwellings per hectare will rise. (Government of Ireland, 2009)

1.6.2 Gross and net densities

A **'gross density' measure** is best applied to estimating overall land areas required for mixed use developments.

Gross residential area adds to net residential area, the streets and pathways required to access them and the land occupied by auxiliary land uses such as local parks and open spaces, neighbourhood community facilities, primary schools, local shopping and services.

A **'net site density'** measure is a more refined estimate than a gross site density measure and includes only those areas which will be developed for housing and directly associated uses. These will include:

- ✓ access roads within the site;
- ✓ private garden space;
- ✓ car parking areas;
- ✓ incidental open space and landscaping; and
- ✓ children's play areas where these are to be provided.

A 'net site density measure' excludes:

- ✓ major and local distributor roads;
- ✓ primary schools, churches, local shopping etc.;
- ✓ open spaces serving a wider area; and

- ✓ significant landscape buffer strips.

Net residential area is to be understood as the land exclusively occupied by residential housing. Net density excludes roads and other transport infrastructure.

A **net residential density** is the most commonly used approach in allocating housing and is appropriate for development on infill sites where the boundaries of the site are clearly defined and where only residential uses are proposed. It is also appropriate where phased development is taking place in a major development area and individual housing areas have been identified. (Government of Ireland, 2009)

1.6.3 Methods of controlling residential density

Dwellings per hectare is the most appropriate measure for estimating development land requirements, making housing land allocations, monitoring completions / take up, and in providing a broad indication of the intensity / form of development envisaged on a site or area.

Built form of development on a site however is more effectively managed by Floor Area Ratio, Height and Coverage. These controls however do not predict the number of units that can vary in size. These controls are not addressed in the densification policy and should be dealt with in land use scheme and/ or precinct plans for specific areas

.

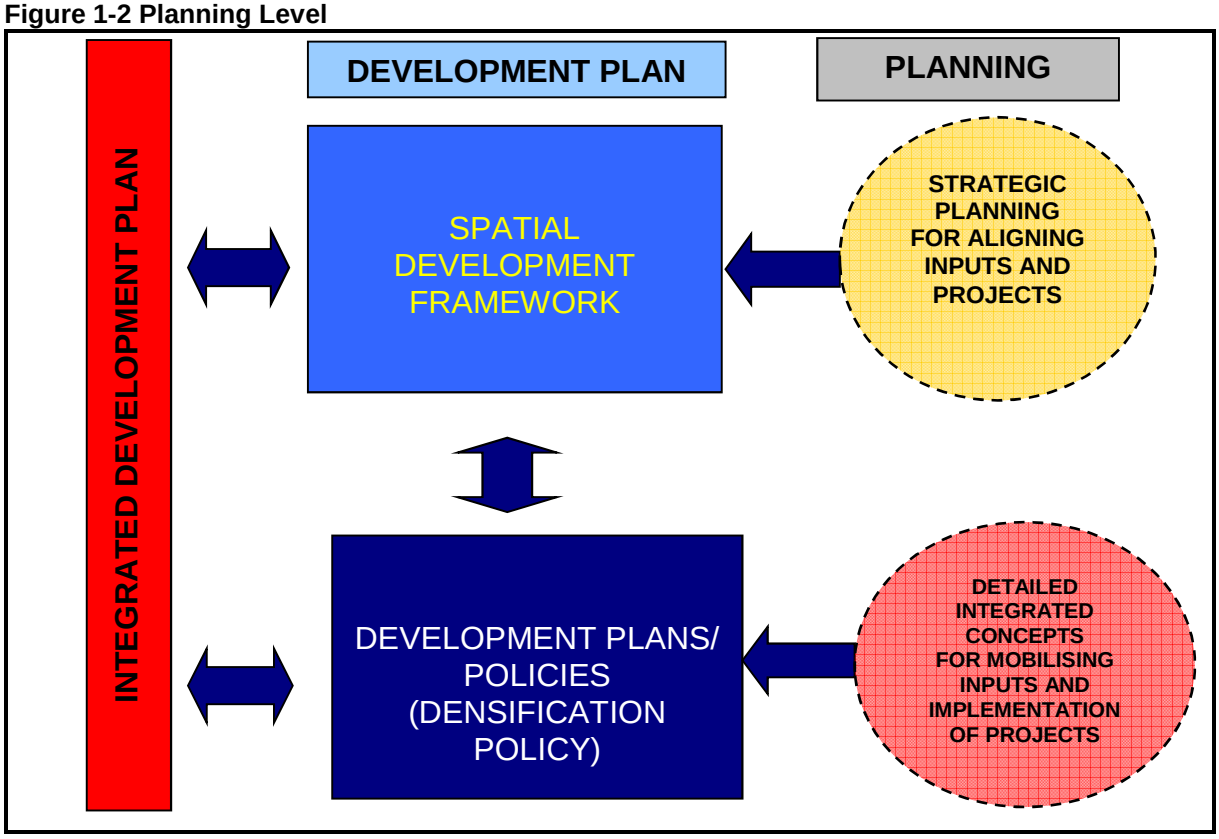
What must be born in mind is that the occupancy rates, such as persons per unit can differ from development to development depending on the nature of the occupant, e.g. elderly, youth, job seeking, families, etc.

The existing densities of the built up areas in the Polokwane municipality should be measured in terms of residential growth, population growth, gross and net residential density per area with the aim to forecast demand and estimate future land requirements for residential development.

1.7 The Integration of the Densification Policy into the IDP and SDF Processes

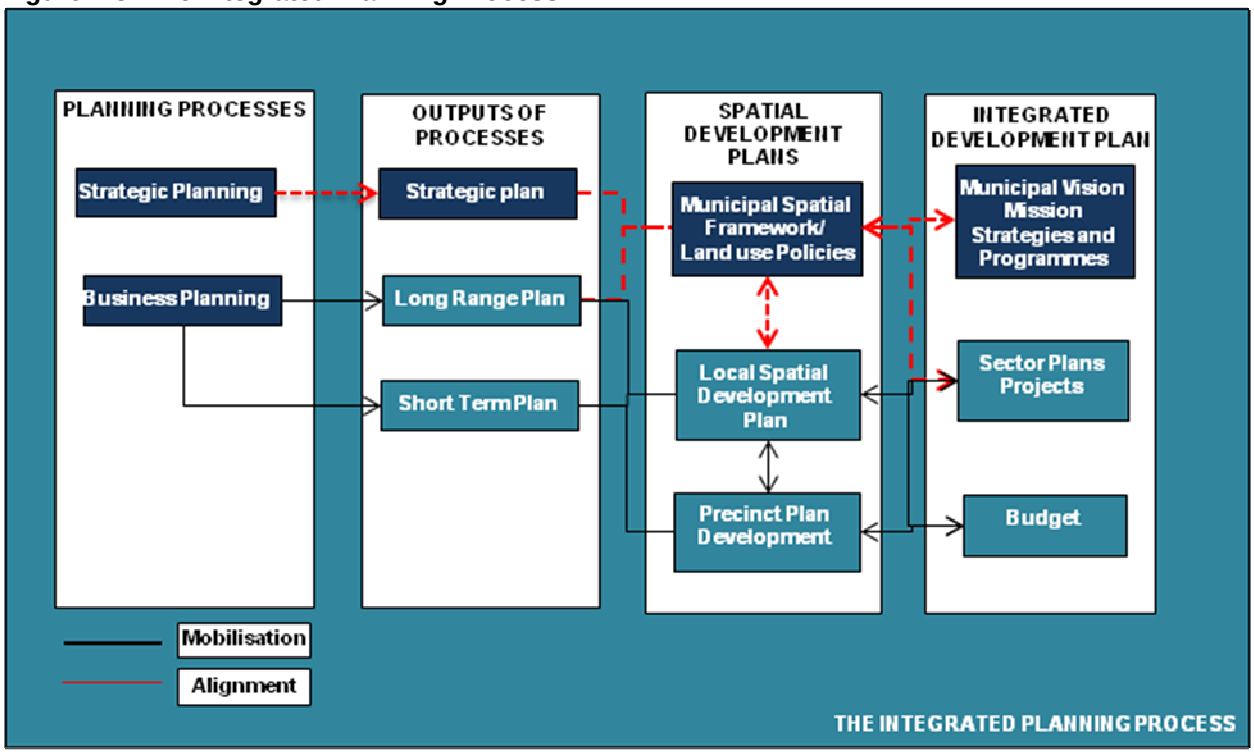
The Polokwane Spatial Development Framework and Densification Policy need to be seen as part of the same integrated planning process and needs to be supportive of each other. The strategic planning levels of the two processes are schematically illustrated in Figure 1-2.

Figure 1-2 Planning Level



The interrelationship between the Polokwane Spatial Development Framework, Integrated Development Plan and Densification Policy in terms of outputs and function is illustrated in Figure 1-3 hereunder.

Figure 1-3: The Integrated Planning Process



2 THE STUDY AREA AND PLANNING AREAS

The built up urban areas situated within the Polokwane Municipal area, including the existing proclaimed residential townships as well as future residential growth areas, comprises the relevant study area for the densification policy. The densification strategy applies to the three urban areas of the municipal area, namely, Polokwane-Seshego, Mankweng and Sebayeng, which for the purposes of this policy is referred to as the planning areas.

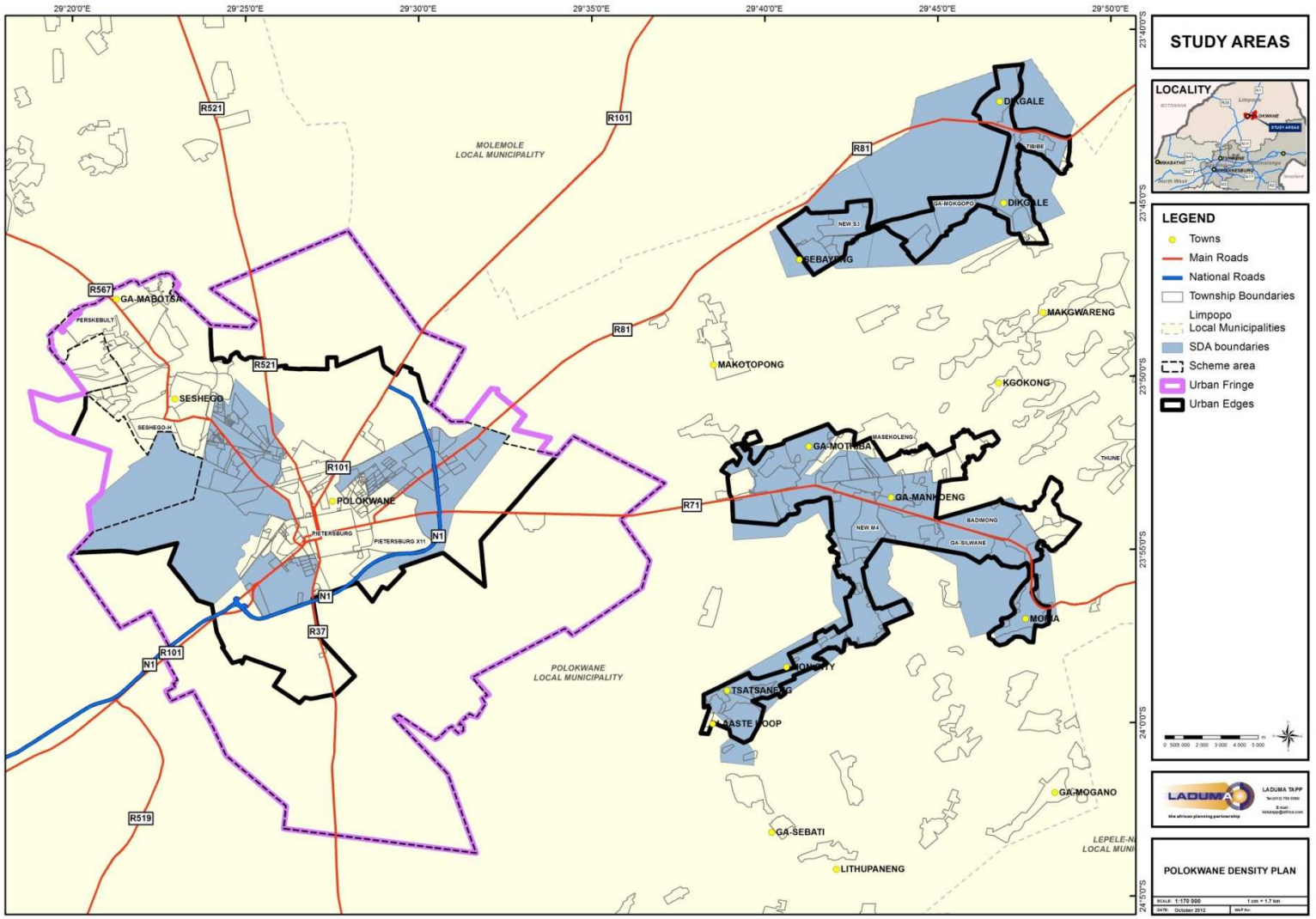
- ✓ **Polokwane / Seshego Planning Area:**
  The area within the urban edge consisting of inter alia Polokwane City, Pietersburg Township Extensions, Seshego and GaMabotsa, etc.

- ✓ **Mankweng Planning Area:**
  The area within the urban edge area, consisting of Mankweng residential areas, including the urban formal and unformalised residential settlements known as Ga-Mothiba, Ga-Mankoeng, Badimong, Ga-Silwane, etc and the Moria area.

- ✓ **Sebayeng Planning Area:**
  The Sebayeng area which consists of both urban formal residential areas and un-formalised settlements, e.g. Dikgale, Sebayeng, Ga-Mokgapo and Tbibe, etc.

The study area is indicated on the map attached as Map 2-1 Study Area and Planning Areas

Map 2-1 Study Area and Planning Areas



3 METHODOLOGY

An integrated and holistic systems approach is necessary to ensure the long-term sustainability of development of each planning area. The methodology to compile the Densification Policy is discussed hereunder.

Step 1: Status Quo Analysis

An assessment is done of the existing factors relevant to the study area and planning areas. This assessment includes the following aspects:

- ✓ The existing development policies (NSDP, NSSD, Polokwane IDP, Spatial Development Framework etc.)
- ✓ Socio economic aspects
- ✓ Existing densities and trends
- ✓ Engineering infrastructure
- ✓ Social infrastructure
- ✓ Land use zoning

The essential aim is to get an informed perspective of the impact of existing and future densities on the inherent development capacity of the area, to determine the impact of densification on engineering and social infrastructure, transportation, roads and open spaces and to determine development policy and legal matters pertaining to the area.

Step 2: Development Issues and Implications

This section measures the resources against the existing development profiles and needs of the community and determines development gaps that need to be addressed. The development gaps relating to densification were determined by the synthesis of the development trends, opportunities and threats and the strengths and weaknesses.

Step 3: The Densification Concept

A Densification Concept is formulated, which models the spatial direction and context of strategic areas of densification. This Densification Concept promotes, clarifies and refines the spatial development principles and development priorities supported by relevant development policies and legislation.

The Densification Concept is refined into a Density Policy that results in:

- ✓ The definition of the role and function of the strategic development area (Vision)
- ✓ The formulation of development objectives that will address the development issues and implications relating to each area
- ✓ The structuring elements of activity spines and streets in core nodes within the Densification areas
- ✓ The density framework

Step 4: The Densification Policy

This step gives guidance to place making within the development areas, and provides a Density Policy. The Density Policies optimal objective is to create an environment conducive for people development, investment and growth, nodal and corridor development.
The policy plan gives form to the Densification Concept in terms of densities linked with traffic and pedestrian movement, transportation, open spaces, public spaces and amenities linked to sustainable engineering infrastructure.

Step 5: Implementation Strategy and Management Framework

An implementation strategy provides for phasing and prioritisation of development areas based on evaluation criteria. The management framework will provide land use density management guidelines linked with implementation criteria.

4 STATUS QUO ANALYSIS

4.1 Legal and policy context

The concept of densification is endorsed by the following relevant policies and laws:

4.1.1 The National Spatial Development Perspective (NSDP)

The National Spatial Development Perspective (NSDP) serves as a spatial planning framework for meeting government's objectives of economic growth, employment creation, sustainable service delivery (with a particular focus on access to basic services), poverty alleviation and reduction of inequalities, as well as spatial integration.

In order to contribute to the broader growth and development policy objectives of government, the National Spatial Development Perspective puts forward a set of five normative principles:

Principle 1: Rapid economic growth that is sustained and inclusive is a pre-requisite for the achievement of other policy objectives, among which poverty alleviation is key.

Principle 2: Government has a constitutional obligation to provide basic services to all citizens (e.g. water, energy, health and educational facilities) wherever they reside.

Principle 3: Government spending on fixed investment should be focused on localities of economic growth and/or economic potential in order to gear up private-sector investment, to stimulate sustainable economic activities and to create long-term employment opportunities.

Principle 4: Efforts to address past and current social inequalities should focus on people, not places. In localities where there are both high levels of poverty and demonstrated economic potential, this could include fixed capital investment beyond basic services to exploit the potential of those localities. In localities with low demonstrated economic potential, government should, beyond the provision of basic services, concentrate primarily on human capital investment by providing education and training, social transfers such as grants, and poverty-relief programmes.

Principle 5: In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or that link the main growth centres. Infrastructure investment should primarily support localities that will become major growth nodes in South Africa and the SADC region to create regional gateways to the global economy. Important dynamics, such as future development zones, land use patterns and the effects of natural market forces on municipalities will influence the extent to which municipalities can align with the NSDP principles.
Source: (The Presidency, 2006)

The NSDP is not a plan, blueprint or prescription but a way of thinking about spatial planning. The principles and methodology of the NSDP is therefore to inform the development plans, policies and programmes of all spheres and agencies of government as a matter of policy.

4.1.2 The National Development Plan

The National Development Plan (NDP) recognises the spatial legacy of apartheid and the fact that housing policies since 1994, in some instances, have reinforced the spatial divide by placing low income housing on the periphery of cities, far from economic activity. Reversing the country's spatial inheritance, even with sound and sensible policies, is likely to take decades. (National Planning Commisssion)

Settlement patterns should meet the needs and preferences of citizens, taking into account the broader social, environmental and economic interests. Travel distances need to be shorter, ensuring that a larger proportion of workers live closer to their places of work, and that public transport is safe, reliable, and affordable and energy efficient. It means building denser and more liveable cities and towns.

Three complementary strategies are proposed in the NDP:

- ✓ Increasing urban population density, while improving the liveability (National Planning Commisssion) of cities by providing parks and other open spaces, and ensuring safety.
- ✓ Providing more reliable and affordable public transport with better co-ordination across municipalities and between different modes.
- ✓ Moving jobs and investment towards dense townships that are on the margins of cities. Building new settlements far from places of work should be discouraged, chiefly through planning and zoning regulations responsive to government

The Planning Commission recognises that there are obstacles to these proposals, including the costs of densification and resistance to new settlement patterns. These obstacles can be overcome with inter alia sound planning frameworks.

Spatial development needs to conform to the following normative principles:

- ✓ **Spatial Justice** – The historic policy confining particular groups to limited space and the unfair allocation of public resources between areas must be reversed

- ✓ **Spatial Sustainability** – Sustainable patterns of consumption and production should be supported, and ways of living promoted that do not do damage to the natural environment

- ✓ **Spatial Resilience** – Vulnerability to environmental degradation, resource scarcity and climatic shocks must be reduced. Ecological systems should be protected and replenished

- ✓ **Spatial Quality** – The aesthetic and functional features of housing and the built environment need to be improved to create more livable, vibrant and valued places

- ✓ **Spatial Efficiency** – Productive activity and jobs should be supported, and burdens on business minimized. Efficient commuting patterns and circulation of goods and services should be encouraged, with regulatory procedures that do not impose unnecessary costs on development.

These principles need to be incorporated into operational principles that provide guidance on:

- ✓ Integrating rural and urban areas
- ✓ Accommodating social diversity within the built environment
- ✓ Creating more dense settlement without raising the cost of land and housing for the poor
- ✓ Integrating transportation systems and land use
- ✓ Broadening the economic base of towns and cities through the supply of reliable infrastructure
- ✓ Suitable land and property
- ✓ Connectivity
- ✓ Skills and Logistics
- ✓ Building community involvement and partnerships
- ✓ Generally supporting the development of vibrant, safe, green and valued places
- ✓ Ensuring that governance arrangements and leadership deliver equitable and efficient decision making

4.1.3 A Comprehensive Plan for the Development of Sustainable Human Settlement (Breaking New Ground Strategy)

The Comprehensive Plan for sustainable Human Settlement, the national housing policy approved by Cabinet during 2004, was informed by the Millennium Development Goals.

Since this document was approved, it led to a number of changes that have been incorporated into the national policy debate and policy directives. The new settlements plan reinforces the vision of the Department of Housing, to promote the development of a non-rational, integrated society through the development of sustainable human settlements and quality housing.

One of the major changes suggested by this document include the promoting of densification and integration of previously excluded groups into the city and the benefits it offers and to ensure the development of more integrated, functional and environmentally sustainable human settlements, towns and cities. One aspect of this process can be achieved through supporting urban renewal and inner city regeneration.

The emphasis is on the process of housing delivery, the quality of the housing product and the long term sustainability of the housing environment.

4.1.4 Limpopo Employment, Growth and Development Plan 2009-2014

The most pressing problem facing Limpopo Province today is the absence of sustained economic growth and job creation, which are essential to reduce poverty and improve living conditions. (Limpopo Provincial Government)

The main objective of the Limpopo Employment, Growth and Development Plan (LEGDP) is to contribute to the economic debate in the province and in the country by highlighting for policy imperatives that should be addressed to promote growth and employment in a complex international and domestic economic environment.

According to the LEDGP much was achieved over the last fifteen years to promote growth and development of the economy, however,

- ✓ The economy's performance, especially in terms of job creation, the quality of jobs, and reduction of poverty and inequality, has fallen far short of our expectations and aspiration
- ✓ The provincial efforts have not sufficiently addressed severe structural imbalances and constraints that impede the economy from developing to its full potential and ensuring job creation.

The LEGDP enables the current provincial administration to tackle the deep seated challenges facing the province in placing the economy on a new growth path capable of delivering decent work and sustainable livelihoods on a scale that will achieve the target of halving unemployment by 2014.

From an overall economic perspective, improving the quality of life for the people in Limpopo necessarily implies that the economy has to create jobs.

From the LEGDP's social overview, the following key issues could be highlighted as having relevance to densification:

- ✓ Improve quality of education e.g. availability and accessibility to education at all levels
- ✓ The Province has created 234,377 housing opportunities, which includes serviced sites, rural and urban housing, emergency houses, farm-worker houses, People's Housing Process (PHP) and institutional / rental units.
- ✓ Lasting and sustainable reduction of income inequality requires greater access of the poor to the labour market.
- ✓ Government is committed to providing access to electricity, water and sanitation as basic services and access to these basic services is not solely determined by the ability to pay.
- ✓ Two programmes lead government's efforts to alleviate asset poverty: land and housing.
- ✓ Difficulties in obtaining the release for housing development of strategic land, often state-owned, that is well located in urban areas constitutes a major challenge with significant implications.
- ✓ Municipal sale of land for short-term financial gain has contributed to this problem.
- ✓ Many new housing settlements are located far from work opportunities, perpetuating urban sprawl and a mismatch between the location of accommodation and economic activity.
- ✓ Insufficient spatial concentration in urban areas brings added costs, in terms of infrastructure provision and labour, because of the expense of commuting to workplaces.
- ✓ The combined effect of government and private-sector housing saw the proportion of households in traditional dwellings decline from 18,2% to 11,7% between 1996 and 2007 and those in formal dwellings increase from 64,4% to 70,5%. By 2008, the number of registered African home-owners exceeded that of white home-owners for the first time. On the other hand, residential segregation in practice was still largely in place.

The Provincial Government of Limpopo has contextualised ten priority areas as contained in the Medium Term Strategic Framework into key strategic priorities which will guide service delivery over the next five years:

1. Ensuring more inclusive economic growth, decent work and sustainable livelihoods
2. Economic and social infrastructure
3. Rural development, food security and land reform
4. Access to quality education
5. Improved health care
6. Fighting crime and corruption
7. Cohesive and sustainable communities
8. Creation of a better Africa and a better world
9. Sustainable resource management and use
10. A developmental state including improvement of public services

Source: (Limpopo Provincial Government)

The government has identified five priority areas for the next five years:

- ✓ Creation of decent work and sustainable livelihoods
- ✓ Education
- ✓ Health
- ✓ Rural development, food security and land reform
- ✓ The fight against crime and corruption.

Decent work and sustainable livelihoods are the foundation of the fight against poverty and inequality and its promotion should be the cornerstone of all our efforts.

The government has a pressing need to accelerate sustainable socio-economic development by, amongst other things, rolling out on a mass scale physical, social and economic infrastructure.

The core aspects of the socio-economic infrastructure are:

- ✓ Bulk infrastructure [Sewer, Water and Sanitation, Electricity, and Communication]
- ✓ Social Infrastructure such as housing, school and hospitals
- ✓ Economic Infrastructure such as freight and logistics

1) Bulk infrastructure

Housing, electrification and water utilities take priority. The Olifants River Water Resources Development Project (De Hoop Dam) is a key strategic initiative with the aim to supply both domestic and industrial water to the Greater Sekhukhune, Capricorn and Waterberg District Municipalities.

2) Social Infrastructure

Health and education facilities are also critical for human development of the people of Limpopo so that they are able to make a meaningful contribution to the economy of the province.

Housing the poor in the province, building of hospitals at areas of high need, building of academic hospital and medical school and the response to government departments that lack office space and utilization of unused government structures are some of the high impact initiatives identified in the LEDGP. The Universities of Limpopo and Venda as well as all other Universities are regarded as national assets.

The greatest demand for health infrastructure at present is for staff accommodation at district hospitals and for clinics and at community health centres. These limitations partly affect the quality of health care provided to the citizens.

3) Economic Infrastructure

With regard to transport and logistics, road infrastructure has been identified as important for accessibility and mobility of goods and people. Roads construction and maintenance can also create

large numbers of local jobs. Roads should be constructed not for the private car use but as economic corridors and for public transport.

4.1.5 The Development Facilitation Act

4.1.5.1 General Principles

Section 3 of Chapter 1 of the Development Facilitation Act, 1995 (Act 67 of 1995) provides a set of general principles, which need to be applied in the motivation of any land use application. The following principles are accepted to guide future development of the land:

3.(1) The following general principles apply, on the basis set out in section 2, to all land development:

(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 the social, economic, institutional and physical aspects of land development;
- (ii) promote integrated land development in rural and urban areasin support of each other;
- (iii) promote the availability of residential and employment opportunities in close proximity to or integrated with each other;
- (iv) optimise 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 optimise the contributions of all sectors of the economy(government and non-government) to land development so as to maximise 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 addresses 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-be clear and generally available to those likely to be affected thereby; in addition to serving as regulatory measures, also provide guidance and information to those affected thereby; be calculated to promote trust and acceptance on the part of those likely to be affected thereby; and 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-promote land development which is within the fiscal, institutional and administrative means of the Republic; promote the establishment of viable communities ;promote sustained protection of the environment; meet the basic needs of all citizens in an affordable way; and ensure the safe utilisation 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 utilised 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.

4.1.5.2 Spatial Structural Elements promoted by the DFA

The resource document on Chapter 1 Principles of the DFA identifies the following required minimum information of spatial structure:

- ✓ Where development should not go for environmental and access reasons
- ✓ The proposed pattern of public spatial investment(movement, infrastructure, public spaces, social facilities, utility services), tied to time frames
- ✓ Areas of high impact uses and special service requirements
- ✓ Zones and points where higher intensity activity will be encouraged
- ✓ Built areas or objects which are worthy for consideration
- ✓ Site-making actions
- ✓ Special project areas

An important function of the principles is to facilitate an ongoing conversation between public authorities and private developers by clearly indicating the common framework within which that conversation needs to occur.

The principles totally reject the low density, sprawling, fragmented, largely mono-functional settlement forms which established under apartheid. Positively performing settlements of this type reflect at least seven basic qualities:

1. They are generative

2. They are convenient
3. They offer choice of living conditions to all
4. They area equitable
5. They promote the efficient use of resources
6. They appeal to the senses
7. They accommodate growth and change well and are improved by the process

Positively settlements with the qualities described above commonly reflect three main characteristics.

1. Higher dwelling densities
2. Scaled for pedestrians and people using public transport
3. A public spatial quality

The promotion of high unit densities is regarded as essential in the new South African context. Reasons for encouraging this direction of higher densities include:

- ✓ Maximizing economic opportunities, e.g. Small-scale business is dependent on vibrant local markets, and these require higher densities
- ✓ Support the range of social services and facilities which are necessary to support living (schools, clinics, libraries, community halls and others)
- ✓ Support viable, efficient public transport
- ✓ Cheaper provision of bulk services
- ✓ Higher density settlements are generally cheaper and more convenient.

Higher density settlements should be able to accommodate both pedestrian traffic and public transportation in order to cater for the majority of households in South Africa, who travel by foot and public transport.

Settlements of this kind also have an identifiable public spatial quality, where there is a clear definition between public space and private space. The individual elements in the landscape (for example, buildings, walls, trees) give it a sense of enclosure, definition and protection from the elements.

Five important sub principles which relate to the substantive form and structure of settlements, which should encourage planners and decision makers to make decisions which move South African settlements in specifically identified directions, include:

1. Integrated employment and living opportunities
2. Optimising existing resources
3. Promote diverse combination of land use
4. Discourage urban sprawl
5. Correcting historical distorted spatial patterns of settlement

The promotion of mixed land use is another important aspect which is to be incorporated in order to move away from the mono functional township model. The intention behind the sub-principles is to promote more convenient environments for urban residents and to create greater possibilities within, below, or very close to, places of residence.

The creation of hierarchical systems of exposure and privateness lies at the heart of an appropriate approach to urban settlement making. Through the creation of these systems a rich choice are offered, but no real particular lifestyle is imposed. The IDP's of local authorities should address this issue of choice of living conditions.

In terms of residential systems, real choice does not relate to different architectural styles or house types, it relates to variations in living conditions from very private to very exposed, intensive, more mixed-used areas. Mixed land uses should occur in those places within the structure where the preconditions for its successful operation exist.

The public spaces which allow activities, events and facilities to order themselves and their locations according to their need for exposure or secrecy, and the integration of these spaces with the hierarchy of movement systems.

Mixed land uses should occur in those places within the structure where the preconditions for its successful operation exist. The IDP's of local authorities should address this issue of choice of living conditions.

Compaction has been identified as a means of addressing urban sprawl. The need to promote compaction and to combat sprawl suggests a number of types of actions:

- ✓ Promoting smaller average site sizes: large lot sprawl is a major form of sprawl in South Africa
- ✓ Encouraging dwellings to go up – to take walk-up forms
- ✓ Promoting various forms of implosion or infill policies, where new growth is encouraged to occur within the existing urban fabric as opposed to beyond the existing edge.

4.1.6 Draft Spatial Planning and Land Use Management Bill

It is a well-known fact that spatial planning and land use management in South Africa is in dire straits due to the complex legal and institutional arrangements and difficulties to reform planning legislation in line with the Constitution.

The draft Spatial Planning and Land Use Management Bill, published on 6 May 2011, provides a step in the right direction towards the process of legislating for an appropriate and long overdue spatial planning and land use management law.

The SPLUMB reinforces the normative approach to planning decision making pioneered by the DFA. Land Use Management decisions, under the SPLUMB, have to be taken in accordance with the following:

1. The General Principles in Chapter 2 "shall guide…the consideration by a competent authority of any application that impacts or may impact upon the use and development of land" (clause 5). The Minister may, in terms of clause 7, prescribe further General Principles in time.

2. The Compulsory Norms and Standards in clause 8 are "for land use management and land development". These have yet to be formulated or prescribed.

The draft norms and standards include the following:

(a) reflect the national policy, national policy priorities and programmes relating to land use management and land development;
(b) promote social inclusion, spatial equity, desirable settlement patterns, rural revitalisation, urban regeneration and sustainable development;
(c) ensure land development and land use management processes, including applications, procedures and timeframes are efficient and effective;
(d) include—
    (i) a report on and an analysis of existing land use patterns;
    (ii) a framework for desired land use patterns;
    (iii) existing and future land use plans, programmes and projects relative to key sectors of the economy; and
    (iv) mechanisms for identifying strategically located vacant or underutilised land and for providing access to and the use of such land;
(e) standardise the symbology of all maps and diagrams at an appropriate scale
(f) differentiate between geographic areas, types of land use and development needs; and
(g) provide for effective monitoring and evaluation of compliance with and enforcement of this Act.

4.2 Spatial Planning Context

4.2.1 The Polokwane Spatial Development Framework

The following points of departure were significant to determine and consider the future spatial form (desired form) and the major directions for expansion of urban edges and clusters:

- ✓ Reconstructing the existing distorted spatial pattern;
- ✓ Successful integrating land development and settlements;
- ✓ Existing spatial form and land uses;
- ✓ Provision of infrastructure and engineering services;
- ✓ Major movement patterns and higher order routes;
- ✓ Geographical and physical aspects/restrictions; and
- ✓ Existing development trends.

4.2.1.1 Hierarchy of settlements and Strategic Development Areas (SDA's)

The Polokwane Spatial Development Framework identified the following hierarchy of settlements:

- ✓ **1st Order settlement:** Growth points [GP] which are major areas where future growth should be stimulated. Growth points are further classified as:
  - o Provincial Growth Points (PGP);
  - o District Growth Points (DGP);
  - o Municipal Growth Points (MGP);

- ✓ **2nd Order settlements:** Population concentrations points [PCP] which consist of towns/villages or a group of villages located close to each other with no economic base.

- ✓ **3rd Order settlements:** Local Service Points [LSP] which are settlements that exhibit some development potential based on population growth and/or servicing function potential, although they have a very limited or even no economic base and mostly located in the traditional rural areas.

- ✓ **4th and 5th Order settlements:** Village service areas [VSA] and Small Settlements [SS] Large and small Villages which are settlements in mainly traditional rural areas where three or more settlements are located in such a way that they are interdependent or linked together by means of specific social infrastructure (e.g. clinic, secondary school).

Some of the important principles identified in the Polokwane SDF 2010, which are of relevance to the densification policy involve the following:

- ✓ to address the successful integration
- ✓ of clusters along areas and land uses (e.g. transport routes) which will contribute to efficiency, sustainability and viable communities over the long term and also to stimulate economic activity in a sensible manner
- ✓ to successfully promote "infill" development within existing clusters. Infill development will also include aspects in relation to densification within existing townships and not only new township between existing ones

The SDA's in clusters or local service points are:

- ✓ SDA 1: Area between Polokwane (Pietersburg) and Seshego;

- ✓ SDA 2: Area known as Ivydale Agricultural holdings;

- ✓ SDA 3: Eastern suburbs of Polokwane (Pietersburg) and adjacent area to the east;

- ✓ SDA 4: Mankweng/Badimong cluster;

- ✓ SDA 5: Area abutting Mankweng to the south west. The Laaste Hoop ward 7 area, currently a LSP;

- ✓ SDA 6: Sebayeng Municipal Growth Point and area directly surrounding it;

- ✓ SDA 7: The area which forms the remainder of the Sebayeng/Dikgale cluster which is not part of SDA6.

- ✓ SDA 8: The area or settlements which are located in the southern parts of the municipal area, known as Chuene, currently a LSP.

Other noteworthy aspects highlighted in the Polokwane Spatial Development Framework 2010 include:

- ✓ The system of dormitory towns and villages for the economic area they serve must be systematically changed to a system of settlements with an economic base to support its people as well to stimulate economic growth.

- ✓ The Polokwane Central Business District which contributes largely to the municipality's income should be the Primary Activity Node in the city and the region, serving the local and regional communities as well as the Provincial Legislature, and it should be managed in such a way that it retains such status and viability in future. In this regard the Urban Development Zone (UDZ) initiatives should be recognized to play a major role in the revitalization and urban renewal of the CBD;

- ✓ Apart from the CBD, a hierarchy of Secondary Activity Nodes can be developed throughout the municipal area and especially within 1st and 2nd order settlements, aimed at serving the different local communities according to their specific basic needs, and optimising the development opportunities as they occur in different parts of the municipal area. The development/expansion of secondary nodes should, however, not be allowed if the municipality is not convinced that these will not have a detrimental effect on the CBD (Primary Activity Node);

- ✓ The municipality should enhance the radial road network and nationally introduced Strategic Development Initiatives (SDI's) linking/giving access to the entire region and beyond;

- ✓ New residential development in the municipal area should be concentrated in specific and identified areas known as Strategic Development Areas and as further be delineated by urban edges. Council must facilitate/promote development in the Strategic Development Areas by means of providing the necessary engineering and social infrastructure, technical and administrative support and other incentives to make these areas attractive for private developers;

- ✓ Public land development and subsidized housings schemes aimed at the lower and middle income groups must be strategically located, closer to activity nodes (e.g. CBD) and part of clusters where job opportunities (formal and informal) exist and in a manner to be fully integrated with the current urban structure. Such developments should also be aimed in those Strategic Development Areas specifically identified for this purpose;

- ✓ Functional Development areas, especially along prominent access routes, should be identified and possibly extended. The themes of the different Functional Development Areas identified in the area should be developed - each according to its unique characteristics and potential;

- ✓ The establishment and impact of the proposed Industrial Development Zone (IDZ) should be guided and investigated by the municipality in support of national and provincial initiatives since it will have a tremendous impact on the growth and development of Polokwane;

- ✓ The initiatives and establishment of a Convention Centre along the Southern Gateway and/or in the area of Polokwane should be supported on all levels since it will not only contribute towards the local economy of the city, but also contribute towards a positive image of

Limpopo Province. The Municipality and all other decision-making authorities should therefore ensure that future development along this Southern Gateway would ensure the long term sustainability of the convention centre and will not in any manner jeopardize these initiatives.

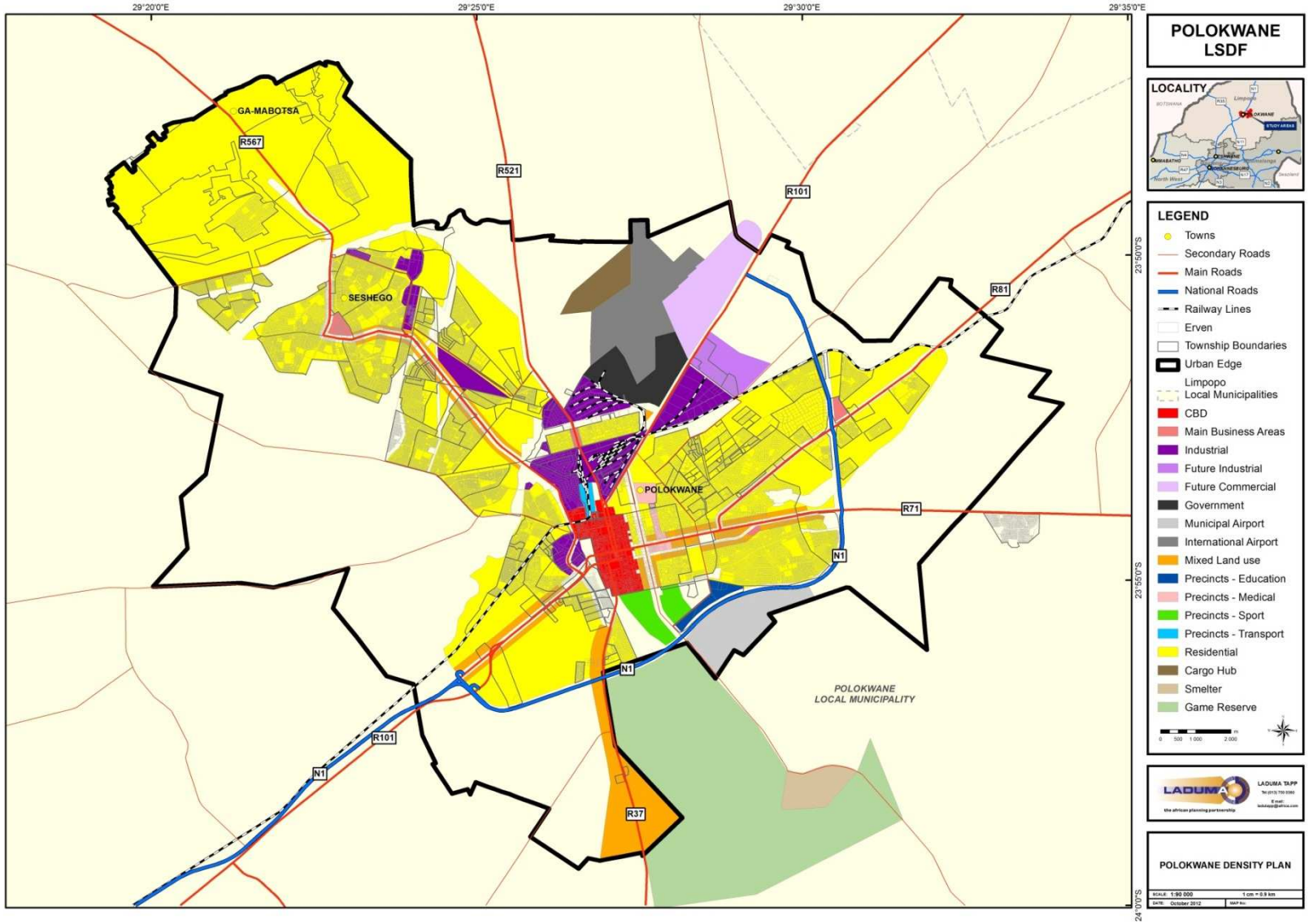
- ✓ Zion Christian Church (ZCC) located at Moria of great importance for the local economy and should recognize in future planning (framework planning) of the area.

The SDA's should be the main focus area for the future development/expansion of township areas and especially of residential areas. In the Strategic Development Area located at the identified urban edge, the municipality must actively support, promote and facilitate the development by means of the following:

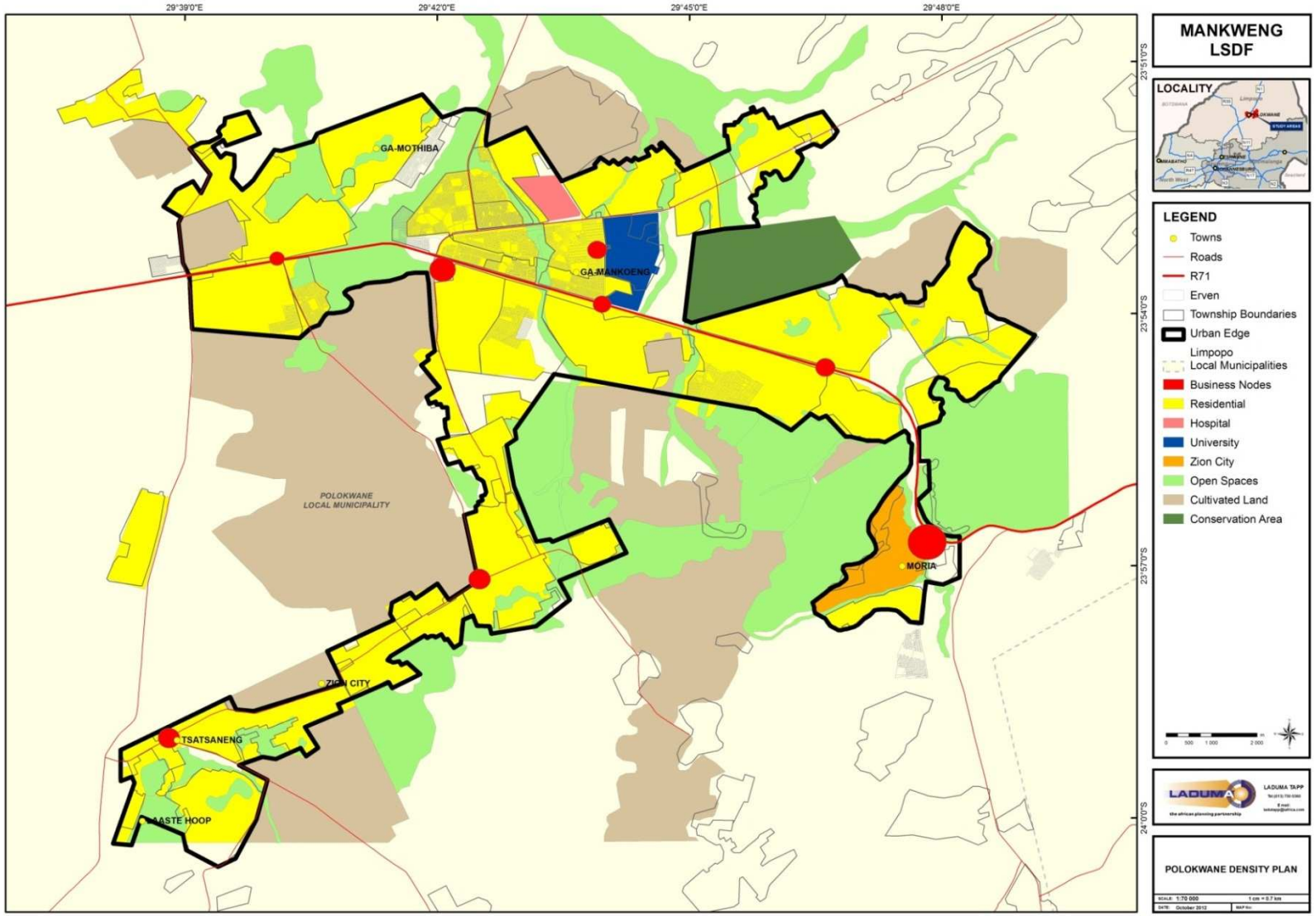
a) The provision of bulk infrastructure
b) The provision of incentive schemes such as requiring no contributions to bulk services from prospective developers
c) The provision of administrative support to developers by streamlining the application procedures
d) The compilation of detailed local framework or land-use plans and implementation programmes for each of these areas
e) The active marketing of these areas.

The above proposals are indicated on the maps, assimilated from the Polokwane Spatial Development Framework 2010, and attached as **MAP 4-1, MAP 4-2 and MAP 4-3.**

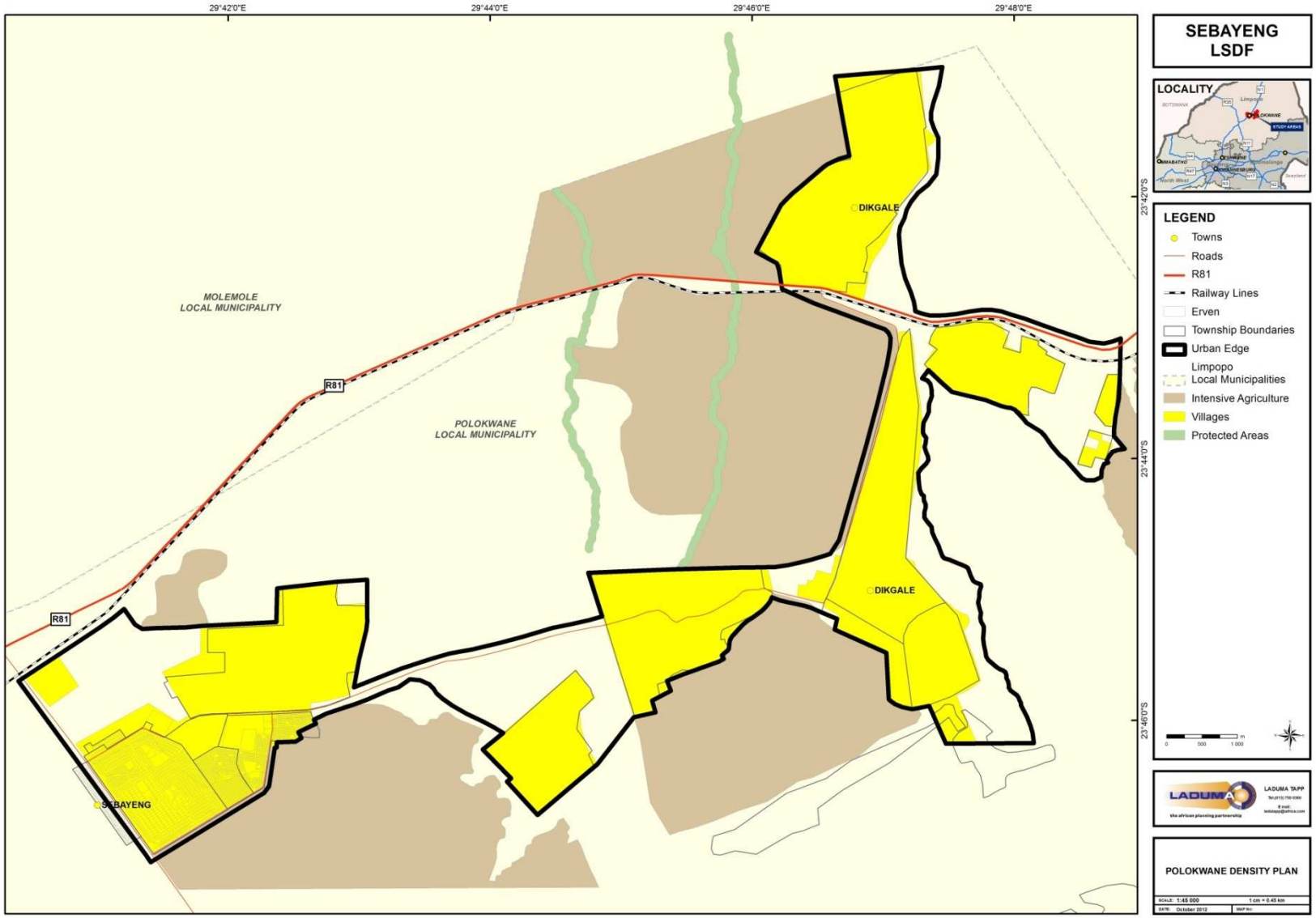
MAP 4-1 Polokwane / Seshego LSDF



MAP 4-2 Mankweng LSDF



MAP 4-3 Sebayeng LSDF



4.2.1.2 Potential Development Areas (PDA)

Potential Development Areas (PDA) only hold a potential for future development and have not yet been earmarked for any development or for zoning as a strategic development area.
These tend to be the areas for future expansion at the urban edges and for future township development. The PDAs, mainly identified outside the current urban edges, and thus do not form part of the densification policy.

4.2.1.3 Development corridors and functional development areas

The Development Corridors (DC's) and Functional Development Areas (F's) form another integral part of the spatial development framework. Densification should support the interaction with economic opportunities on these routes.

The opportunities that prominent routes create, should be utilised and linked with the densification policy to ensure the optimal utilisation of resources and infrastructure along these routes and/or the routes that link nodes/clusters.

Two of the nationally identified strategic development corridor routes traverse the Polokwane Municipal area:

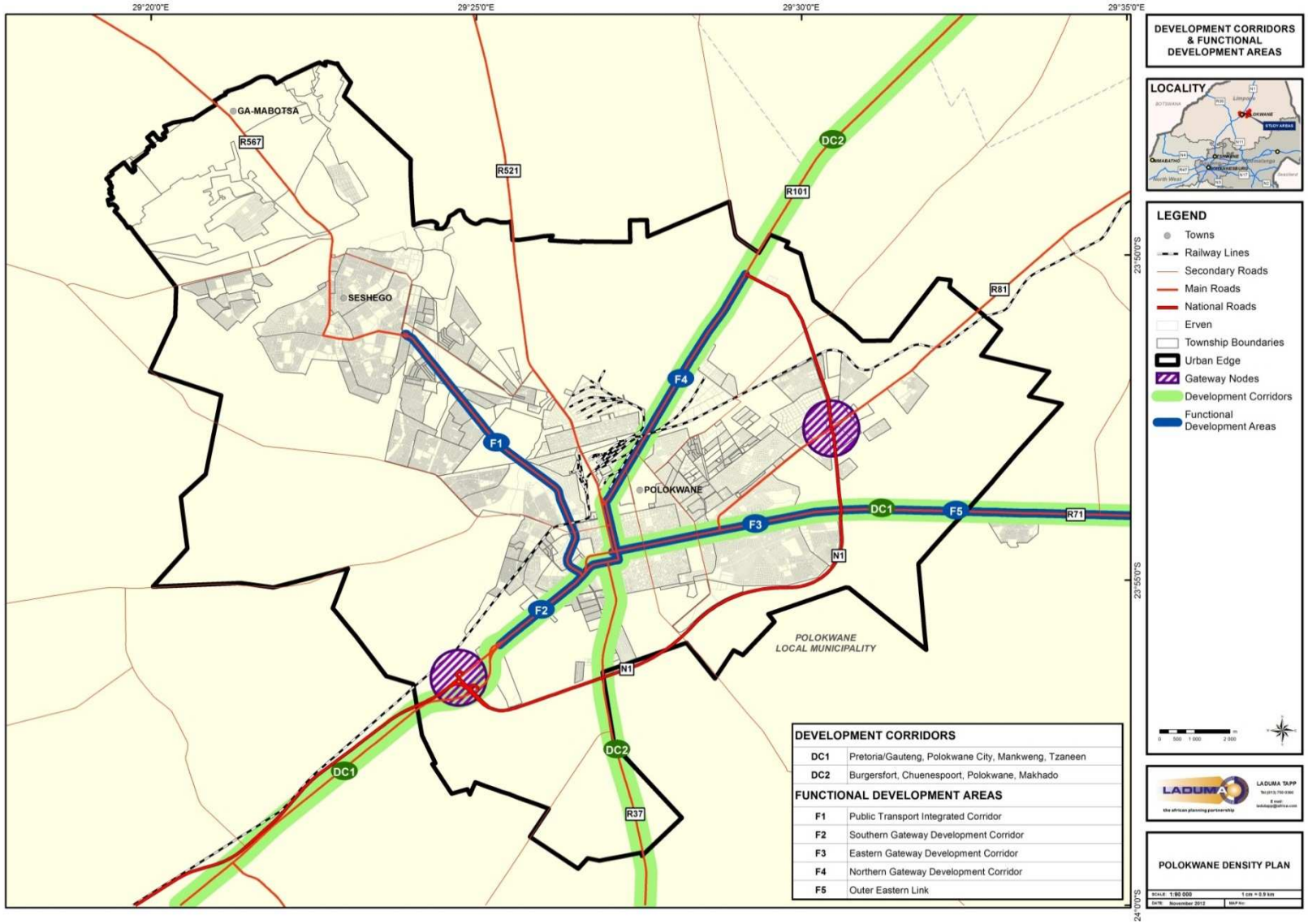
- ✓ Development Corridor (DC) 1 – the Pretoria/Gauteng – Polokwane City – Mankweng –Tzaneen Development Corridor. This corridor involves three functional development areas, namely Southern gateway, Eastern Gateway and the Outer Eastern Link.
- ✓ Development Corridor (DC) 2 – the Burgersfort / Chueniespoort – Polokwane – Makhado Development Corridor.

The functional development areas are:

- ✓ Public Transport Integrated Corridor (F1)
- ✓ Southern Gateway Development Corridor (F2)
- ✓ Eastern Gateway Development Corridor (F3)
- ✓ Northern Gateway Development Corridor (F4)
- ✓ Outer Eastern Link (F5)

The strategic development corridor routes and the functional development areas are indicated on **MAP 4-4.**

MAP 4-4 Development Corridors and Functional Development Areas



4.2.2 Subdivision and Densification

Subdivision of Residential 1 erven is currently guided in terms of the following densities (Minimum Erf Size) applicable per existing residential areas:

- ✓ **1 per 1000 m^2:** Annadale residential area between River, Railway, Spelonken and Buluwayo streets
- ✓ **1 per 200 m^2:** Westenburg Extension 3
- ✓ **1 per 300m^2**: Seshego, Pietersburg, Polokwane and Westenburg residential extensions situated north and north east of Polokwane City; Ivypark Extensions around the Southern Gateway, Bendor Extensions
- ✓ **1 per 400 m^2:** Bendor Extensions east of Polokwane City and around the Mall of the North
- ✓ **1 per 500 m^2:** Bendor Extensions 8, 10 and 11; Pietersburg Extensions 11 and 28, Ivypark and Ivypark (E); Nirvana and Nirvana Extensions 1,2 and 3
- ✓ **1 per 600 m^2:** Polokwane CBD; Pietersburg Extensions 4 and 6 between East, Natorp and Potgieters Streets; Pietersburg Extension 7
- ✓ **1 per 700 m^2:** Pietersburg Extension 4 (W); Welgelegen, Welgelegen Extensions 4 and (N) and Bendor Town
- ✓ **1 per 800m^2 :** Area next to Polokwane CBD between Van Boeschoten, East, Suid and Voortrekker Streets; Bendor(W)

MAP 4-5 indicates the areas for subdivision and densification for Residential 1 erven proposed by the current Polokwane SDF 2010.

In terms of the current density guidelines, smaller erf sizes closer to the CBD and Annadale are not possible due to the above minimum erf size restrictions.

The desired densification guidelines on “Residential 2” to “Residential 4” in terms of the current Polokwane SDF 2010 are reflected in Table 4-1 and the following key perceptions are noted:

- ✓ Higher densities are encouraged along activity spines and corridors
- ✓ Densities in Polokwane CBD cannot go higher than 74 dwelling units/ha
- ✓ Desired densities for Annadale, and areas immediate surrounding CBD are relatively low and restrictive for further densification
- ✓ Densities in the Eastern suburbs restricted to 31 dwelling units /ha are not encouraging higher densities
- ✓ Densities in Pietersburg extensions, Seshego and Westenburg restricted to 44 dwelling units/ha are promoting densification
- ✓ The overall medium density directive for Mankweng and Sebayeng is 64 dwelling units
- ✓ The are no clear density directives provided for areas situated outside current built-up areas but within the urban edge

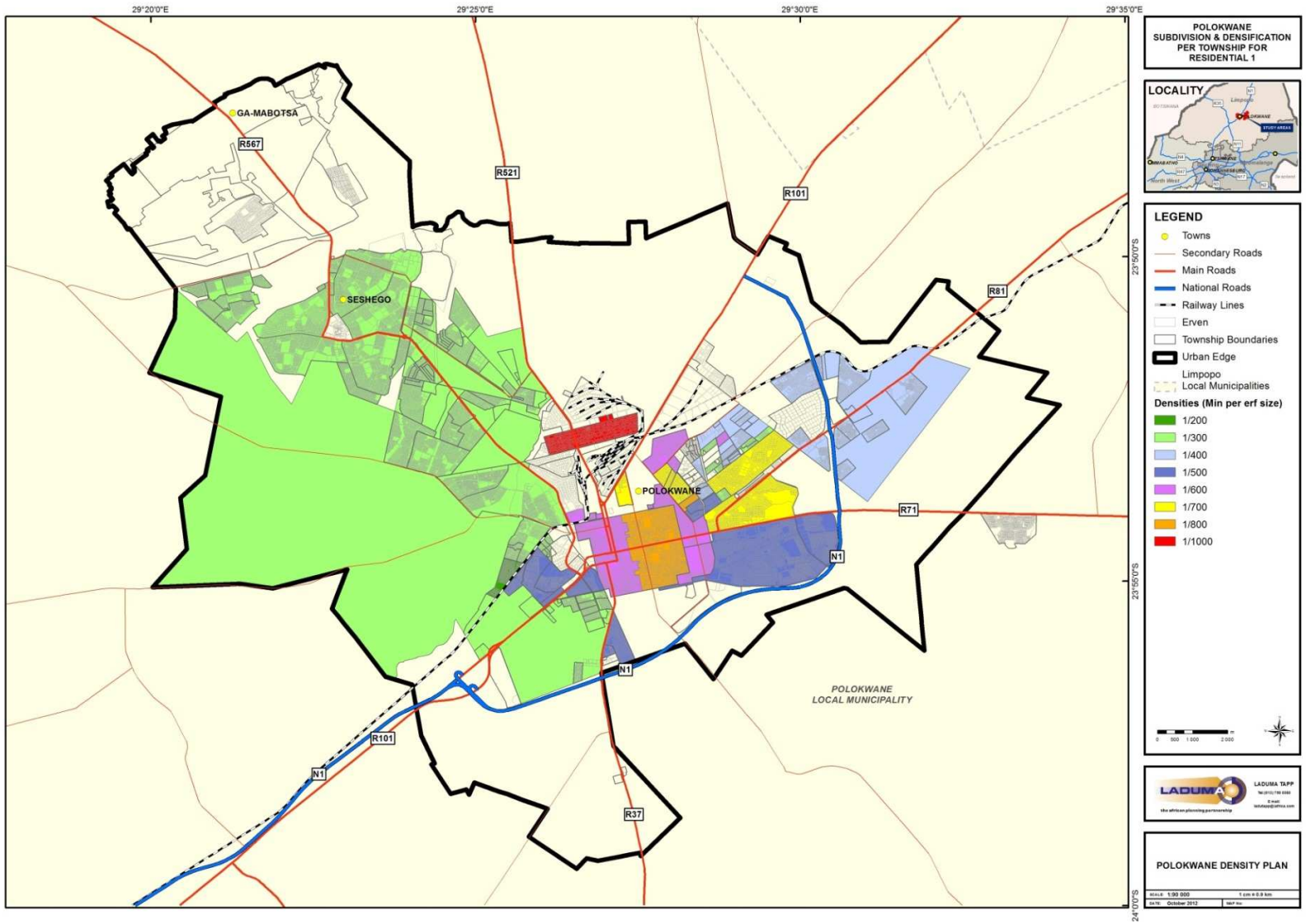
Table 4-1 Desired densification guidelines on “Residential 2” to “Residential 4” erven

Locality	Desired Dwelling Unit/ha or (Residential Building) Rooms/ha under (Residential 2 -4) Maximum densities
Within defined nodes (N1 Bypass, Activity and Corridor and Activity Spines)	75 dwelling units/ha / 112 rooms/ha
Activity Streets	44 units / 66 rooms
Polokwane CBD	74 dwelling units/ha or 111 rooms/ha
Between Thabo Mbeki Street and Grobler Street, including erven adjacent and to the north of Grobler Street and south of Thabo Mbeki Street (Midblock), east of Biccard Street, to Savannah Centre	74 dwelling units/ha or 112 rooms /ha
Bo-Dorp excluding erven between and facing Grobler and Thabo Mbeki Street to Savannah Centre	64 dwelling units / ha or 96 rooms/ha
Annadale	

Locality	Desired Dwelling Unit/ha or (Residential Building) Rooms/ha under (Residential 2 -4) Maximum densities
Peninapark and Peninapark X1 and X2, as well as future township extensions	31 dwelling units / ha or 46 rooms/ha
Nirvana, Nirvana X1, X2 and X3 as well as future township extensions	
Ivypark (Proper)	
Bendor and Welgelegen extensions as well as future township extensions	
Pietersburg X4, X6, X7, X11	
Ivypark X9, X17, X32, X19, X20, X21, X5, X18, X6, X12, X13, X7, X38 and all remaining approved and future townships	44 dwelling units/ha or 66 rooms/ha
Pietersburg X33, X34, X35, X36, X37, X38, X40, X44, X41, X29, X61, X65, X66 Polokwane X71, X72, X73, X75, X76, X83 and other approved and future townships	
Seshego Townships	
Westenburg	
Remainder of Mankweng and Sebyeng within urban edge	64 dwelling units/ha or 96 rooms/ha
Remainder of area inside the urban edge, accompanied by a formal development application	i.e Lifestyle Policy Guidelines

Source: (Polokwane Municipality)

MAP 4-5 Polokwane LSDF Subdivision of Residential 1 erven



4.3 Integrated Transportation Context

The mode of transport in the municipal area of jurisdiction includes car, taxi and bus transport. The dominant mode is taxis and buses. It is mainly the Polokwane, Seshego and the Mankweng areas that are reasonably serviced.

Transportation problems experienced include the following:

- ✓ Places of work are separated from places of resident result in people having to travel long distances to employment areas.
- ✓ The cost of and the opportunity cost of travelling are greater for the rural commuters
- ✓ Road conditions are not conducive for formal transport system.
- ✓ High maintenance and operations cost necessary
- ✓ The low use of service between peak traffic periods results in infrequent services

As far as rail is concerned, there is one railway line passing through the municipality. The rail cuts across the city and links the CBD, the industrial area and the residential areas of Nirvana and Westenburg. It provides for long term possibilities for passenger rail.

The Gateway International Airport situated in the northern part of the Polokwane – Seshego Planning Area has direct rail link.

The integrated transport route system of Polokwane assimilated from the Integrated Transport Plan, 2010 is attached as **MAP 4-6**.

MAP 4-6 Integrated Transport Route System

4.3.1 Existing Transport Corridor

The Polokwane Integrated Rapid Transport Network Operational Plan, 2010 identifies the location and order of magnitude of the principal public transport corridors.

The three principal corridors with short to medium term potential for mass-transit were identified as:

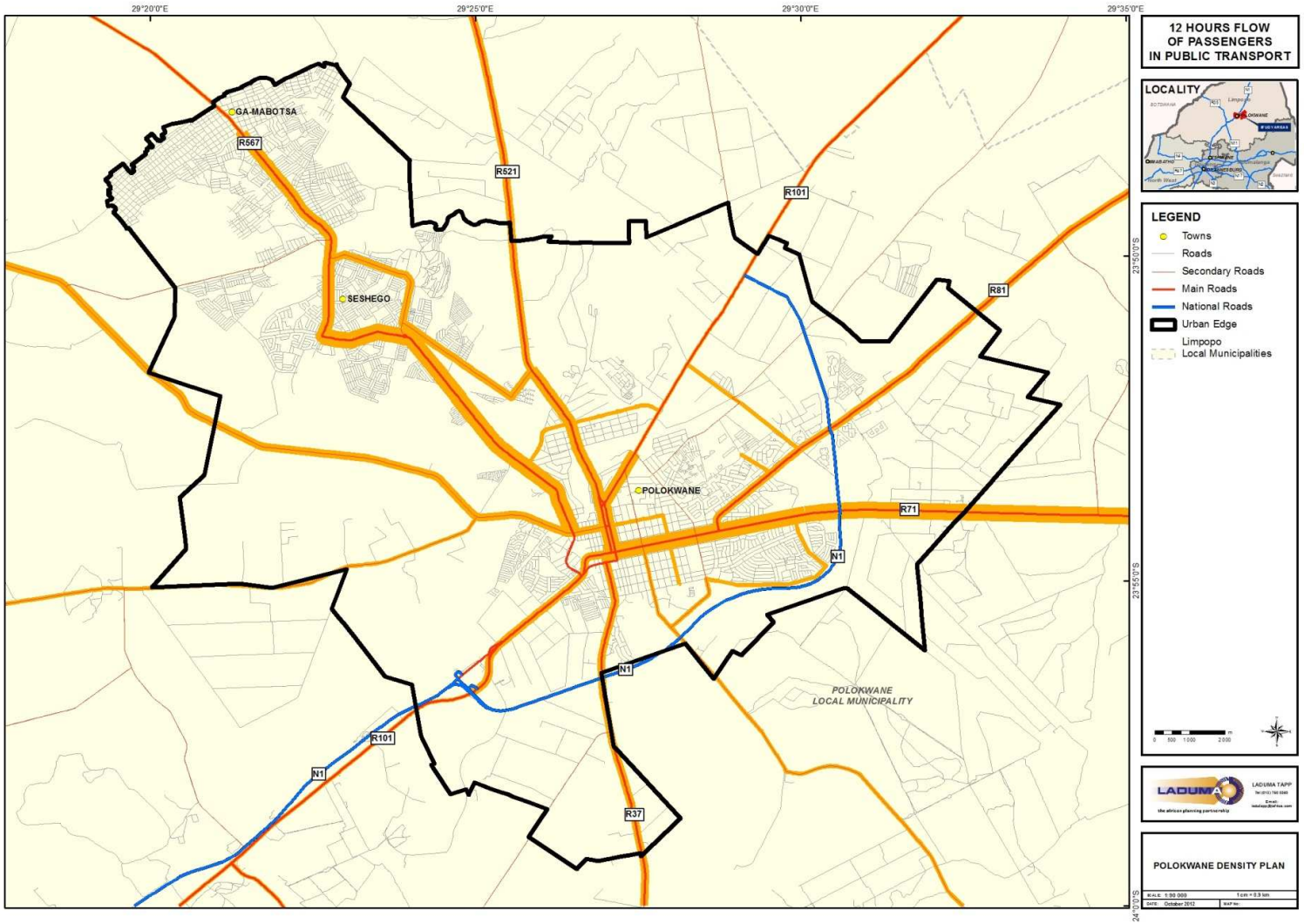
- ✓ Seshego to Polokwane CBD;
- ✓ Mankweng to Polokwane CBD, and
- ✓ Moletji to Polokwane CBD.

Existing infrastructure favours a road based system. No advantage is seen for a rail based system in the Polokwane context.

The Dikgale/Sebayeng to Polokwane CBD route (R81) has a low potential for a bus rapid transit system due to low demand. A future system is only a possibility in conjunction with increases in demand. The existing heavy rail could also potentially be upgraded to provide a commuter service in this corridor in the future. (Polokwane Integrated Rapid Public Transport Network Final Operational Plan (Draft), 2010)

The existing passenger transport demand is illustrated on **MAP 4-7.**

MAP 4-7 12 Hour Flow of Passengers in Public Transport



4.3.2 Planned Transportation Networks

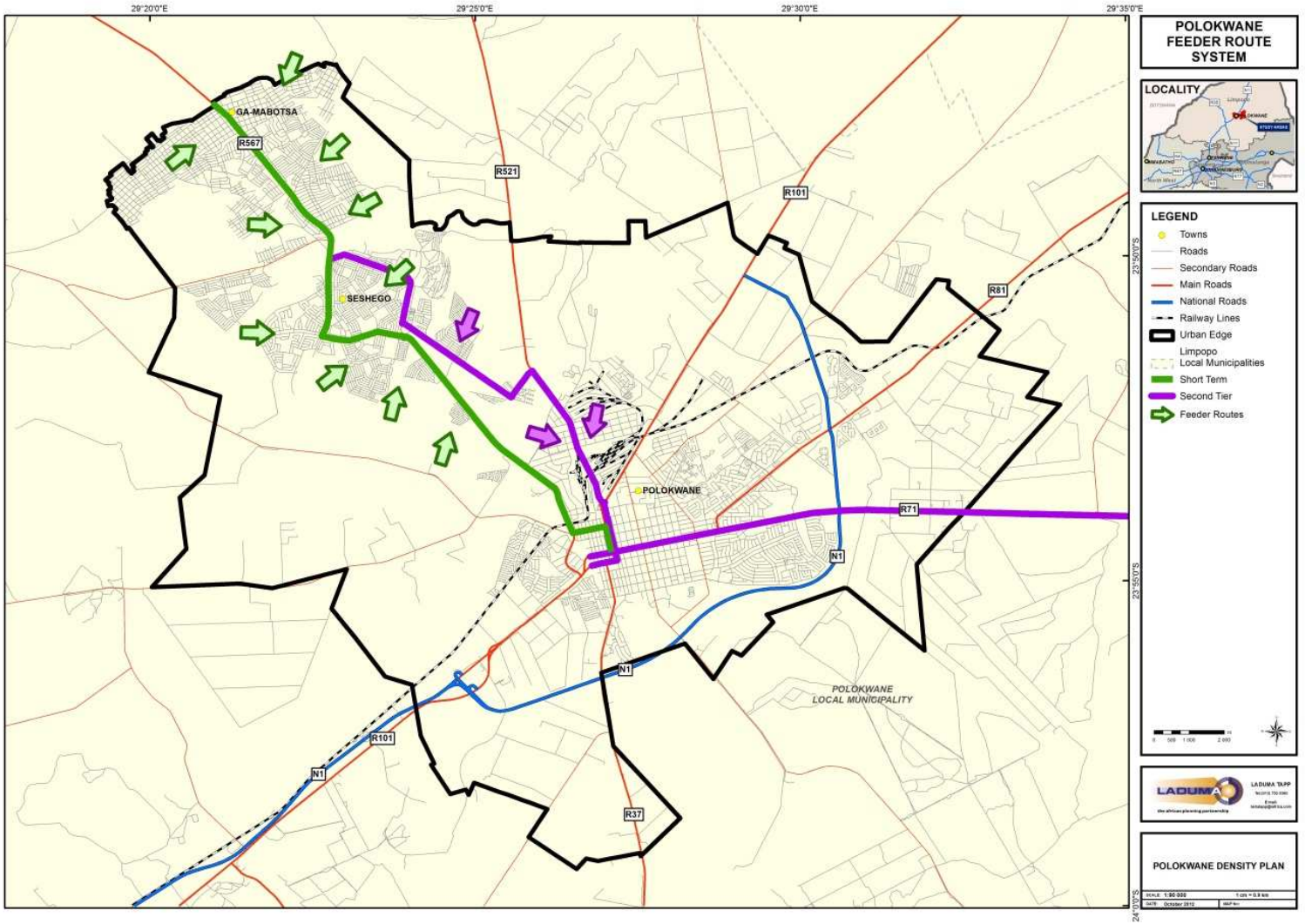
4.3.2.1 Bus Rapid Transit (BRT)

The Bus Rapid Transit system consists of the following:

A single Bus Rapid Transit (BRT) corridor between Moletji and Polokwane CBD, which involve:

- ✓ Moletji (New Era Drive north of Khensani Drive, Seshego);
- ✓ Internal Seshego routes;
- ✓ Seshego to Polokwane CBD; and
- ✓ Polokwane CBD routes.
- ✓ BRT terminals at each end of the route at Moletji and in Hans van Rensburg Street.
- ✓ A trunk-feeder system whereby the corridor is served by a series of feeder routes that are integrated with the BRT system. This feeder network and the trunk BRT corridor are illustrated on **MAP 4-8** Short to Medium Term Mass-Transit Corridors

MAP 4-8 Short to Medium Term Mass-Transit Corridors



4.4 Existing land use management context

The Polokwane / Perskebult Town Planning Scheme was adopted during 2007 (Polokwane / Perskebult Town Planning Scheme, 2007)

4.4.1 Definitions and Scheme Clauses

A number of definitions and scheme clauses (specifically Clauses 13, 21 and 22) of the Polokwane / Perskebult Town Planning are of relevance to the densification policy and are listed in

Annexure A : Definitions and Scheme Clauses attached to the report.

4.4.2 Use Zones and Density provisions

- ✓ **Use Zones 1, 2, 3, and 4 (Residential 1 to 4)** provide for a range of different residential types and density options, from Single Family Residences to Retirement Villages, Residential Buildings and Two Family Residences.

- ✓ **Use Zones 5, 6, 7 and 8 (Business 1, 2, 3, 4 and Special)** also provides residential uses, such as single family residences and residential buildings at certain densities.

- ✓ **Use Zone 15 (Agriculture)** provides for single family residences and two family residences at a low density of 1 dwelling unit per property as primary right.

- ✓ The Scheme makes provision for a specific density / number of dwelling units per erf, property or per net hectare as a primary right and further opportunity are also provided to obtain relaxation for higher densities as per Scheme requirements.

- ✓ The following density / number of dwelling units per erf, property or per net hectare are provided for in the Scheme for the Residential Use Zones:

Table 4-2 Density Zoning Provisions in Town Planning Scheme

Use Zone		**Density / Number Of Dwelling Units Per Erf, Property Or Per Net Ha**		
	Uses	**Primary Right**	**Written Consent**	**Special Consent**
Residential 1	Single family residence	1 detached d.u./erf	2 detached d.u./erf	30 detached or semi-detached d.u /ha
Residential 2	Single family residence	31 detached or semi-detached d.u./ha	-	44 detached or semi-detached d.u. /ha
	Residential building	46 rooms/ha	-	66 rooms/ha
Residential 3	Single family residence	44 attached, detached or semi-detached d.u./ha	64 attached, detached or semi-detached d.u./ha	74 attached, detached or semi-detached d.u./ha
	Retirement village			
	Residential buidling	67 rooms/ha	96 rooms/ha	111 rooms/ha
Residential 4	Single family residence	1 detached or semi-detached d.u./erf	2 detached or semi-detached d.u./erf	75 attached, or semi detached d.u./erf
	Two family residence	2 detached or semi-detached d.u./erf	-	-
	Residential building	112 rooms/ha	-	> 112 rooms/ ha
Business 1	Single family residence	64 attached or semi-detached d.u./ha	-	64 attached, detached or semi-detached.d.u./ha
Business 2	Single family residence	64 attached or semi-detached d.u./ha	-	64 attached, detached or semi-detached.d.u./ha

Use Zone		Density / Number Of Dwelling Units Per Erf, Property Or Per Net Ha		
	Uses	**Primary Right**	**Written Consent**	**Special Consent**
	Residential building	96 rooms/ha	-	> 96 rooms/ha
Business 3	Single family residence	30 detached or semi detached d.u./ha	-	44 detached or semi-detached d.u./ha
	Residential building	45 rooms/ha	-	66 rooms/ha
Business 4	Single family residence	44 detached or semi-detached d.u/ha	-	64 detached or semi-detached d.u./ha
Agriculture	Single family residences	1 detached d.u/property	2 detached dwelling unit per property	1 detached d.u./ha
	Two family residence	-		-

Source: (Polokwane / Perskebult Town Planning Scheme, 2007)

4.4.3 Town Planning Scheme Implications / Issues

The Density zoning provisions in the Town Planning Scheme have the following implications:

Residential 1 Zoned properties:

- ✓ A Residential 1 Zoned property can primarily be used for 1(one) single detached dwelling unit per erf.
- ✓ More single detached dwelling units could be applied for at a density of 2 detached dwelling units per erf. This implies that Residential 1 erven with a size of 700m² or more can qualify for a second dwelling unit with the written consent of the municipality.
- ✓ Residential 1 zoned erven with average erf sizes varying between 1000m² to 2000m² or more can qualify for further additional dwelling units varying from 3 to 6, depending on the size of the erf and subject to a special consent use application.
- ✓ An overall minimum Residential 1 erf size of 333m² is implied.

Residential 2 Zoned properties:

For Residential 2 Zoned properties a standard density of 31 dwelling units apply and means that at least 15 detached or semi-detached dwelling units could be established on a Residential 2 zoned property of 5000m² for example. A relaxation to increase the density to 44 dwelling units per hectare could be applied for in terms of a special consent use application.

Residential 3 Zoned properties:

Medium high density is accommodated under a Residential 3 zoning at a density of 44 dwelling units per hectare. This could be increased to 74 dwelling units per hectare on submission of a special consent use application. For example, 22 dwelling units could be established on a Residential 3 stand measuring approximately 5000m² as a primary right and this could be increased to 37 dwelling unit with the special consent of the municipality.

Residential 4 Zoned properties:

High density developments are usually accommodated under a Residential 4 zoning where a developer could apply for up to 75 dwelling units per erf. Thus, regardless the property size, a maximum of 75 units could be applied for by means of a special consent use application.

Business Zoned properties:

Residential uses on business zoned stands are typically associated with mixed use developments and shopping areas where medium high densities can be accommodated at a density of 64 dwelling units per hectare (Business 1 and 2) and a medium density at Business 3 and 4 zoned properties (30 to 44 dwelling unit per hectare, up to 64 dwelling units per hectare at Business 4). A density of higher than 64 dwelling units per hectare can only be applied for by means of a special consent on Business 1 zoned properties only.

Residential buildings:

Residential buildings could be allowed on Residential 2, 3 and 4 and Business 1, 2, 3 properties. The maximum density of residential buildings is determined on the number of rooms per hectare. On Residential 4, Business 1 and 2 zoned properties the maximum number of rooms could be further relaxed to an unlimited number, subject to bulk requirements.

For illustration purposes, the densities at residential buildings have been applied to a standard erf size of 2000m². See table below.

Table 4-3 Residential Building Density Scenario

Residential Buildings Density Scenario					
Use Zone	**Primary Right**	**Special Consent**	**2000m² Stand Number Of Rooms**	**Maximum F.A.R Permitted**	**2000m² Stand @ Average Room Of 30m²**
Residential 2	46 rooms/ha	66 rooms/ha	9 to 13 rooms		
Residential 3	67 rooms/ha	111 rooms/ha	13 to 22 rooms		
Residential 4	112 rooms/ha	>112 rooms/ha	> 22 rooms	2,0	± 133 rooms
Business 1	96 rooms/ha	>96 rooms/ha	> 19 rooms	5.0	± 333 rooms
Business 2	96 rooms/ha	>96 rooms/ha	> 19 rooms	1.5	± 100 rooms
Business 3	45 rooms/ha	66 rooms/ha	9 to 13 rooms		

Source: Compiled by Laduma TAPP, 2012 assimilated from (Polokwane / Perskebult Town Planning Scheme, 2007)

- ✓ It is clear that the number of rooms that could be allowed at the above Use Zones average between 45 rooms per hectare (minimum) and 112 rooms per hectare (maximum) in terms of primary land use rights.
- ✓ If applied to an average stands size of 2000m² these densities mean that between 9 and 22 rooms could be allowed depending on the Use Zone and the Primary Right.
- ✓ As indicated above the relaxation of the primary right that could be applied for at Residential 4, Business 1 and Business 2 erven could result in a tremendous increase in the number of rooms compared to the average primary right. The reason for this implication is that there is no limit on the number of rooms permitted if a developer would like to apply for more than the primary right. The only other measure that could be applied to restrict development is based on the permitted Floor Area Ratio (F.A.R.). Thus, the current Town Planning Scheme makes it possible, for example, for a development of approximately 133 rooms to take place on a Residential 4 zoned property with a size of 2000m².

The above implications could be taken into consideration with the revision of the Town Planning Scheme to ensure that a proper land use control system are put in place that caters for different density categories and subject to specific control mechanisms.
Although higher densities are in principle promoted in the CBD area, residential development should comply with development restrictions such as coverage, height, floor area ratio and the provision of parking, open space, amenities, etc.

4.5 Socio-economic Analysis

The demographic trends and demographics are key driving forces in any economic development and densification strategy. The demographic profile influences the level of expected demand for goods and services, the type of goods and services demand and the pressure on social services. Added to this, demographics factors have transport economic implications – namely where the demand and related economic growth will occur from a transport perspective. A demographic transition also has a considerable impact on the size of the labour force and expected employment and unemployment rates. The following sections consider the:

- ✓ Demographic profile for Polokwane
- ✓ Socio economic profile for Polokwane

4.5.1 Demographic Profile

This section elaborates on the following:

- ✓ Population Distribution
- ✓ Gender
- ✓ Age structure
- ✓ Persons with disability
- ✓ Education level / Attendance
- ✓ Mode of Transport
- ✓ Economic Activity
- ✓ Labour force

4.5.1.1 Population Distribution

Limpopo Province has the fourth largest demographic concentration in South Africa with Polokwane Municipality being the second most populated municipality in Limpopo, after Thulamela Local Municipality. The Polokwane Municipality covers an area of 3,775km², which is approximately 3% of the area of the Limpopo Province and accounts 9.24% of the total population of Limpopo.

According to Community Survey 2007, Polokwane Local Municipality has a total population of 561,783 people residing in different clusters and villages throughout the municipality. The study area covers approximately 407km². Approximately 59.61% of the total municipal population resides within the study area of which 31,43% resides in the Polokwane-Seshego Area (278km²), 22,51% in Mankweng Area (94km²) and less than 6% in the Sebayeng Area (33km²).

Table 4-4 Study Area Population and Areas within Polokwane Municipal Area

Planning area	Estimated population 2008	% Distribution	Area (km²)
Polokwane-Seshego Area	176580	31.43	278
Mankweng Area	126460	22.51	94
Sebayeng Area	31812	5.66	33
Total	334852	59.61	407
Outside study area	226931	40.39	3367
Municipal total	561783	100	3775

Source: Laduma TAPP assimilated from House Count data- 2003 and 2008

4.5.1.2 Gender

Table 4-5 indicates the population distribution in Polokwane between male and female residing in the local municipality.

Table 4-5 Population Distribution in Polokwane Municipal Area

Description	Population	% of Municipal total
Male	268,013	47.7%
Female	293,770	52.3%
Total	561,783	100%

Source: Community Survey 2007

The distribution of the municipal population between the two sexes is relatively equal. There are slightly more women living in the municipal area compared to men. This implies that equal opportunities should be provided in urban areas to cater for the needs of both men and women.

4.5.1.3 Age structure

The age distribution of the Municipality plays an important role in influencing growth prospects and will therefore inform the long-term densification and associated transport and infrastructure strategy for Polokwane.

Table 4-6 provides an age distribution for the entire municipality.

Table 4-6 Age Distribution for Polokwane Municipal Area

Age Group	Population	% of Municipal total
0 to 4	64194	11.43
5 to 14	131904	23.48
15 to 19	65973	11.74
20 to 34	138504	24.65
35 to 64	131916	23.48
over 65	29292	5.21
TOTAL	561783	100.00

Source: Community Survey 2007

As indicated in **Table 4-6**, the majority of the population is between the ages of 20 to 34 which represent almost 25% of the municipal population. Taking into account the 11.74% between 15 and 19 years of age, it is evident that the municipality has a young population. About 69% of the whole municipality is below the age of 34.

The age structure provides an indication of potential entrants into the labour force and potential transportation users. Entrants to the market have an influence on the demand for smaller residential units concentrated in close proximity to employment centres. The youth represented by the age groups 5-19 provides the demand for schools in close proximity to where they live.

4.5.1.4 Persons with disability

Table 4-7 gives the number of people with disability by type of disability for the local municipality.

Table 4-7 Municipal Disability Profiles in Polokwane Municipality

DISABILITY	Population	% of All Disabilities	% of Municipal Total
Sight	3024	8.97	0.54
Hearing	1976	5.86	0.35
Communication	721	2.14	0.13
Physical	6141	18.22	1.09
Intellectual	1466	4.35	0.26
Emotional	3612	10.72	0.64
Multiple disabilities	2188	6.49	0.39
Institution	14573	43.24	2.59
TOTAL	33701	100	561783

Source: Community Survey 2007

Disabilities reiterate the need to provide convenient residential areas with adequate access to transportation facilities and social infrastructure.

Almost 6% of the municipal population suffers from disabilities. The most prevalent types of disability are physical (18%) and sight (9%). Future planning for densification and transportation needs to provide for the disabled.

4.5.1.5 Education level / Attendance

Densification needs to take cognisance of the provision of education facilities including schools in close proximity of residential areas and as an integral part of the neighbourhoods within Polokwane. Table 4-8 shows the attendance at education establishments within Polokwane. This indicates the number of learners catered for in the municipality.

Table 4-8 Attendance at Educational Establishment in Polokwane Municipality

Institution Attended	Population	% Distribution	% of Municipal Total
Pre-school	8533	3.38	1.52
Primary school	92572	36.64	16.48
Secondary school	81824	32.39	14.57
College	5594	2.21	1.00
University/University of Technology/Technikon	6670	2.64	1.19
Adult basic education and training	57	0.02	0.01
Other	531	0.21	0.09
Not applicable	43393	17.18	7.72
Unspecified	3232	1.28	0.58
Institutions	10223	4.05	1.82
TOTAL	252629	100	44.97

Source: Community Survey 2007

The population of Polokwane that is currently attending an education establishment represents 44% of the total population. 30% are attending either a primary school or a secondary school. Less than 2% of the population are attending pre-schools. There are low levels of the population that are attending tertiary education institutions (2%) at university, technikon or colleges.

As continued growth of existing population concentration points will be experienced, the provision of educational facilities in close proximity to where people live and work should be planned for. Higher densities, for example close to the City Centre or at new residential areas could generate a demand for additional schools and child care facilities. In order to support sustainable communities, the timely provision of new school buildings should be facilitated.

Education levels provide an indication of a community's ability to provide skilled labour for specific employment opportunities. The increase in education levels will enhance the propensity of the population to participate in economic activity nodes.

Table 4-9 indicates the education level of the population in Polokwane Municipality.

Table 4-9 Educational Level of population above 20 years

Education level	Population	% Distribution
Some primary	44841	14.96
Completed Primary	17665	5.89
Some secondary	127071	42.40
Grade 12	54614	18.22
Tertiary	27185	9.07
No schooling	17865	5.96
Other	10462	3.49

TOTAL	299703	53

Source: Community Survey 2007

Only 18, 22% of people over 20 years have completed Grade 12. The rest of the population have received some primary education (14, 96%), completed primary education (5.89%), or some form of secondary education (42, 40%). Approximately 5.96% of the population have not received any schooling.

This indicates that the majority of the municipal population is primarily uneducated and as a result could be a burden for future economic growth of the area.

4.5.1.6 Mode of Transport

Table 4-10 shows the modes of transport that are used to go to school or work. A relatively high percentage of people in Polokwane Municipality Area travel by foot (67.48%) to school or work, 16.57% use public transport and 14.71% use private cars.

Table 4-10 Mode of Transport to School and Work in Polokwane

Mode of Travel	Population	% of Municipal total
Bus	18,576	6.58%
Train	861	0.30%
Car (Driver)	21,060	7.46%
Minibus Taxi	27,357	9.69%
Car (Passenger)	20,482	7.25%
Motorcycle	909	0.32%
Bicycle	1,560	0.55%
Foot	190,524	67.48%
Other	1,017	0.36%
Total	282,346	100%

Source: STATSSA, Census 2001, Polokwane Integrated Transport Plan

It is evident that densification should provide for the needs of pedestrians and attempt to reduce travelling distances between place of living and place of work.

4.5.2 Economic Activity

The following are discussed in terms of the socio-economic profile:

- ✓ Labour force
- ✓ Employment sector
- ✓ Income distribution
- ✓ Occupation
- ✓ Gross Domestic Products (GDP) Contribution

4.5.2.1 Labour force

Table 4-11 shows the number of people employed and unemployed within the local municipal area.

Table 4-11 Employment Characteristics for Polokwane Municipal Area

Description	Population	% Distribution
Employed	117804	34.78
Unemployed	69684	20.57
Not economically active	133076	39.29
Unspecified	7337	2.17
Institutions	10793	3.19
TOTAL	338694	100

Based on table above, the unemployment rate in the Polokwane Municipality is 20.57%. It is considerably lower than Capricorn District Municipality average of 55%.

This provides an indication that Polokwane Municipal area functions as the employment centre in the region

.

4.5.2.2 Employment sector

Table 4-12 shows the percentage of economic active persons per employment sector in the municipal area.

Table 4-12 Employment by Sector in Polokwane Municipal Area

EMPLOYMENT BY INDUSTRY	POPULATION	% DISTRIBUTION
Agriculture; hunting; forestry and fishing	4994	1.47
Mining and quarrying	637	0.19
Manufacturing	15056	4.45
Electricity; gas and water supply	1530	0.45
Construction	7057	2.08
Wholesale and retail trade	17453	5.15
Transport; storage and communication	4146	1.22
Financial; insurance; real estate and business services	13520	3.99
Community; social and personal services	27633	8.16
Other and not adequately defined	13831	4.08
Unspecified	11947	3.53
Not applicable	210097	62.03
Institutions	10793	3.19
TOTAL	338694	100

Source: Community Survey 2007

From the above table, it is evident that most people (8%) are employed in the community, social and personal services sectors. 5% of the economic active population (338 694) is employed in the wholesale and retail trade sectors.

4.5.2.3 Income distribution

4.5.2.3.1 Individual income

Table 4-13 shows the average monthly income per employed person in the municipality.

Table 4-13 Monthly Income for economic active population in Polokwane

Income Level	Population	% Distribution
No income	178847	52.81
R 1 - R 400	11658	3.44
R 401 - R 800	23116	6.83
R 801 - R 1 600	41377	12.22
R 1 601 - R 3 200	20141	5.95
R 3201 - R 6 400	17453	5.15
R 6 401 - R 12 800	17092	5.05
R 12 801 - R 25 600	7592	2.24
R 25 601 - R 51 200	2167	0.64
R 51 201 - R 102 400	744	0.22
R 102 401 - R 204 800	885	0.26
R 204 801 or more	72	0.02
Response not given	6753	1.99
Institutions	10793	3.19
TOTAL	338690	100.00

Source: Community Survey 2007

The above mentioned table implies that more than 81% of the economic active population in Polokwane earns below R3200 and half of the people earn no income per month.

4.5.2.3.2 Household income

Table 4-14 reflects the income per household within the municipality area.

Table 4-14 Household Income in Polokwane

Income per year	Population	% of Municipal Total
No income	96,940	19.1%
R 1 - R 4, 800	50,448	9.9%
R 4, 801 - R 9, 600	104,113	20.5%
R 9, 601 - R 19, 200	91,289	18.0%
R 19, 201 - R 38, 400	64,030	12.6%
R 38, 401 - R 76, 800	38,806	7.6%
R 76, 801 - R 153, 600	28,423	5.6%
R 156, 601 - R 307, 200	16,175	3.2%
R 307, 201 - R 614, 400	4,824	0.9%
R 614, 401 - R 1, 228, 800	1,394	0.3%
R 1, 228, 801 - R 2, 457, 600	1,062	0.2%
R 2, 457, 601 and more	568	0.1%
Not applicable	10,204	2.0%

Source: Integrated Transport Plan

From the table above it is clear that 19.1% of households in the municipality do not earn any income. 80% of the household income in Polokwane is below R3200 per month.

Income of a household has a direct influence on the types of housing and location of residences that can be financially afforded by a household.

4.5.2.4 Occupation

Table 4-15 indicates the distribution per occupation of persons in Polokwane.

Table 4-15 Persons occupation in Polokwane

OCCUPATION	POPULATION	% DISTRIBUTION
Service workers; shop and market sales workers	14974	5.07
Skilled agricultural and fishery workers	3633	1.23
Craft and related trades workers	11704	3.96
Plant and machine operators and assemblers	6873	2.33
Elementary occupations	23924	8.10
Occupations unspecified and not elsewhere classified	13473	4.56
Not applicable	210097	71.11
Institutions	10793	3.65
TOTAL	295471	100

From the above table, it is evident that most people's occupation within the municipality ranges from elementary (8%); service workers (5%) and craft trade (3%).

4.5.2.5 Gross Domestic Products (GDP) Contribution

Table 4-16 indicates that Polokwane Local Municipality has experienced a higher growth at 4.2% compared to the National Average at 3.6%. The current economic growth in Polokwane is higher than the provincial and district average. This is an indication that greater economic opportunities exists within Polokwane Municipal area and that the area acts as a strong growth point that provides a strong motivation for the densification of the area.

Table 4-16 Annual average economic growth

Sector	National Total	Limpopo	Capricorn District Municipality	Polokwane Local Municipality
Agriculture	2.4	5.1	5.2	5.2
Mining	0.0	0.7	-11.3	-15.6
Manufacturing	2.3	2.7	2.4	2.7
Electricity	2.5	4.3	3.5	3.6
Construction	8.5	6.5	6.2	6.4
Trade	3.5	3.0	2.8	2.9
Transport	4.9	4.9	4.7	4.9
Finance	5.7	5.5	6.6	7.0
Community services	3.1	2.7	2.8	3.0
Total Industries	3.6	3.1	4.0	4.3
Total (Gross Domestic Product - GDP)	3.6	3.1	3.9	4.2

Source: DBSA

Table 4-17 indicates the contribution of the different sectors to the regions' total GVA (%)

Table 4-17 Sector contribution to the regions' total GVA (%)

Sector	National Total	Limpopo	Capricorn District Municipality	Polokwane Local Municipality
Agriculture	2.2	2.5	2.4	2.1
Mining	8.5	27.9	0.9	0.4
Manufacturing	12.5	2.6	3.6	3.8
Electricity	2.7	3.1	3.1	2.9
Construction	3.9	2.5	3.3	3.3
Trade	12.9	9.8	12.7	12.7
Transport	7.7	6.2	9.9	10.9
Finance	19.6	14.3	23.4	25.6
Community services	20.7	21.6	28.3	26.3
Total Industries	90.6	90.5	87.6	88.0
Total (Gross Domestic Product - GDP)	100	100	100	100

Within Polokwane Local Municipality, the community services sector (26.3%) provides a strong contribution to the region's GVA followed by the finance sector (25.6%) and the trade sector (12.7%).

These sector contributions indicate that there is a well- established urbanised economy in the Polokwane Local Municipality. The creation of work opportunities will lead to increased urbanisation and a demand for densification of urban nodes where community -, financial services and trade are prominent.

Table 4-18 Municipalities' contribution to the total GVA of the Province (%)

Municipality	Total (Gross Domestic Product - GDP)
Waterberg District Municipality	26.66
Mopani District Municipality	25.26
Capricorn District Municipality	23.82
Thabazimbi Local Municipality	15.90
Polokwane Local Municipality	15.53
Vhembe District Municipality	14.18
Ba-Phalaborwa Local Municipality	12.73
Greater Sekhukhune District Municipality	10.07
Makhado Local Municipality	6.42
Thulamela Local Municipality	6.04
Greater Tzaneen Local Municipality	4.86
Greater Giyani Local Municipality	4.05
Elias Motsoaledi Local Municipality	3.80
Molemole Local Municipality	3.48
Mogalakwena Local Municipality	3.45
Lephalale Local Municipality	2.71
Greater Tubatse Local Municipality	2.55
Lepele-Nkumpi Local Municipality	2.42
Bela-Bela Local Municipality	2.17
Greater Letaba Local Municipality	2.16
Makhuduthamaga Local Municipality	1.70

Municipality	Total (Gross Domestic Product - GDP)
Modimolle Local Municipality	1.68
Maruleng Local Municipality	1.47
Blouberg Local Municipality	1.38
Ephraim Mogale Local Municipality (Greater Marble Hall)	1.24
Musina Local Municipality	1.11
Aganang Local Municipality	1.01
Fetakgomo Local Municipality	0.78
Mookgopong Local Municipality	0.75
Mutale Local Municipality	0.60

Table 4-18 indicates the contribution of the local and district municipalities to the total GVA of the Limpopo Province. Polokwane Local Municipality gives the fifth highest contribution (15.53%) to the province and the Capricon District Municipal is third at 23.82%. This is evidence to the fact that Polokwane Municipality serves as a provincial growth point that will continue to experience urbanisation. Coupled with higher intensification of existing growth points, densification will further contribute to the strengthening of the area as a sustainable growth point.

4.6 Spatial Analysis

Urban settlements in the Polokwane municipal area are not growing at the same pace and the relative sizes of settlements are different due to economic and social development trends. It is therefore important to take cognisance of the specific factors responsible for the municipal and planning area growth which include the role and function, locality and infrastructure, population characteristics, institutional and economic factors.

4.6.1 Municipal context

4.6.1.1 Function

All cities and towns establish and consist to fulfil particular functions for its inhabitants and environment. The functional growth that results in an increase in employment opportunities is responsible for the growth of a city or town. Some functions provide more opportunities for growth and prosperity than others.

Polokwane Municipality has the provincial growth point which functions as a first order settlement. It is however important to acknowledge the fact that the geographical area of Polokwane Municipality is predominantly rural, which include considerable land under traditional authority.

4.6.1.2 Locality and Accessibility

The locality of an urban area or settlements in relation to traffic routes is of utmost importance. Traffic interchanges and thorough ways provide for nodal development that is imperative for the healthy growth of an urban area.

Polokwane Municipality has a central location. It is located at the heart of Limpopo Province within Capricorn District Municipality. A number of main arterial routes converge in Polokwane. Polokwane City inter-connects and interrelates horizontally with a number of adjacent municipal areas, including:

- ✓ Mogalakwena on the N1 National Road forms the main carriage way from the south to the north.
- ✓ Aganang on the Road D544 and Road D19
- ✓ Molemole on the Road P94/1 and the N1
- ✓ Greater Tzaneen on the Road P17/1 (R71 east))
- ✓ Lepelle Nkumpi Lebowakgomo on the Road P33/1

Although the Polokwane Muncipality enjoys the advantages of the above locality aspects, the distribution of the existing built-up and urban settlements within the municipal area pose certain challenges that should be taken into consideration:

- ✓ The Sebayeng Planning Area is situated approximately 29 kilometres in a north eastern direction from the Polokwane / Seshego Planning Area. The formalised settlement areas area situated a considerable distance from the R81 route, therefore lacking in good accessibility and exposure to the economic opportunities that exist in the settlements situated in close proximity to the Polokwane / Seshego area. The Sebayeng area is accessed from the R81 via two (2) linkages which is approximately 13 kilometres apart.
- ✓ The Mankweng Planning Area is relatively accessible via the R71 route. The majority of the existing settlement areas have occurred relatively in close proximity to the R71 route. Some un-formalised settlement areas have established a considerable distance away from the main route towards the southern part of the Mankweng Planning Area. These settlement areas are not easy accessible.
- ✓ Sebayeng area is situated approximately 12 kilometres north of Mankweng area. There is virtually no link between these two planning areas.

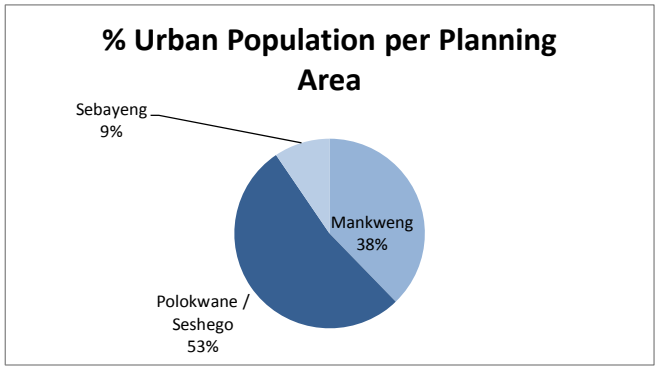
4.6.1.3 Distribution of population and economic activities

Considering latest statistics, the total population of Polokwane Municipality is estimated at approximately 561,783 people. Of this population

- ✓ It is estimated that approximately 80% of the total population of Polokwane municipality resides within the study area, indicating a high level of urbanization or semi-urbanized within the municipal area.

- ✓ The densification policy should take cognizance of the population distribution, especially the un-formalised settlement areas, which for most part is unplanned and poorly serviced.

Figure 4-1 Urban population distribution between planning areas



With regard to the economic activities, the most important factor that is influencing the urban growth and spatial form of the municipality is the fact that Polokwane City is the capital of Limpopo Province. Situated on the Great North road to Zimbabwe, it is the largest metropolitan complex in the north and a major economic centre. Polokwane City is well-located in relation to neighbouring countries such as Botswana and Zimbabwe and serve as an international focus point

From a tourism industry perspective, the Polokwane City is regarded a gateway to Africa and an attractive tourist destination in itself, also taking into consideration that it is situated a convenient distance from the Kruger National Park and Magoebaskloof.

The strength of the Mankweng Planning Area lies in its educational function with the location of the University of the North situated in the midst of the urban area. The influence of the annual religious gathering at Moria also has a significant economic contribution to the area.

The Sebayeng Planning area has a local economic function providing primarily for the needs and convenience of local residents and inhabitants of nearby rural settlements.

4.6.1.4 Infrastructure comparison

The regional locality of Polokwane City in relation to infrastructure, natural resources and larger population concentrations, is influencing its growth trend.

It is evident that Polowane City with its accessible position in relation to good quality connection roads, railway lines, electrical lines and water resources is experiencing stronger growth compared with the more isolated areas such as the Sebayeng planning area.

Entrepreneurs will most likely continue to establish in the Polokwane / Seshego planning area due to better living-, work-, market-, labour- and investment opportunities.

The Mankweng and Sebayeng planning areas are supported by widespread rural settlements that will need development interventions in terms of infrastructure provision and government services. Interventions at scattered settlements are primarily focussed on the provision of basic services to ensure that the quality of life objective is achieved, but that prevents over investment in places that are depopulating.

4.6.1.5 Urban growth

The urban growth for the three (3) planning areas was determined by means of a comparison of aerial photography of the study area between 2003 and 2008. All residential stands developed were counted and a growth rate was determined for each of the planning areas, namely Polokwane/ Seshego, Mankweng and Sebayeng.

The findings of the house count data is depicted in the Table 4-19.

Table 4-19 House Counts and Growth Rate

Study Area	2003	% Distribution	Growth Units	% Distribution	% Growth	2008	% Distribution
Polokwane	35179	49.20%	8966	73.27%	7.30%	44145	52.73%
Mankweng	28856	40.37%	2759	23.55%	2.25%	31615	37.77%
Sebayeng	7441	10.41%	512	4.18%	0.40%	7953	9.50%
Total	71476		12237			83713	100.00%

The information depicted in the above table reveals the following:

- ✓ The house counts for Polokwane-Seshego in 2003 were 35 179. The area experienced a growth in units of 8966 units up to 44145 units in 2008. This indicates a 7.3% growth rate. During 2003 almost 50% of the house counts fall within the Polokwane-Seshego area.
- ✓ Mankweng has the second most concentration of house counts in the municipal area at 40.37% (28856 house counts) during 2003. Mankweng experienced a growth rate of 2.25% with a total number of 31 615 houses counted in 2008.
- ✓ Sebayeng has a low house count in comparison with the rest of the municipal area. It has a growth rate of 0,4% andhas less than 10% (7953 house counts) of the total house countsin the municipal area.
- ✓ At 52.73% concentration of houses in the Polokwane – Seshego area, it is clear that Polokwane has experienced an increased urbanization compared to Mankweng and Sebayeng.

Table 4-20 Polokwane-Seshego House Count Summary

Type	Counts	% Total Count
Single Houses	44437	85
Informal Houses	4667	9
Medium Residential Units	3100	6
TOTAL	52204	100

4.6.2 Planning Area analysis

The built-up areas in the Polokwane municipal area is concentrated in three (3) functionally separated urbanised areas which forms the three (3) planning areas of this policy.

4.6.2.1 Polokwane –Seshego

4.6.2.1.1 Demographic profile

The urbanization trend is complimented by the natural population growth putting increased pressure on the provision of housing in the area.

A large and growing population does not necessarily guarantee a more vital economic growth. The quality of the population is an important factor influencing the socio-economic development of Polokwane City.

The population profile differs from place to place. For example people residing in the Seshego area have a different demographic profile compared with people residing for example in Polokwane residential areas, such as Westenburg. These differences could be seen in the Socio Economic analysis done by Demacon Market Studies. For example, Seshego residents have an overall lower household earning income compared to the residential areas around Polokwane City such as Westenburg.

Table 4-21 Seshego Demographic Profile

Classification	Provincial Growth Point
Population	114 295
Households	37 523
Percentage Earning Income	80.90%
Weighted Average Income (HH earning income)	R62613.9/annum R5217.8/month
Dominant Land Uses	Residential Commercial Industrial Vacant/unspecified
Desired Land Use Patterns	General Business, Retail, Office Institutional Educational Tourism attractions and museums Short-stay accommodation General recreation and entertainment Service industries Urban residential –single and high density Community/social facilities
Location Ratings	Residential –81.2% Retail –78.2% Office –77.4% Industrial –75.5%

Source: (Demacon Market Studies, 2010)

Table 4-22 Westenburg Demographic Profile

Classification	Part of Polokwane Provincial Growth Point
Population	16 712
Households	6 434
Percentage Earning Income	97.80%
Weighted Average Income (HH earning income)	R185205.4/annum R15433.8/month
Dominant Land Uses	Industrial Commercial Residential Vacant/unspecified
Desired Land Use Patterns	Light industrial/warehousing/service industries Urban residential –single and high density Community facilities
Location Ratings	Residential –73.7% Retail –71.8% Office –72.4% Industrial –77.0%

Source: (Demacon Market Studies, 2010)

4.6.2.1.2 Economic activity nodes

The following key spatial structural elements form the existing economic activity nodes in the Polokwane-Seshego area:

Economic centres include:
- ✓ a well-defined CBD situated centrally in Polokwane City
- ✓ South eastern parts of the CBD developing
- ✓ Western and northern part decaying
- ✓ the Limpopo Mall situated on the corner of Church and Devenish Streets
- ✓ a newly established Regional Node situated north east of the City (Mall of the North) conveniently located with access from national and provincial roads
- ✓ sub regional nodes established in Seshego and in Polokane e.g. Savannah Mall and the Plaza in Seshego along Nelson Mandela Drive
- ✓ community and neighbourhood centres

As part of an analytical study initiated by the Polokwane Municipality, towards the implementation of a Neighbourhood Development Partnership Grant, a situational analysis looking at land use and urban form, movement and transport, infrastructure and service, socio-economic and environment provides an insight into the existing 'urban identity' of inter alia Seshego. These findings are useful and give a direction toward formulating the densification policy for the area: (ARUP, 2010)

- ✓ A diverse mix of clearly identifiable land use patterns exists.
- ✓ Seshego is located in close proximity to the economic core of Polokwane and thus has the best access to the formal economy.
- ✓ The major access route from Polokwane is via Nelson Mandela drive which also connects Seshego with SDA 1 and Westenburg to the east. The township of Seshego is relatively well developed with a few portions of land still available for further development purposes.
- ✓ Additional portions of land are also available for development in the SDA 1 area east of Seshego. A training venue was developed in Seshego as part of the 2010 FIFA Soccer World Cup.
- ✓ Seshego and it's surrounds are characterised by residential, commercial, industrial, subsistence farming, cultivated land and vacant/ unspecified land uses.
- ✓ The Flood Plain acts as a barrier, separating the north western edge of Seshego. A strong link needs to be reinforced here.

- ✓ The R569 is a major connecting route that runs through Seshego. Development and urban realm upgrades should be encouraged along this route.
- ✓ Public Open space along the flood plain should be capitalised on as a recreation zone for Seshego.
- ✓ The existing industrial zone could expand in a north east direction.
- ✓ Rural hinterlands surround the node and communities from these areas rely on the services and facilities offered in Seshego and Polokwane.
- ✓ A main node of retail commercial activity occurs in Seshego.

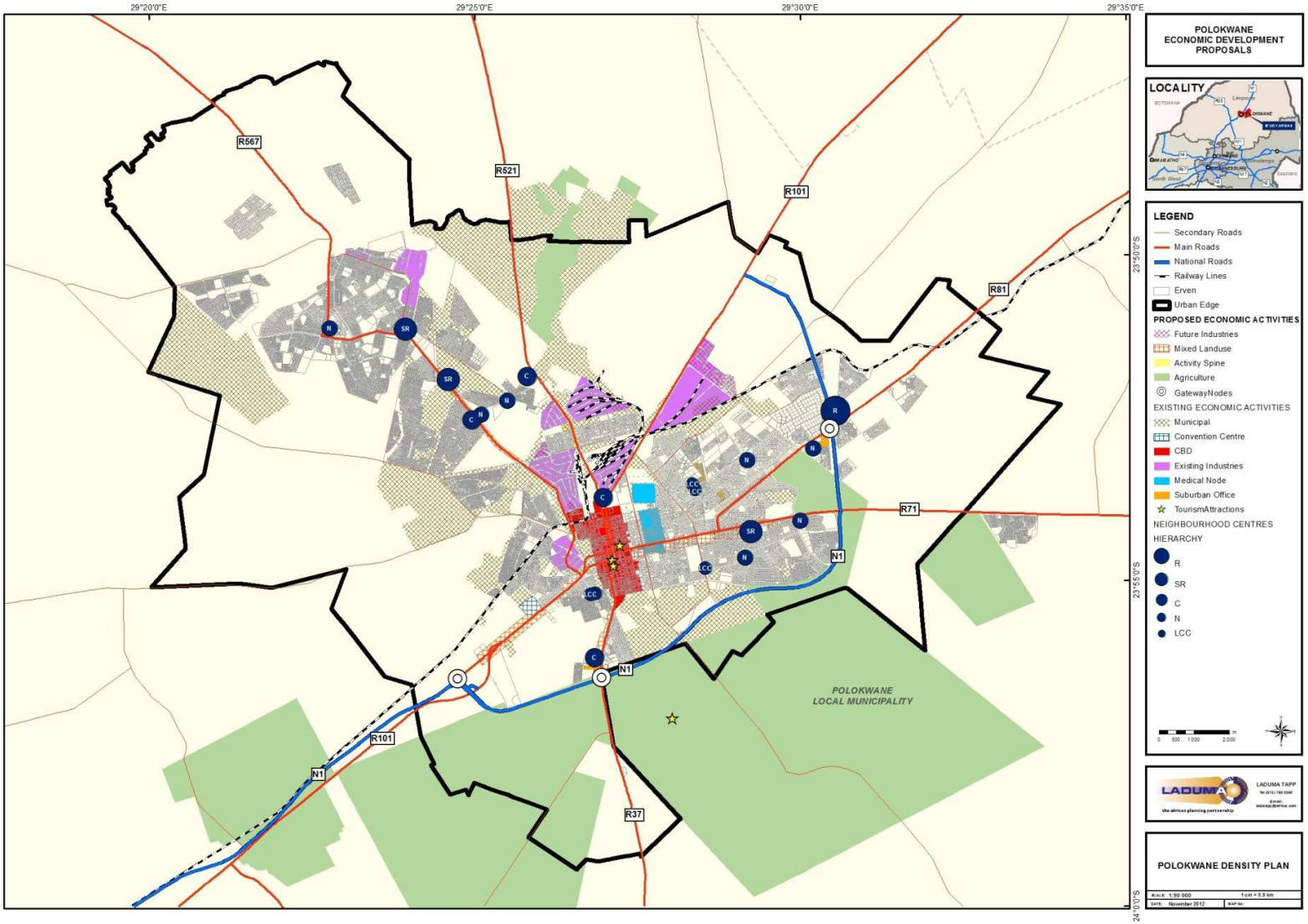
Existing economic development proposals for the Polokwane – Seshego area assimilated from the Polokwane Spatial Development Framework, 2012 are illustrated on **Map 4-9 Polokwane Economic Development Proposals**

The existing spatial dynamic of Polokwane-Seshego area is illustrated on the map attached as **Map 4-10 Polokwane Spatial / Urban Dynamic**s

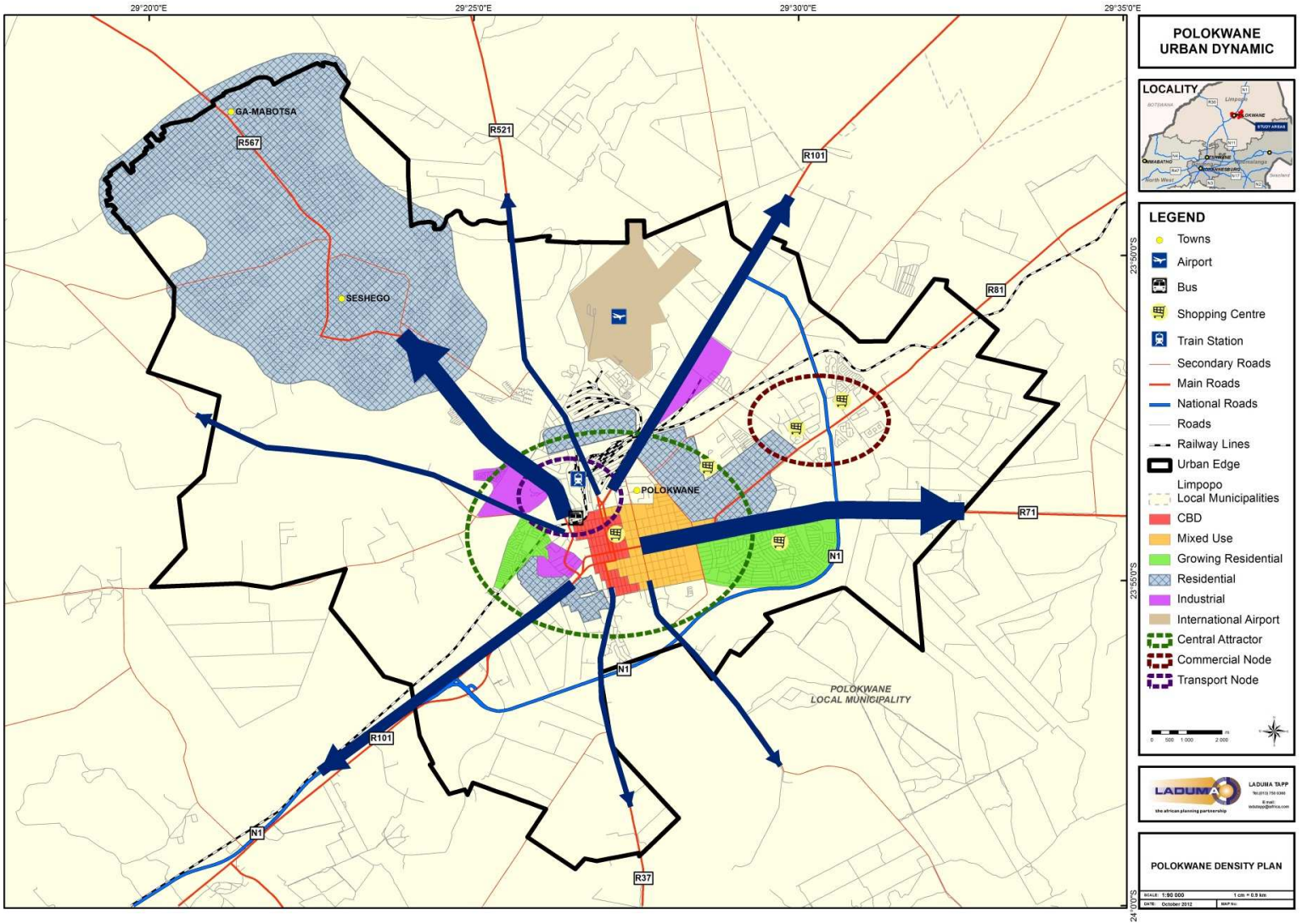
It is clear that the Polokwane City / Seshego cluster experienced the highest growth in the entire municipal area. This could be contributed to the following factors:

- ✓ The Polokwane City has a well-developed CBD and offers a strong market force supporting development in and surrounding the existing CBD.
- ✓ Polokwane City is the capital city of the Limpopo Province linking the Limpopo Province with the rest of major cities in South Africa as well as neighbouring countries
- ✓ Polokwane City offers a wide variety of supporting services, such as community facilities, educational services and providing a cluster of professional and medical services.

Map 4-9 Polokwane Economic Development Proposals



Map 4-10 Polokwane Spatial / Urban Dynamic



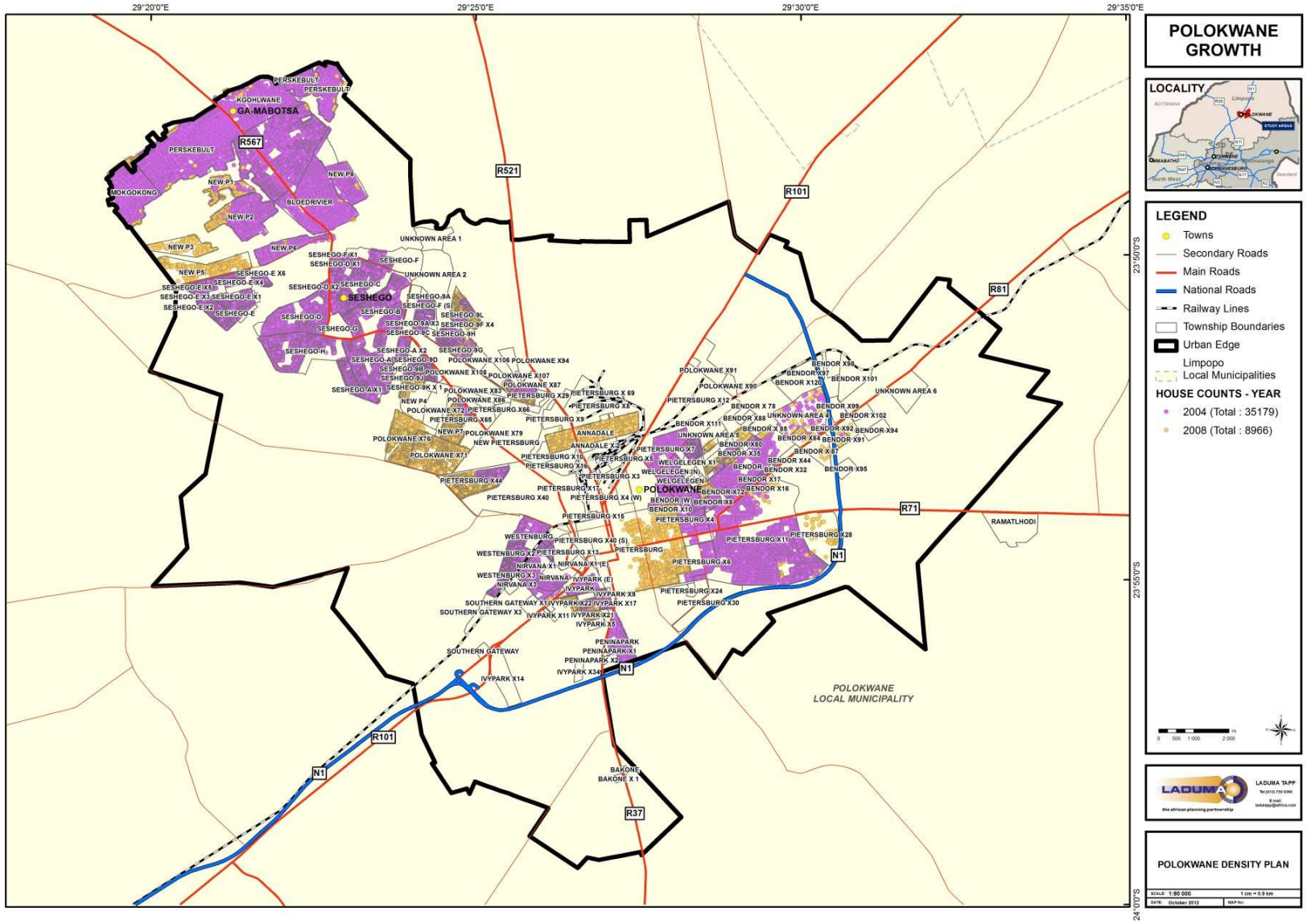
4.6.2.1.3 Residential Areas

4.6.2.1.3.1 Distribution of residential areas

A spatial analysis of the growth areas surrounding Polokwane / Seshego area revealed the following **(See MAP 4-11):**

- ✓ The majority of additional dwelling units (approximately 4300) have established in the area north and north-west of the Seshego area (next to Polokwane, Extensions 71 and 76 and Pietersburg Extension 44).
- ✓ A further approximately 800 new houses were constructed north of Seshego Extensions 3, 4, 5 and 6, situated west of the existing un-formalised area Mokgokong, Kgohlwane, Perskebult, Bloedrivier, etc.
- ✓ New houses established in the Bendor Extensions Area, namely Bendor Extensions 16, 17, 72, 75, 80, 81, 84 and 91 counted to approximately 450.
- ✓ Very low residential growth in additional houses in the area surrounding the Mall of the North.

MAP 4-11 Growth – Polokwane-Seshego



4.6.2.1.3.2 Densities

4.6.2.1.3.2.1 Gross densities

The Polokwane / Seshego area has an overall average gross residential density of 11.6 units per hectare. The area has a total number of 52 204 house counts within proclaimed township areas. The proclaimed township areas covers a total area of 6 952 hectares.

The existing gross density of the Polokwane-Seshego Area is reflected in Table 4-23 below.

Table 4-23 Polokwane Existing Gross Density

Existing Gross Densities Per Township - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Outside Townships	188	0.00	0.00
Polokwane X79	2	39.38	0.05
Bendor X92	3	19.84	0.15
Pietersburg X30	26	74.20	0.35
Unknown Area 4	77	134.65	0.57
Pietersburg X28	81	120.67	0.67
Bendor X91	17	16.04	1.06
Bendor X89	11	8.53	1.29
New P3	107	67.29	1.59
Bendor X63	5	2.96	1.69
Bendor X76	2	1.06	1.89
Seshego-9a X3	36	16.79	2.14
Pietersburg X6	160	71.08	2.25
Pietersburg	774	340.30	2.27
New P4	157	63.72	2.46
New P5	327	118.90	2.75
Pietersburg X4	262	91.67	2.86
Bendor (W)	38	12.58	3.02
Seshego-F X1	2	0.66	3.03
Nirvana X2	30	9.26	3.24
Bendor X 87	150	42.88	3.50
Kgohlwane	688	195.08	3.53
Pietersburg X7	259	72.28	3.58
Mokgokong	578	159.86	3.62
Bendor X64	16	4.25	3.76
Bendor X38	33	8.56	3.85
Bendor X82	33	8.01	4.12
Annadale	582	140.04	4.16
Pietersburg X14	7	1.61	4.36
Bendor	721	162.69	4.43
Nirvana X3	95	20.85	4.56
Bloedrivier	1100	234.77	4.69
Welgelegen	154	32.21	4.78

Existing Gross Densities Per Township - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
New P8	546	111.26	4.91
Pietersburg X11	3415	680.43	5.02
Welgelegen (N)	82	16.34	5.02
Seshego-F	487	96.48	5.05
New P1	246	48.01	5.12
Ivypark (E)	118	22.37	5.27
Nirvana	273	51.15	5.34
New P6	350	64.14	5.46
Bendor X74	19	3.31	5.75
Bendor X8	93	15.78	5.89
Bendor X30	51	8.57	5.95
New P2	831	138.19	6.01
Nirvana X1	369	60.55	6.09
Seshego-9c	99	16.24	6.09
Bendor X7	58	9.38	6.19
Seshego-9b	72	11.05	6.51
Bendor X72	78	11.35	6.87
Seshego-E X5	168	24.05	6.99
Seshego-9e X1	57	8.11	7.03
Bendor X84	145	19.93	7.27
Welgelegen X4	63	8.57	7.35
Ivypark	140	18.94	7.39
Perskebult	5172	698.48	7.40
Bendor X80	127	17.14	7.41
Peninapark	412	53.34	7.72
Seshego-H	1425	183.95	7.75
Seshego-D	1364	174.47	7.82
Bendor X 78	68	8.30	8.19
Bendor X10	91	10.96	8.30
Bendor X35	72	8.58	8.39
Bendor X16	50	5.63	8.88
Seshego-E X4	358	40.28	8.89
Westenburg	597	65.82	9.07
Seshego-9a X2	56	6.00	9.33
Bendor X 85	80	8.57	9.34
Seshego-9f	35	3.65	9.58
Polokwane X76	998	100.73	9.91
Seshego-F (S)	383	38.48	9.95
Seshego-A	1934	189.42	10.21
Seshego-E X1	316	30.94	10.21
Seshego-9h	192	18.20	10.55
Polokwane X71	1387	130.25	10.65

Existing Gross Densities Per Township - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Seshego-B	1956	181.94	10.75
Bendor X75	81	7.51	10.79
Bendor X11	104	9.43	11.03
Seshego-C	2077	175.36	11.84
Seshego-A X2	314	26.45	11.87
Bendor X20	17	1.35	12.63
Seshego-9g	394	30.71	12.83
Bendor X53	34	2.62	12.98
Annadale X 2	212	16.31	13.00
Welgelegen X1	190	14.52	13.09
Seshego-E	684	51.92	13.18
Seshego-9f X4	45	3.34	13.48
Seshego-D X2	37	2.68	13.80
Ivypark X9	88	6.29	13.98
Seshego-D X1	164	11.67	14.06
Bendor X22	29	2.05	14.13
Bendor X17	168	11.87	14.15
Bendor X 81	63	4.34	14.53
Bendor X62	52	3.58	14.53
Seshego-9f X1	53	3.65	14.53
Bendor X32	60	4.07	14.75
Pietersburg X33	60	4.06	14.78
Seshego-9e	69	4.62	14.94
Pietersburg X29	319	21.13	15.09
New P7	489	32.31	15.13
Seshego-9f X5	27	1.78	15.21
Seshego-9f X2	24	1.57	15.29
Bendor X12	91	5.91	15.41
Seshego-9f X3	52	3.37	15.42
Pietersburg X61	159	10.30	15.44
Bendor X45	73	4.66	15.67
Seshego-9e X4	61	3.84	15.89
Bendor X44	135	8.45	15.98
Seshego-9a	115	7.14	16.11
Pietersburg X36	49	3.00	16.33
Seshego-9a X1	65	3.96	16.43
Seshego-E X3	316	18.94	16.68
Bendor X18	81	4.81	16.84
Seshego-9e X3	49	2.91	16.87
Bendor X23	85	5.02	16.95
Pietersburg X44	1689	99.57	16.96
Seshego-A X1	733	43.21	16.97

Existing Gross Densities Per Township - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Pietersburg X65	538	31.50	17.08
Seshego-9e X2	71	4.13	17.19
Seshego-9k	43	2.50	17.21
Pietersburg X35	51	2.96	17.24
Pietersburg X34	49	2.84	17.26
Bendor X56	59	3.36	17.54
Seshego-E X6	216	12.07	17.90
Bendor X19	33	1.80	18.29
Seshego-9a X4	108	5.89	18.34
Bendor X24	34	1.85	18.36
New Pietersburg	4163	224.22	18.57
Peninapark X1	159	8.56	18.57
Peninapark X2	140	7.40	18.91
Seshego-9a X5	134	7.05	19.02
Seshego-9k X 1	131	6.78	19.32
Seshego-9l	1065	55.13	19.32
Bendor X25	28	1.44	19.40
Bendor X70	76	3.91	19.46
Pietersburg X37	35	1.80	19.48
Ivypark X17	210	10.78	19.49
Ivypark X22	242	12.19	19.86
Seshego-E X2	503	25.07	20.06
Seshego-9j	143	7.12	20.08
Westenburg X2	234	11.62	20.13
Bendor X26	75	3.72	20.14
Bendor X21	49	2.42	20.22
Seshego-9b X1	82	4.03	20.33
Westenburg X1	99	4.87	20.35
Ivypark X21	178	8.57	20.77
Seshego-9b X2	63	2.95	21.36
Ivypark X20	183	8.56	21.37
Pietersburg X38	35	1.63	21.42
Ivypark X19	181	7.96	22.75
Bendor X51	134	5.86	22.88
Bendor X52	124	5.08	24.42
Pietersburg X24	197	7.93	24.84
Westenburg X3	963	37.81	25.47
Bendor X55	105	3.43	30.58
Bendor X54	110	3.12	35.21
Total / Average	52204	6952.14	11.60

Source: Laduma TAPP House Count Data

From **Table 4-23**, the following deductions are made:

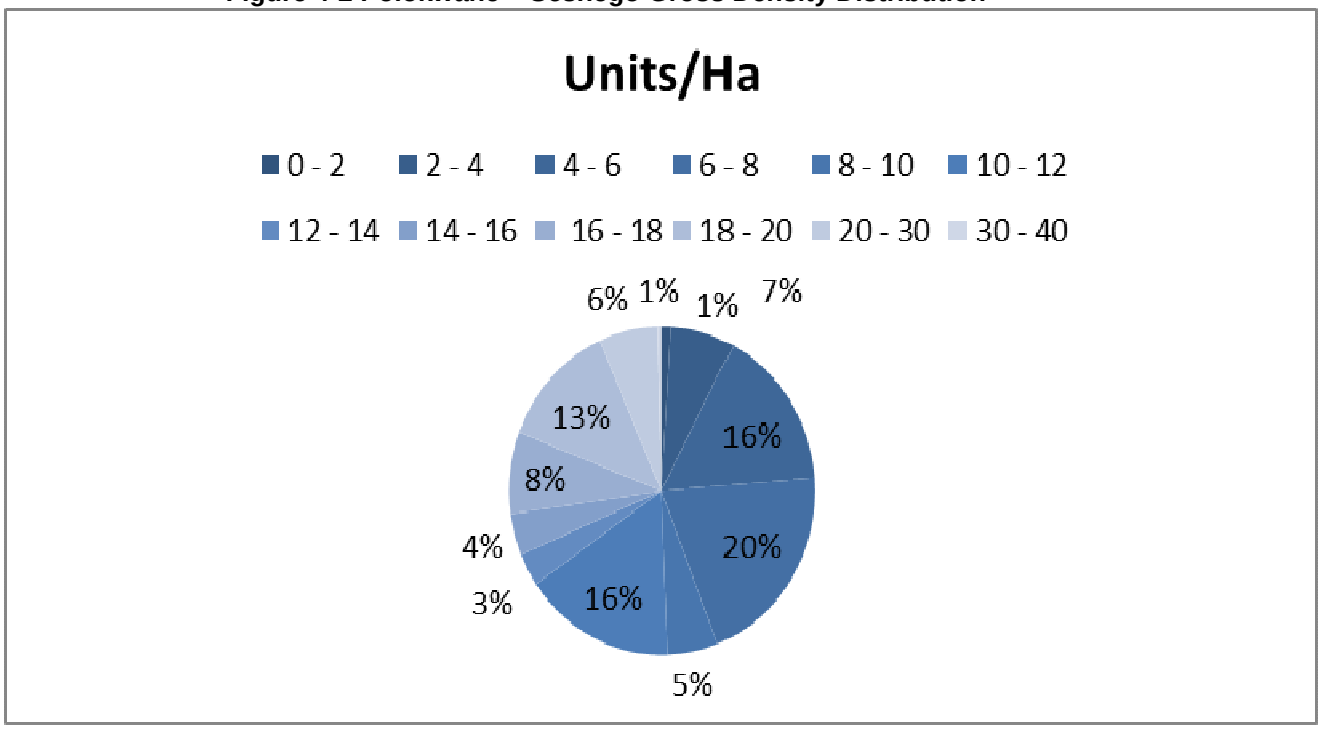
- ✓ The lowest gross density (less than 2 units per hectare) occur in Polokwane Extension 79, Bendor Extensions 63, 76 89, 91, 92, Pietersburg Extensions 28, 30, Unknown Area 4 and New Pietersburg 3. The low gross density in the applicable extensions of Bendor, Polokwane and Pietersburg is mainly due to the existence of undeveloped vacant stands in these townships. Once fully developed, these townships will have a higher gross density.

- ✓ Unknown Area 4 has an existing gross density of 0,57 residential units per hectare and has the lowest gross density of all residential townships in Polokwane. This residential area is a typical low density residential estate and has a potential gross density of 0,97units per hectare, with average stands sizes of approximately 1 hectare each.

- ✓ The highest existing gross density in Polokwane occurs in Bendor Extension 54 at a density of 35 units per hectare. Bendor Extension 55 has the second highest residential density at 30 units per hectare.

The distribution of existing gross density in terms of density categories is indicated in **Figure 4-2** below. 20% of residential townships have a gross density of between 6 to 8 units per hectare. The second most significant density categories in the Polokwane area falls within 4 to 6 units per hectare (16%) and 10 to 12 units per hectare (16%). 13% of existing residential townships have a gross density of between 18 to 20 units per hectare. There is no township area with a density higher than 40 units per hectare. More than 50% of all township areas fall between 4 to 14 units per hectare.

Figure 4-2 Polokwane – Seshego Gross Density Distribution



Source: Laduma TAPP House Count Data

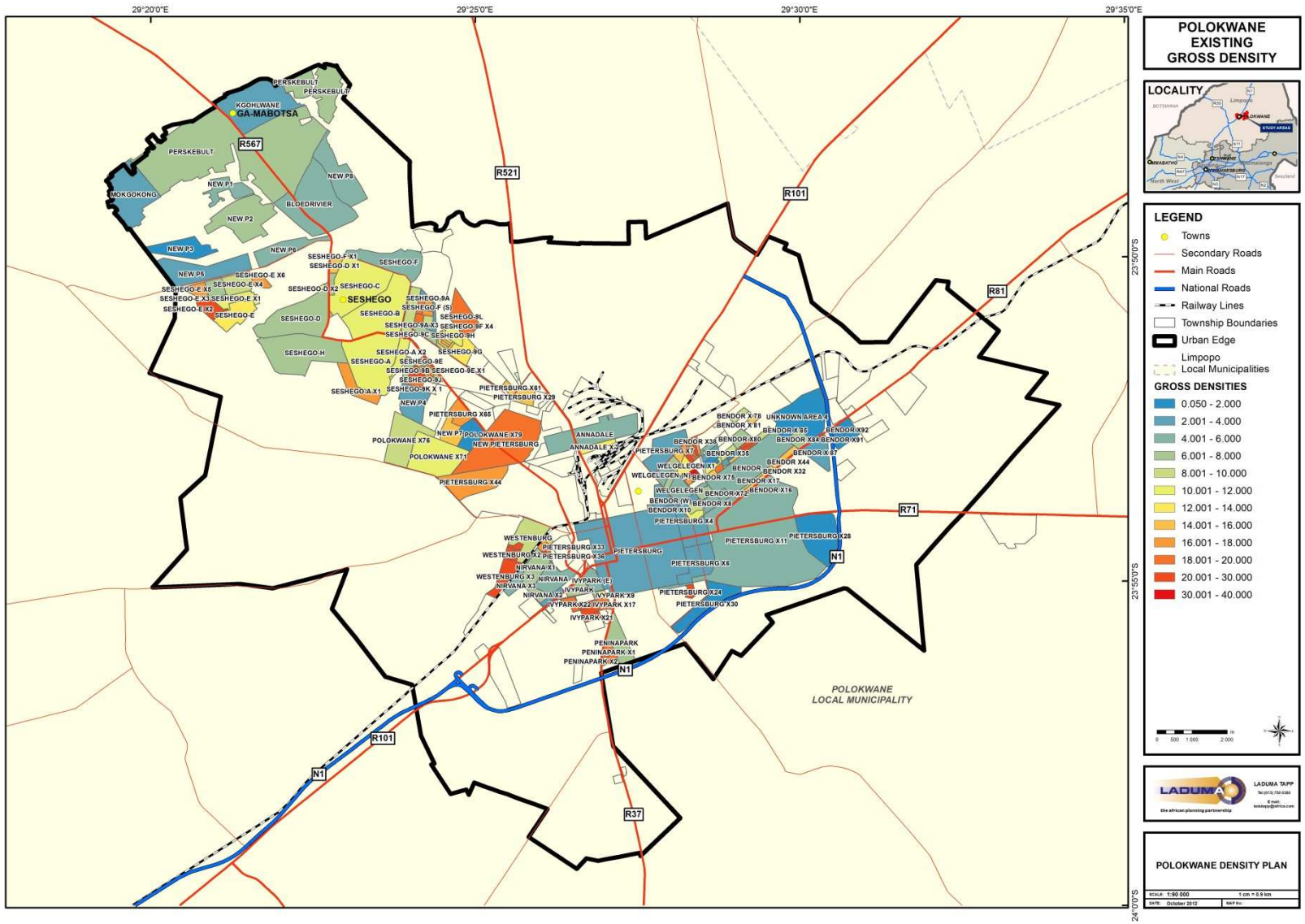
The existing gross density per township area and according to the above density categories is indicated on **MAP 4-12.**

With regard to existing gross densities, the following is evident:

- ✓ Lower residential densities in the eastern suburbs south and directly north along Road R71 (towards Sebayeng), less than 6 units per hectare.
- ✓ Densities directly along R81 towards the Mall of the North varies between 14 to 16 units per hectare
- ✓ Townships surrounding the Mall of the North has significantly low densities

- ✓ North-eastern suburbs such as the Bendor Extensionshave slightly higher densities, such as between 6 to 16 units per hectares and up to 30 units per hectare where medium density developments have taken place.
- ✓ Residential townships towards and including Seshego area has densities that varies from 6 units per hectare to 20 to 30 units per hectare.
- ✓ Penina Park and Ivy Park Extensions situated near and along the R37 falls within 16 to 30 units per hectare.
- ✓ Residential areas north of Seshego, including Perskebult and surrounding settlements have a low density of less than 8 units per hectare.
- ✓ Annadale has a gross density of less than 6 units per hectare.

MAP 4-12 Existing Gross Density Polokwane



4.6.2.1.3.2.2 Net densities

The percentage distribution of net densities in Polokwane-Seshego Area in terms of units per hectare is depicted in **Table 4-24** below.

Table 4-24 Polokwane-Seshego Net Density

Polokwane-Seshego Existing Net Density			
Density Category	**Counted Units**	**% Distribution**	**Density Class**
Low	153	0.4%	>0<=2
Low	189	0.5%	>2<=4
Low	772	1.9%	>4<=6
Low	2762	6.7%	>6<=8
Low	3254	7.9%	>8<=10
Low	3693	8.9%	>10<=15
Low	5924	14.3%	>15<=20
Low Medium	9190	22.2%	>20<=25
Low Medium	10121	24.4%	>25<=30
Low Medium	1623	3.9%	>30<=35
Low Medium	2891	7.0%	>35<=40
High Medium	477	1.2%	>40<=45
High Medium	369	0.9%	>45<=50
High Medium	5	0.0%	>50<=55
High Medium	2	0.0%	>55<=60
High	1	0.0%	>60<=65
High	2	0.0%	>65<=75
High	1	0.0%	>75<=85
High	2	0.0%	Above 100
TOTAL	41431	100.0%	

57% of properties in the Polokwane area fall within a Low Medium density category, between 20 to 40 units per net hectare. No high density units (above 60 units per hectare) exist in Polokwane. High Medium density units (between 40 and 60 units per net hectare) represents only 2,1% of the total residential units in Polokwane. A net density of below 20 units per net hectare composes of 40.6 % of the total residential units in Polokwane**. (See Figure 4-3)**

Polokwane is thus characterized by significantly low to medium dense residential neighbourhoods.

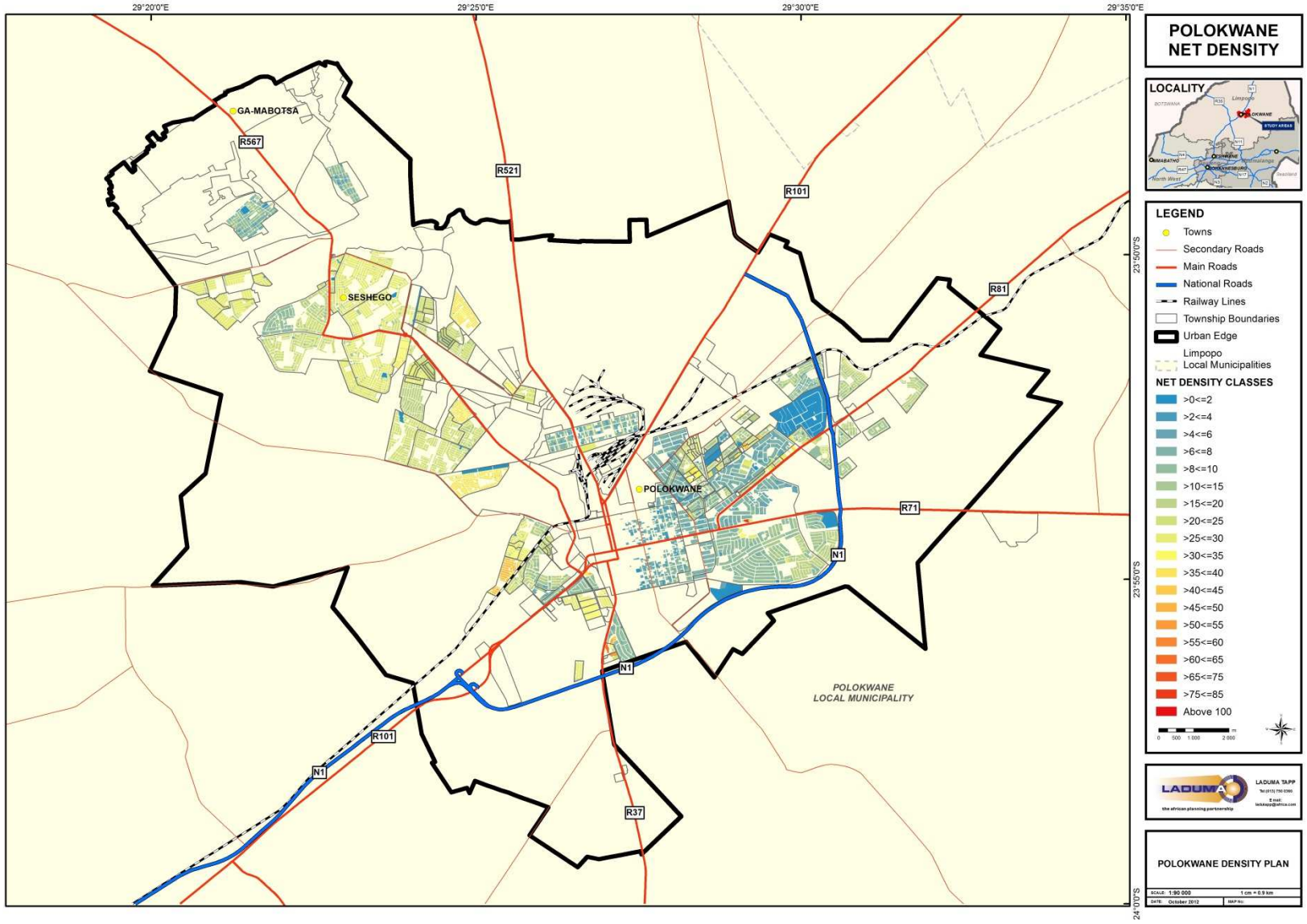
A map indicating the distribution of the different density categories in Polokwane-Seshego Area is attached as **MAP 4-13**.

The following significant deductions are made from the net density distribution:

- ✓ The existing established townships situated east of the city centre have an overall low net density
- ✓ Net densities tend to increase towards the suburbs situated north of the R81 route and closer to the Mall of the North, where new developments have occurred
- ✓ Annadale Township, which is situated in close proximity to the city centre as well as the adjacent industrial / commercial areas, has a significant low net density
- ✓ Net densities increases to between 20 and 40 units per net hectare towards the township areas closer and including Seshego
- ✓ The residential settlement areas north of Seshego tend to have low densities

- ✓ Higher net residential densities occur around the Savanna Mall and other suburban shopping centres, Bendor area and along the R81 towards the Mall of the North
- ✓ Net densities in the city centre are generally low

MAP 4-13 Polokwane-Seshego Net Density

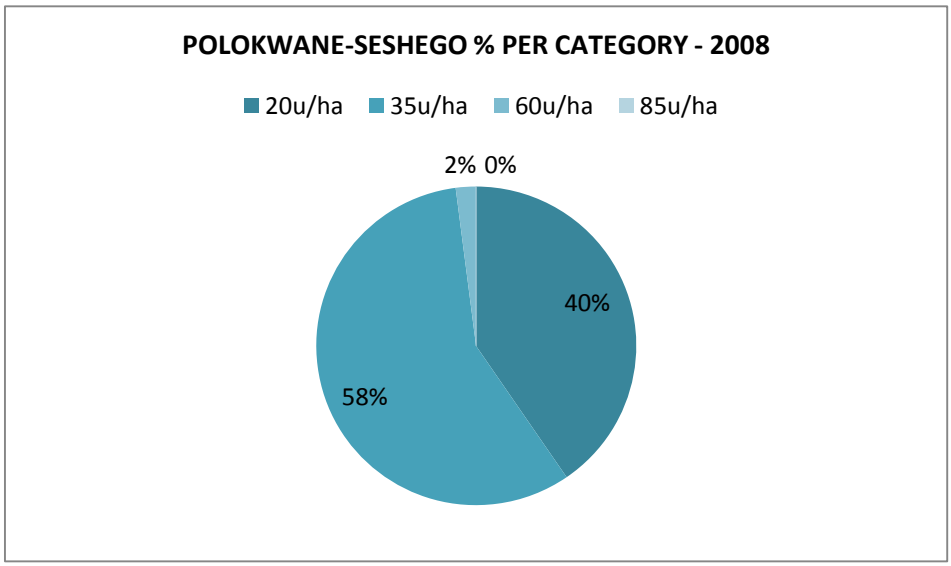


4.6.2.1.3.2.3 Distribution of densities

The distribution between the different density categories e.g. low, low-medium, high-medium and high gives an indication of the existing situation in the different study areas. It shows the percentage distribution of density and indicates which density categories are more prominent and which density categories do not feature in a specific area.

In 2008, an analysis of the density distribution for the Polokwane-Seshego Area revealed that 40% of the existing residential development falls in the density category 20 dwelling units per hectare and below. Average net density that falls between 20 and 35 dwelling units per hectare comprise 58% which indicates a relative high percentage in the Low-Medium density category. High-Medium and high densities comprise of a very low percentage, at 2% between 35 and 60 dwelling units per hectare and 0.01% above 85 units per hectare. The density distribution is indicated in Figure 4-3 below.

Figure 4-3 Polokwane-Seshego Density Distribution (2008)



4.6.2.1.3.3 Erf sizes

A diversity of stand size exists throughout the study area that accommodates a range of different activities. For the purposes of densification, the single residential stands and average residential stand sizes play a role in determining the potential for subdivision of existing stands.

A total of 41261 single residential stands were counted for the Polokwane / Seshego area. These erven were categorised into different stand size categories in order to determine an overall average stand size. The results are reflected in **Table 4-25** below.

Table 4-25 Polokwane – Existing Erf Size Categories

Erf Size Categories - Polokwane											
Townships	**100-200**	**200-300**	**300-400**	**400-500**	**500-600**	**600-700**	**700-800**	**800-900**	**900-1000**	**1000-5000**	**Grand Total**
Annadale			9	10		5	19	26	190	320	579
Annadale X 2											0
Bendor						3	4	2	1	603	613
Bendor (W)						3				37	40
Bendor 110						12	20	8	4	11	55
Bendor X 78										6	6
Bendor X 81										1	1
Bendor X 85					3	48	4			5	60
Bendor X 87			4	92	12	3	15	15	17	3	161
Bendor X10					25	6	2		1	41	75
Bendor X101			1	168	197	166	40	14	5	9	600
Bendor X11				5	30	11	4	2		24	76
Bendor X12										1	1
Bendor X120					17	62	70	81	34	182	446
Bendor X16			2	7	3			22	6		40
Bendor X17			7	15		1	16	5	2	2	48
Bendor X18		2	23	13	8	1	2				49
Bendor X19			9	4	2					1	16
Bendor X20				8							8
Bendor X21		1	28	4							33
Bendor X22			3	5	4	2	1	1			16
Bendor X23			45	6	1	3					55
Bendor X24		4	18	6	1		1				30
Bendor X25		1	6	1	1					1	10
Bendor X26		10	28	12	1						51
Bendor X30			7	16	1	10	12	7	1		54
Bendor X32				6	24	3				1	34
Bendor X35						4	22	32		7	65
Bendor X45							1		3	2	6
Bendor X51			2	30	1	4	3	1		2	43
Bendor X52			24	14	1						39
Bendor X62				1	1		1	4	3	4	14
Bendor X63							6	20			26
Bendor X64							4	9			13
Bendor X68				12	18	1	1	2		3	37
Bendor X7							2	1	1	45	49
Bendor X70			7	31	2	2	1				43
Bendor X72						1	26	27	2	18	74

Erf Size Categories - Polokwane											
Townships	**100-200**	**200-300**	**300-400**	**400-500**	**500-600**	**600-700**	**700-800**	**800-900**	**900-1000**	**1000-5000**	**Grand Total**
Bendor X74						1	13	8	3	2	27
Bendor X75					70	7	3	3	2		85
Bendor X76										1	1
Bendor X77										29	29
Bendor X8				1	14	1	4	1		64	85
Bendor X80					11	53	25	6	20	6	121
Bendor X82				1	18	29	32	1	2	1	84
Bendor X84						1	13	46	31	24	115
Bendor X88								42	6		48
Bendor X91					2	27	73	11	1	4	118
Bendor X92			1	5	25	84	18		2	1	136
Bendor X94						10	126	13	10	9	168
Bendor X95						7	115	7	3	3	135
Bendor X97					4	8	58	20	2	1	93
Ivypark								1	50	61	112
Ivypark (E)									24	35	59
Ivypark X17		58	150	2							210
Ivypark X19		40	102								142
Ivypark X20			150	1	1						152
Ivypark X21			153	1	3						157
Ivypark X22			219	18	4		1				242
Ivypark X32			60	4		1					65
Ivypark X34			146	55	3	6	1	2		2	215
Ivypark X9		51	21	1					1		74
New P2				1	1	10	27	53	72	360	524
New P4			1	238	469	23	9	3	3	1	747
New P7			62	398	12		2				474
New P8			1		5	11	26	35	26	187	291
Nirvana			18	66	59	32	5	23	19	51	273
Nirvana X1			5	40	127	79	24	11	18	84	388
Nirvana X2							2		7	39	48
Nirvana X3			4	136	41	29	11	7	2		230
Peninapark									8	295	303
Peninapark X1		22	8		17	3		1		2	53
Peninapark X2											0
Pietersburg				3	3	13	36	25	58	572	710
Pietersburg X11				3	279	401	49	50	261	2041	3084
Pietersburg X14							1	1	2		4
Pietersburg X28				1	110	203	16	157	59	133	679
Pietersburg X29			142	139	14	3					298

Erf Size Categories - Polokwane											
Townships	**100-200**	**200-300**	**300-400**	**400-500**	**500-600**	**600-700**	**700-800**	**800-900**	**900-1000**	**1000-5000**	**Grand Total**
Pietersburg X30											0
Pietersburg X33		6	8	33	7	1					55
Pietersburg X34				31	5	2					38
Pietersburg X35			4	21	5		2				32
Pietersburg X36			9	11	4	4					28
Pietersburg X37			7	24	1	1					33
Pietersburg X38			1	17							18
Pietersburg X4					2	4	3	3	1	243	256
Pietersburg X44		1329	133	37	8	2	1	1		1	1512
Pietersburg X6							2	2	3	152	159
Pietersburg X61		7	160	8	5						180
Pietersburg X65		400	71	16	39	6	3				535
Pietersburg X7					1	2	5	2	1	236	247
Polokwane X71			144	1244	67	22	5	2	1	4	1489
Polokwane X76			263	939	49	14				1	1266
Polokwane X79			32	285	101	29	3	6	1		457
Seshego-9a				104	5		5				114
Seshego-9a X1				61	1		2				64
Seshego-9a X2				43	8	4	1				56
Seshego-9a X3				33	1			1			35
Seshego-9a X4				88							88
Seshego-9a X5				101							101
Seshego-9b			65	5	2						72
Seshego-9b X1			54	4	1	1					60
Seshego-9b X2			31	1							32
Seshego-9c			1	63	30		3	1	1	1	100
Seshego-9d			1	32	11	3	1				48
Seshego-9e				64							64
Seshego-9e X1				46	1						47
Seshego-9e X2				57	8	2					67
Seshego-9e X3				40	4	2				1	47
Seshego-9e X4				53	4	1	1				59
Seshego-9f				22							22
Seshego-9f X1				6	19		2		1		28
Seshego-9f X2					11						11
Seshego-9f X3				14	13	1	1				29
Seshego-9f X4				9	13	1	1				24
Seshego-9f X5				1	14						15
Seshego-9g			1	322	20	14	8	4		3	372

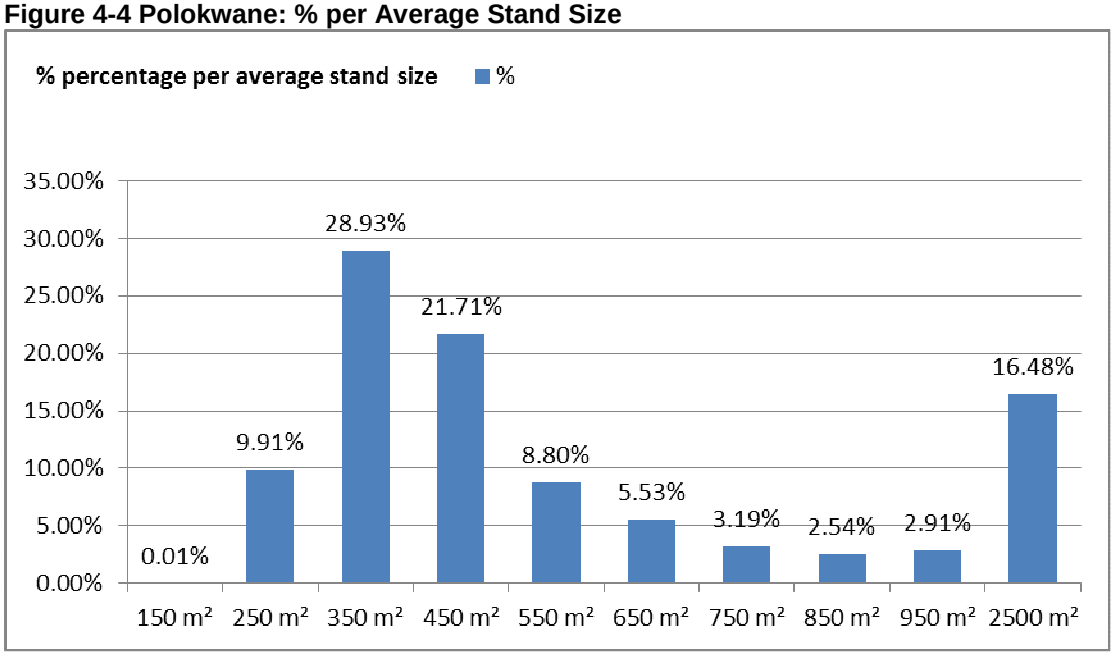
Erf Size Categories - Polokwane											
Townships	**100-200**	**200-300**	**300-400**	**400-500**	**500-600**	**600-700**	**700-800**	**800-900**	**900-1000**	**1000-5000**	**Grand Total**
Seshego-9h				124	41	7	3	1			176
Seshego-9j			104	12	4	2	2				124
Seshego-9k			19	1			1		1		22
Seshego-9k X 1			115	12	2						129
Seshego-9l		917	109	35	6					1	1068
Seshego-A		1	1472	255	136	27	14	8	3	8	1924
Seshego-A X1			510	70	24	4	6				614
Seshego-A X2		239	238	21	5						503
Seshego-B	2	11	1517	186	86	16	33	12	6	1	1870
Seshego-C	1		1630	251	116	28	10	3		11	2050
Seshego-D			24	379	152	338	52	36	109	247	1337
Seshego-D X1			78	54	8	6	3			1	150
Seshego-D X2			16	7	4	4					31
Seshego-E			591	57	48	5	2	1		1	705
Seshego-E X1			286	24	6	1					317
Seshego-E X2			449	38	5	1	2				495
Seshego-E X3			282	6	24		1		1		314
Seshego-E X4			321	12	24						357
Seshego-E X5			128	18							146
Seshego-E X6			173	18	12	5				1	209
Seshego-F	1	2	264	61	18	7	8		1	2	364
Seshego-F (S)		3	70	46						1	120
Seshego-H			10	1064	186	115	27	10	7	4	1423
Unknown Area 4										1	1
Unknown Area 6			1	43	274	41	44	5	3	3	414
Welgelegen							1			115	116
Welgelegen (N)										81	81
Welgelegen X1							1	1	1	5	8
Welgelegen X4									23	27	50
Westenburg		3	370	48	97	19	6	46	12	17	618
Westenburg X1		2	80	14	1						97
Westenburg X2			185	34	3	2	2				226
Westenburg X3		900	36	8		1					945
Total Erven/Category	5	4087	11938	8957	3630	2283	1315	1046	1199	6801	41261
Percentage	0.0 %	9.9 %	28.9 %	21.7 %	8.8 %	5.5 %	3.2 %	2.5 %	2.9 %	16.5 %	100.0 %

The average stand size determined for stands in the Polokwane / Seshego Planning Area is 793m². Single residential stands in the Seshego area tend to be smaller sizes (average of m²) compared to the larger residential stands found in the residential suburbs around the Polokwane CBD. Stand sizes at these residential areas average at approximately m².

The **Figure 4-4** below indicates that approximately 29% of stands in Polokwane / Seshego area have an average stands size of 350m². Almost 22% of stands in this planning area average at 450m².

Single residential stands between 1000m² and 5000m² represent approximately 16% of stands, which is significant because of its potential for subdivision into smaller stands, depending on its locality in close proximity to the Polokwane CBD.

Figure 4-4 Polokwane: % per Average Stand Size



4.6.2.1.3.4 Amendment Schemes approved/ proclaimed for residential densification

An analysis of amendments schemes approved / proclaimed for residential densification during the period 2000 to 2011 was conducted in order to identify a densification trend in existing proclaimed townships in the study area.

A total of 418 applications for amendment of the Town Planning Scheme to allow for residential densification was approved and proclaimed. (See Table 4-27)

Table 4-26 Approved/ Proclaimed Residential Densification Rezonings

	Year											
Township/ Zoning	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Grand Total**
Annadale					**6**	**1**	**21**	**9**	**16**	**4**	**7**	**64**
Proper					**6**	**1**	**21**	**9**	**16**	**4**	**7**	**64**
Residential 2					1		6	2	1		1	11
Residential 3					5	1	14	7	15	4	6	52
Residential 4							1					1
Bendor	**1**	**1**	**1**		**4**		**4**	**2**	**6**	**1**	**6**	**26**
X 8							**2**					**2**
Residential 2							2					2
X 45		**1**										**1**
Residential 1		1										1
X 62									**1**			**1**
Residential 2									1			1
X 77									**1**			**1**
Residential 2									1			1
X 78								**1**			**2**	**3**
Residential 2								1			1	2
Residential 3											1	1
X 94									**2**		**2**	**4**
Residential 1									2		2	4
Proper	**1**		**1**		**4**		**2**	**1**	**2**	**1**	**2**	**14**
Res Bldg					2							2
Residential 1	1		1									2
Residential 2					2		2	1	2	1	2	10
Ivy Park			**2**				**1**	**2**	**1**	**2**	**3**	**11**
X 9			**2**									**2**
Residential 1			2									2
Proper							**1**	**2**	**1**	**2**	**3**	**9**

	Year											
Township/ Zoning	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Grand Total**
Residential 2							1		1		2	4
Residential 3								2		2	1	5
Nirvana	**4**				**3**		**3**	**6**	**3**		**5**	**24**
X 1	**4**				**2**		**1**				**1**	**8**
Residential 2	4				1		1				1	7
Residential 3					1							1
X 2					**1**		**1**	**4**	**3**		**4**	**13**
Residential 2					1			3	1		2	7
Residential 3							1	1	2		2	6
Proper							**1**	**2**				**3**
Residential 2							1					1
Residential 3								2				2
Penina park					**2**			**1**	**1**			**4**
X 1								**1**				**1**
Residential 3								1				1
Proper					**2**				**1**			**3**
Residential 2									1			1
Residential 3					2							2
Pietersburg	**5**	**4**	**5**	**6**	**22**	**7**	**49**	**39**	**54**	**24**	**60**	**278**
X 4					**1**	**1**	**12**	**5**	**7**	**4**	**10**	**40**
Residential 1					1							1
Residential 2						1	10	2	4	3	2	22
Residential 3							2	3	3	1	8	17
X 6						**1**	**2**	**1**		**2**	**2**	**8**
Residential 2						1	2			2		5
Residential 3								1			2	3
X 7								**1**			**2**	**3**
Residential 2								1			2	3

	Year											
Township/ Zoning	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Grand Total**
X 11					**2**		**3**	**5**	**18**	**2**	**11**	**41**
Residential 2					2		3	2	16	2	5	30
Residential 3								3	2		6	11
X 28											**10**	**10**
Residential 2											10	10
Proper	**5**	**4**	**5**	**6**	**19**	**5**	**32**	**27**	**29**	**16**	**25**	**176**
Residential 1	1											2
Residential 2	1	1	4	5	11	4	14	10	9	6	6	71
Residential 3	3	2	1	1	8	1	18	15	18	10	18	97
Residential 4		1						2	2		1	6
Seshego 9J									**1**			**1**
Proper									**1**			**1**
Residential 3									1			1
Seshego 9K								**1**	**1**			**2**
Proper								**1**	**1**			**2**
Residential 1								1	1			2
Seshego D						**1**		**2**				**3**
Proper						**1**		**2**				**3**
Residential 1						1		1				2
Residential 2								1				1
Seshego E					**1**		**1**					**2**
X 4					**1**		**1**					**2**
Residential 1					1		1					2
Seshego F							**1**		**1**		**2**	**4**
Proper							**1**		**1**		**2**	**4**
Residential 2											1	1
Residential 3							1		1		1	3
Welgelegen											**1**	**1**

	Year											
Township/ Zoning	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Grand Total**
X 1											**1**	**1**
Residential 2											1	1
Grand Total	**10**	**5**	**8**	**6**	**38**	**9**	**80**	**62**	**84**	**31**	**84**	**420**
% Distribution	**2.4**	**1.2**	**1.9**	**1.4**	**9.0**	**2.1**	**19.0**	**14.8**	**20.0**	**7.4**	**20.0**	**100.0**

Source: Proclamation Notices Provincial Gazette

A total number of 418 Amendment Schemes were approved for residential densification over the period 2000 to 2011.

- ✓ The highest percentage (20,10%) of amendment schemes that were approved occurred during 2009 and 2011.
- ✓ The lowest percentage (0,72%) occurred during 2000
- ✓ More than 50% of the total approved Amendment Schemes occurred during the years 2007, 2008 and 2009.
- ✓ The highest number of Amendment Scheme were submitted for properties situated in Pietersburg Proper
- ✓ The majority of the rezoning was to either Residential 2 (45.45%) or Residential 3 (48.33%) use zones

Table 4-27 Residential Densification Amendment Schemes per Residential Use Zone

Count of Zoning	Residential Use Zone					
	Res Bldg	Res 1	Res 2	Res 3	Res 4	Grand Total
Annadale (Total)			11	52		63
Annadale Proper			11	52		63
Bendor (Total)	2	7	16	1		26
Bendor X8			2			2
Bendor X45		1				1
Bendor X62			1			1
Bendor X77			1			1
Bendor X78			2	1		3
Bendor X94		4				4
Bendor Proper	2	2	10			14
Ivy Park (Total)		2	4	5		11
Ivy Park X9		2				2
Ivy Park Proper			4	5		9
Nirvana (Total)			14	9		23
Nirvana X1			6	1		7
Nirvana X2			7	6		13
Nirvana Proper			1	2		3
Penina Park (Total)			1	3		4
Penina Park X1				1		1
Penina Park Proper			1	2		3
Pietersburg (Total)		3	141	128	6	278
Pietersburg X4		1	22	17		40
Pietersburg X6			5	3		8
Pietersburg X7			3			3
Pietersburg X11			30	10		40
Pietersburg X28			10			10
Pietersburg Proper		2	71	98	6	177
Seshego 9J (Total)				1		1
Seshego 9J Proper				1		1
Seshego 9K (Total)		2				2
Seshego 9K Proper		2				2
Seshego D (Total)		2	1			3

Count of Zoning	Residential Use Zone					
	Res Bldg	Res 1	Res 2	Res 3	Res 4	Grand Total
Seshego D Proper		2	1			3
Seshego E (Total)		2				2
Seshego E X4		2				2
Seshego F (Total)			1	3		4
Seshego F Proper			1	3		4
Welgelegen (Total)			1			1
Welgelegen X1			1			1
Grand Total	2	18	190	202	6	418
% of Total	0.48%	4.31%	45.45%	48.33%	1.44%	100.00%

Source: Proclamation Notices Provincial Gazette

4.6.2.1.4 Current Infrastructure Capacities in Polokwane-Seshego

4.6.2.1.4.1 Water and Sewer Systems

Pietersburg , Seshego and Perskebult obtain bulk water supply from the Ebenezer dam, the Dap Naude dam and Sand River.

According to the Water Services Development Plan, 2010, the present demand of Pietersburg / Seshego and Perskebult equals the present bulk supply of 76.45 Ml/day but utilisation of the available potential sources should be attended to, to meet the increased demand. The estimated demand by the year 2022 of 88.70 Ml/day is still less than the potential sources in which a reserve is anticipated. (EVN Africa Consulting Services (Pty) Ltd., 2012)

With the promotion of increased urbanisation coupled with densification, full water borne sewerage and full network of piped water supply and sanitation reticulation should be available and plans to supply bulk sewer lines and sewerage purification services should make provision for future densification.

4.6.2.1.4.2 Roads and Stormwater

Nelson Mandela drive is the major feeder route between Seshego and Polokwane. This route and New Era drive forms the major activity corridors found within Seshego.

Infrastructure investment is required to improve the condition of internal distribution roads and their connection to higher order distribution routes.

4.6.2.1.4.3 Electricity

Eskom provides electricity to the Polokwane Municipality. The municipality distributes electricity within Polokwane City and Eskom distributes to the rest of the municipal area. Bulk and distribution networks need to be upgraded.

4.6.2.1.4.3.1 Public Transport

Public transport facilities are predominantly well positioned but require substantial investment as far as infrastructure and amenities are concerned. (ARUP, 2010)

Further investment is also required into additional public transport routes and amenities that will help to provide equal access to all members of the community.

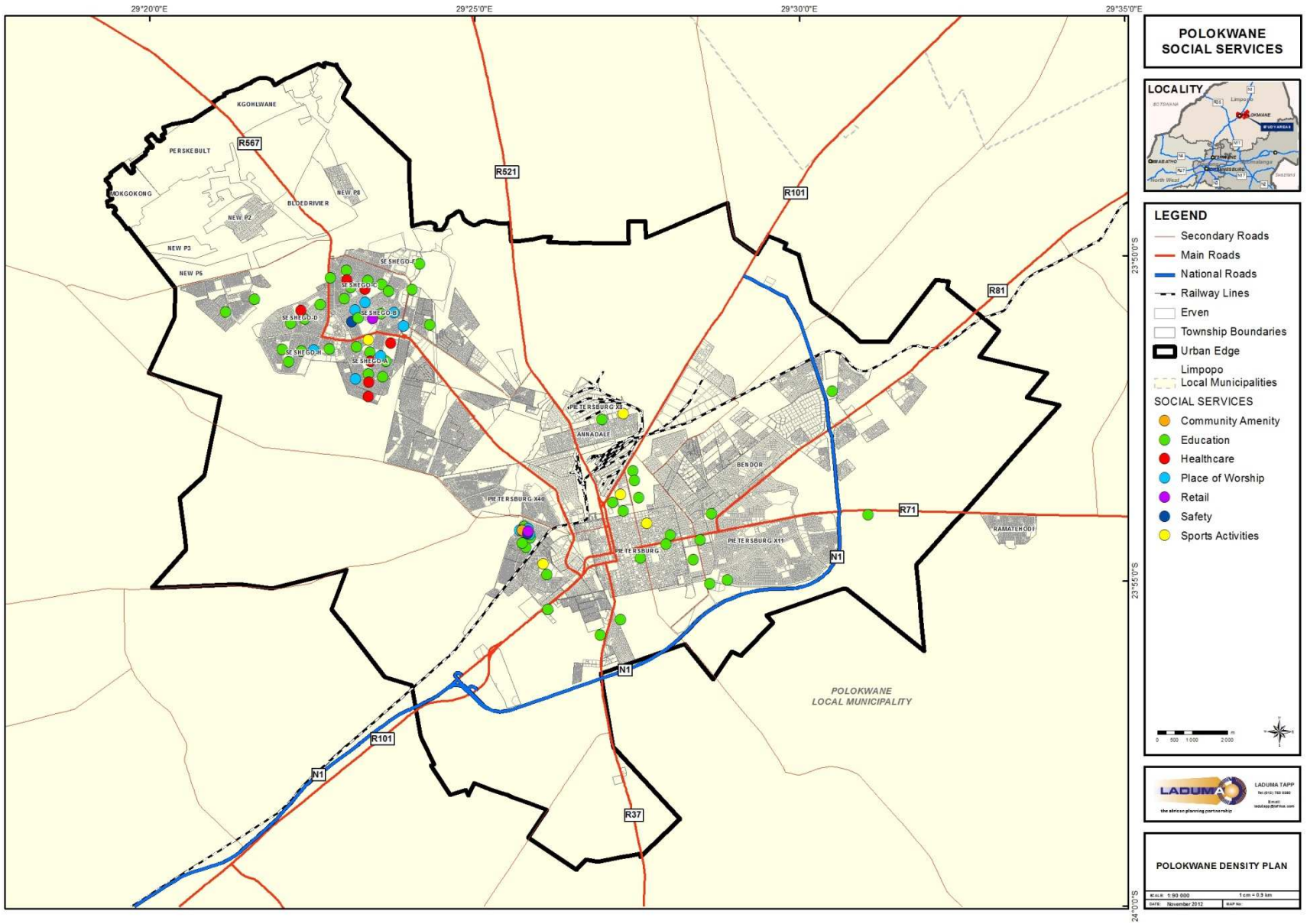
Substantial infrastructure investment is required to implement a new network aligned with the public transport infrastructure. (ARUP, 2010).

4.6.2.1.3.5.6 Social Services

According to the Polokwane NDPG Development Framework, there is a high demand for the social services in the Seshego area, namely community centre, library, fire station, municipal offices, police station, pension pay point, public open space. The planning area is overall well served by educational and health care facilities which provide opportunity for further densification.

Higher densities close to the Polokwane Centre could be sufficiently accommodated due to the availability of various social services facilities in close proximity.

MAP 4-14 Polokwane – Seshego Social Services Facilities



4.6.2.2 Mankweng

4.6.2.2.1 Demographic profile

A nodal profile of the Mankweng area according to the Polokwane NDPG development framework is set out in Table 4-28 below.

Table 4-28 Mankweng Demographic Profile

Classification	District Growth Point
Population	119920
Households	37 142
Population and Households within 5km from Mankweng	95397 people 29560 households
Population and Households within 5km from Mankweng	50701 people 15292 households
Percentage Earning Income	85.10%
Weighted Average Income (HH earning income)	R122291.8/annum R10191.0/month
Dominant Land Uses	Residential Industrial Commercial Vacant/unspecified Subsistence Farming
Desired Land Use Patterns	General Business, Retail, Office Service Related Business Local business Light industrial, manufacturing, commercial and warehousing Service Industries Community Facilities General recreation and entertainment Short-stay accommodation Tourism attractions and museums Urban residential –single and high density
Location Ratings	Residential – 77.6% Retail – 75.1% Office – 74.1% Industrial –73.2%

Source: (Demacon Market Studies, 2010)

4.6.2.2.2 Economic activity nodes

Socio economic opportunities are relatively well provided in terms of quantity but poorly situated towards providing equal access to the entire community. According to the Polokwane NDPG Development Framework, further investment is required towards increased quality and additional socio-economic facilities.

Mankweng and its surrounds are predominantly characterised by residential, and vacant/unspecified land uses. There is great potential for development of a commercial / retail along this major road going through Mankweng. (ARUP, 2010)

The flood plain limits growth of Mankweng towards the North. An existing garage with fast food facilities is ideally positioned at the 'gateway' to Mankweng when approaching from Polokwane. It is a busy hub of activity, which could be further densified and the economic potential be raised. There is a large amount of residential and some agricultural use towards the south of Mankweng. (ARUP, 2010)

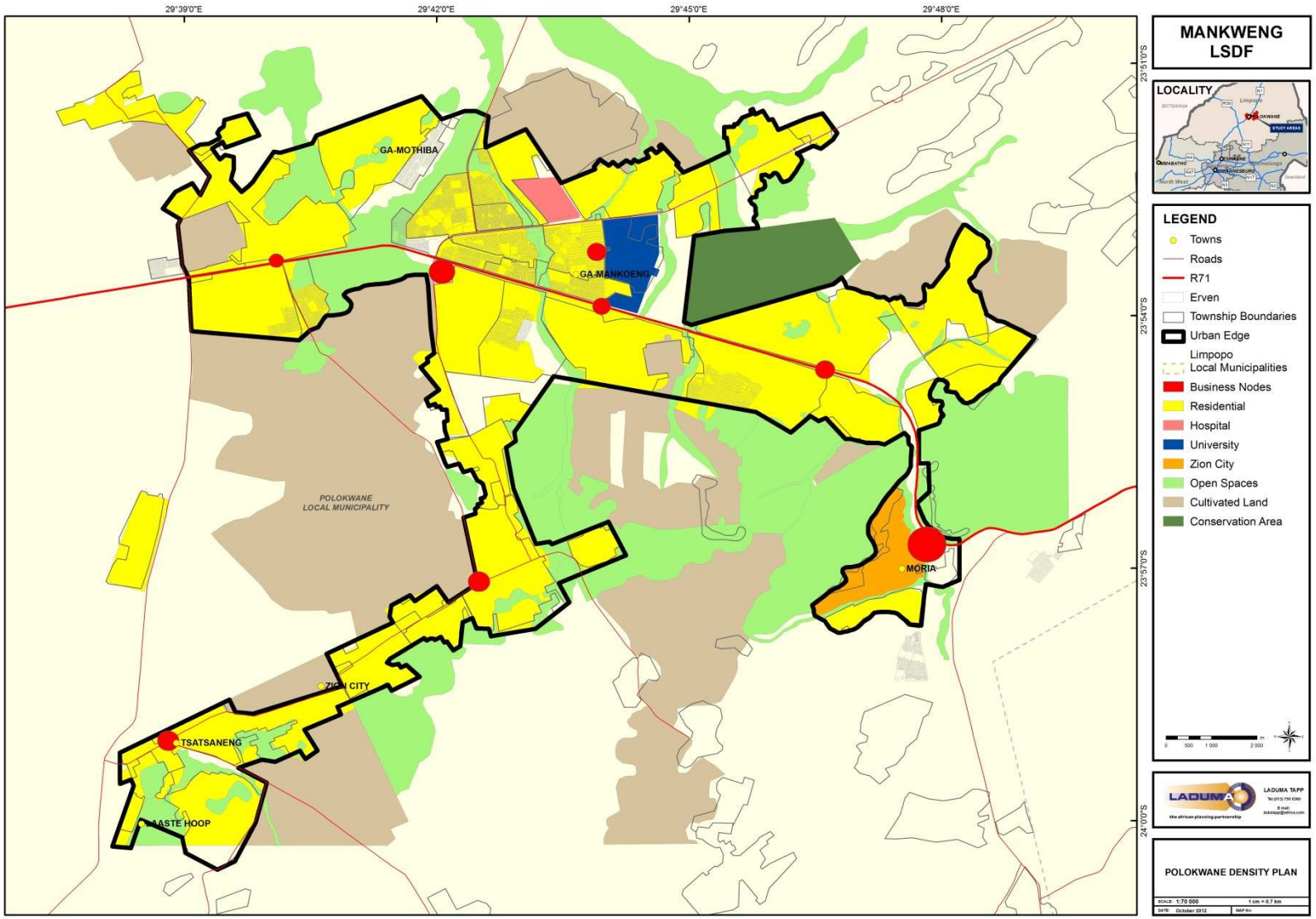
A high degree of urbanization has occurred in Mankweng and the area is experiencing a dramatic pattern of increasing spatial concentration. The well-known University of Limpopo, Turfloop Campus, is situated in Mankweng at the eastern entrance to the urban area. Mankweng consists of primarily residential townships situated west of the University and between major and regional distributor roads.

Two distinct neighbour centres are established in the Mankweng area, namely the business centre situated next to and west of the University and a second centre situated along the intersection of the two major roads. The existing major educational node contributes to the socio economics of Mankweng.

There are three main areas of activity within Mankweng. These should be reinforced and densified to encourage further development in terms of socio economics. This node is ideal for gateway potential.

Various towns and villages are situated within the urban edge. The existing spatial development for the Mankweng area is indicated on the map attached as **MAP 4-15.**

MAP 4-15 Conceptual LSDF for Mankweng/Badimong Area



4.6.2.2.3 Residential areas

4.6.2.2.3.1 Distribution of residential areas

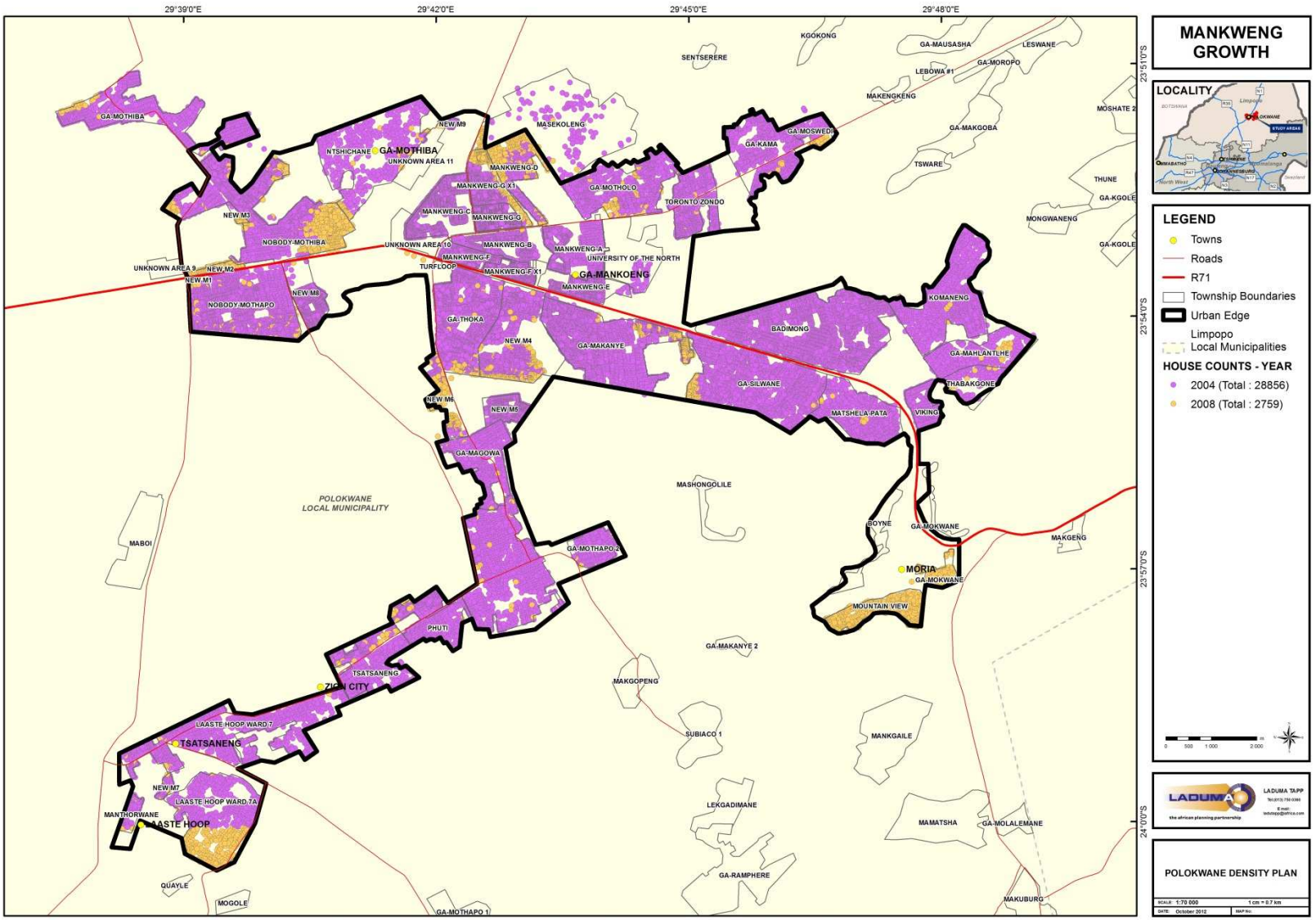
A spatial analysis of the growth areas surrounding Mankweng area revealed the following:

Mankweng area increased from 28856 houses in 2003 to 31615 houses in 2008. This is a growth rate of 0.2. See **Table 4-19.**

It appears from an analysis of the above Map that the following spatial conclusions with regard to growth in the Mankweng area, could be made:

- ✓ The majority of new houses were constructed east of the area known as Nobody-Mothiba
- ✓ North east of Mankweng – D approximately 490 new houses were established between 2003 and 2008
- ✓ The area south of Mankweng, directly north of the area known as GaMagowa experience a growth of approximately 436 new houses
- ✓ West of Ga'Silwane approximately 230 new houses were established.

MAP 4-16 Growth – Mankweng



4.6.2.2.3.2 Densities

4.6.2.2.3.2.1 Gross densities

The Mankweng area has an overall average gross residential density of 4.94 units per hectare. The area has a total number of 31 619 house counts within defined "urban" settlement areas. The defined settlement areas cover a total area of 7147.37hectares. The gross density per township/ settlement area is indicated on the map attached as.

The existing gross density of the Mankweng Area is reflected in Table 4-29 Mankweng Existing Gross Density below.

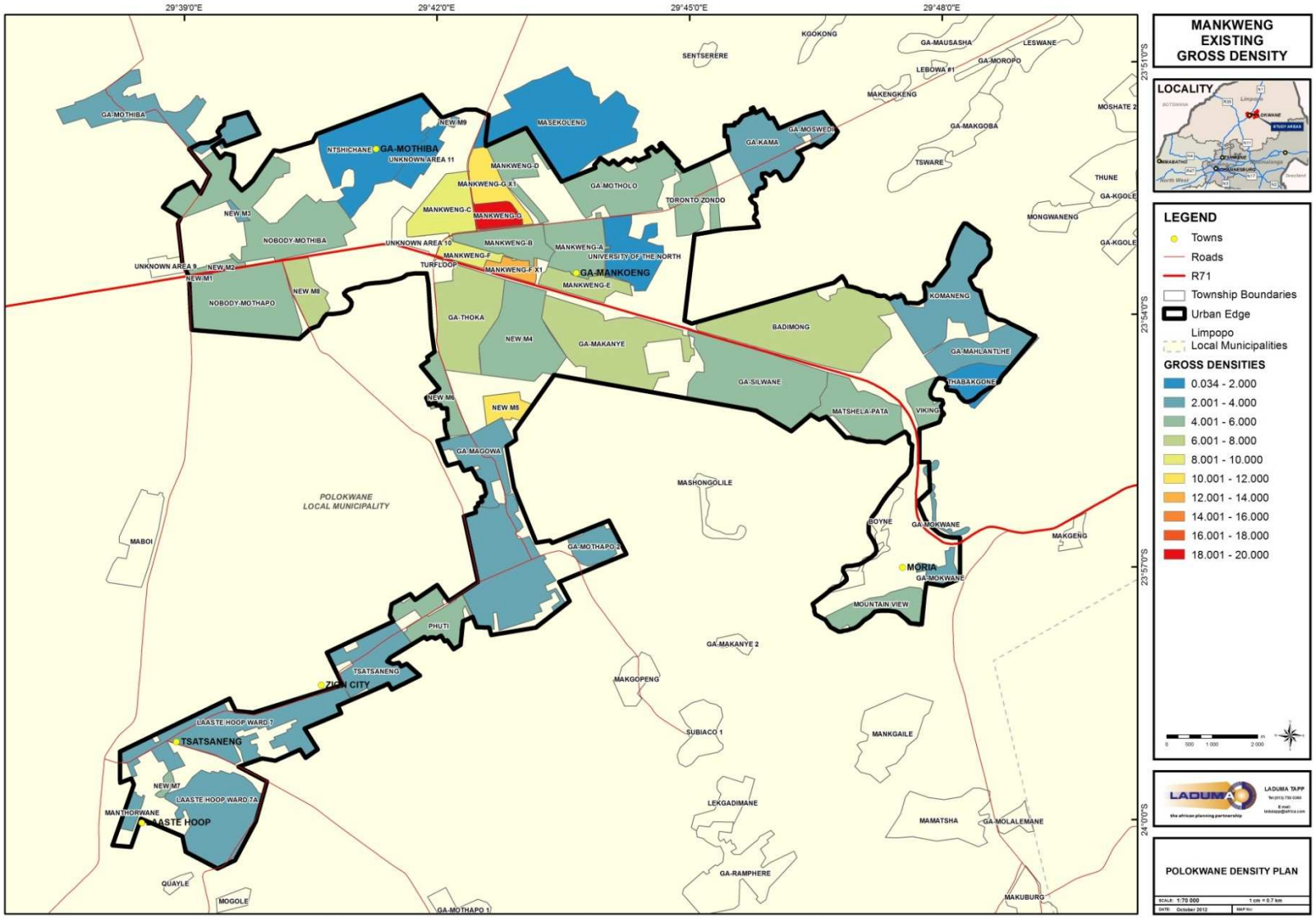
Table 4-29 Mankweng Existing Gross Density

Existing Gross Density - Mankweng			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Unknown Area 11	2	58.09	0.03
Masekoleng	131	424.85	0.31
University Of The North	43	135.49	0.32
Ntshichane	400	307.43	1.30
Thabakgone	105	73.71	1.42
New M1	10	5.53	1.81
Ga-Mokwane	66	30.97	2.13
Laaste Hoop Ward 7a	590	264.11	2.23
Ga-Mahlantlhe	328	134.56	2.44
Ga-Moswedi	108	39.55	2.73
Laaste Hoop Ward 7	903	323.50	2.79
New M3	24	8.16	2.94
Ga-Mothiba	689	216.55	3.18
Komaneng	867	262.18	3.31
New M10	1112	324.04	3.43
Ga-Kama	620	179.10	3.46
Manthorwane	79	22.64	3.49
Tsatsaneng	554	155.15	3.57
Ga-Mothapo 2	230	62.09	3.70
Ga-Magowa	511	129.69	3.94
New M9	14	3.51	3.99
Matshela-Pata	629	154.99	4.06
New M7	42	10.01	4.20
Ga-Motholo	902	211.95	4.26
Phuti	501	113.63	4.41
New M6	296	66.79	4.43
New M2	71	15.73	4.51
Mountain View	424	92.49	4.58
Mankweng-A	614	131.90	4.66
Viking	233	49.53	4.70
New M4	1195	249.82	4.78
Mankweng-D	517	102.94	5.02

Existing Gross Density - Mankweng			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Ga-Silwane	1745	347.14	5.03
Nobody-Mothiba	1894	372.13	5.09
Toronto Zondo	639	111.79	5.72
Mankweng-B	609	106.09	5.74
Nobody-Mothapo	1712	289.71	5.91
Badimong	2840	448.48	6.33
Ga-Makanye	2130	320.21	6.65
Ga-Thoka	1608	237.79	6.76
New M8	582	77.99	7.46
Mankweng-E	586	77.59	7.55
Mankweng-C	1169	136.77	8.55
Mankweng-F	415	45.63	9.09
Mankweng-G X1	914	83.77	10.91
New M5	548	47.51	11.53
Mankweng-F X1	474	36.25	13.08
Mankweng-G	944	47.90	19.71
Total/Average	31619	7147.37	4.94

Mankweng has a total number of 31 619 house counts within defined “urban” settlement areas that cover a total area of 7147 ha. The lowest gross density (0, 03 units per hectare) in Mankweng is Unknown Area 11near Ga-Mothiba and the highest gross density (19, 71 units per hectare) occurs in Mankweng-G. 99% of the stands counted are single residential houses. No vacant stands were counted. The formalised township areas such as Mankweng – C, and Mankweng F have a gross density of between 8 to 10 units per hectare. Other formalised areas such as Mankweng G X1 and Mankweng F X1 have slightly higher density of between 10 to 14 units per hectare.

MAP 4-17 Mankweng Gross Density



4.6.2.2.3.2.2 Net densities

The net density in Mankweng Area is depicted in Table 4-30 below.

Table 4-30 Mankweng Net Density

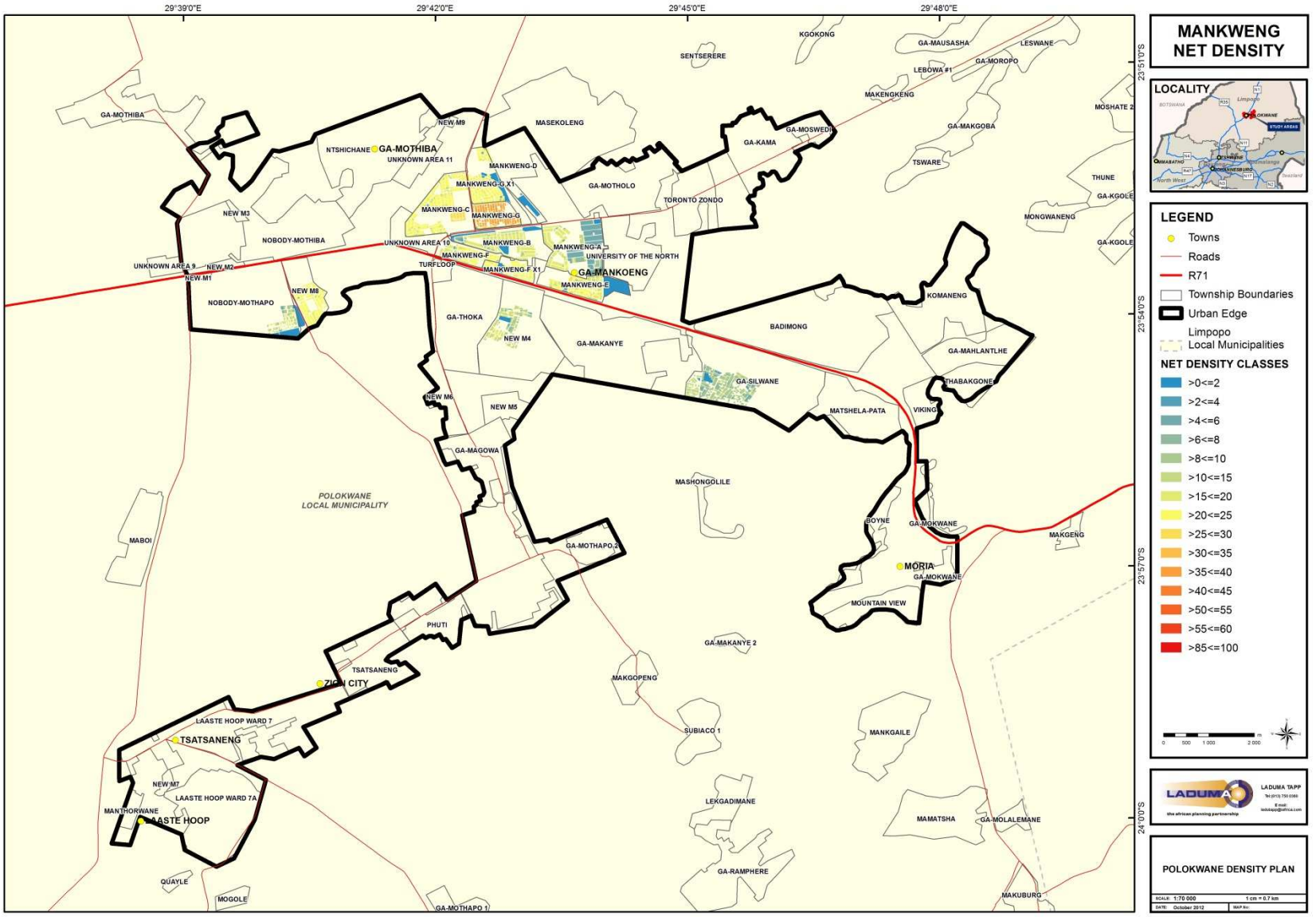
Mankweng Existing Net Density			
Density Category	**Counted Units**	**% Distribution**	**Density Class**
Low	20	0.29%	>0<=2
Low	9	0.13%	>2<=4
Low	198	2.90%	>4<=6
Low	118	1.73%	>6<=8
Low	331	4.85%	>8<=10
Low	618	9.05%	>10<=15
Low	1533	22.46%	>15<=20
Medium Low	2857	41.85%	>20<=25
Medium Low	308	4.51%	>25<=30
Medium Low	122	1.79%	>30<=35
Medium High	704	10.31%	>35<=40
Medium High	5	0.07%	>40<=45
Medium High	1	0.01%	>50<=55
Medium High	1	0.01%	>55<=60
High	1	0.01%	>85<=100
TOTAL	6826	100.00%	

The following significant deductions are made from the net density distribution in Mankweng:

- ✓ The highest net densities occur in Mankweng G at densities of between 30 and 40 units per hectare.
- ✓ Densities surrounding the University of the North are significantly low, which indicates that there may be opportunity for densification at this proper location.
- ✓ Established formalised settlements such as Mankweng C, GX1, B, F, F X1 and E has fairly low residential densities of between 15 and 25 units per hectare.

A map indicating the distribution of the different density categories in Mankweng Area is attached as **MAP 4-18.**

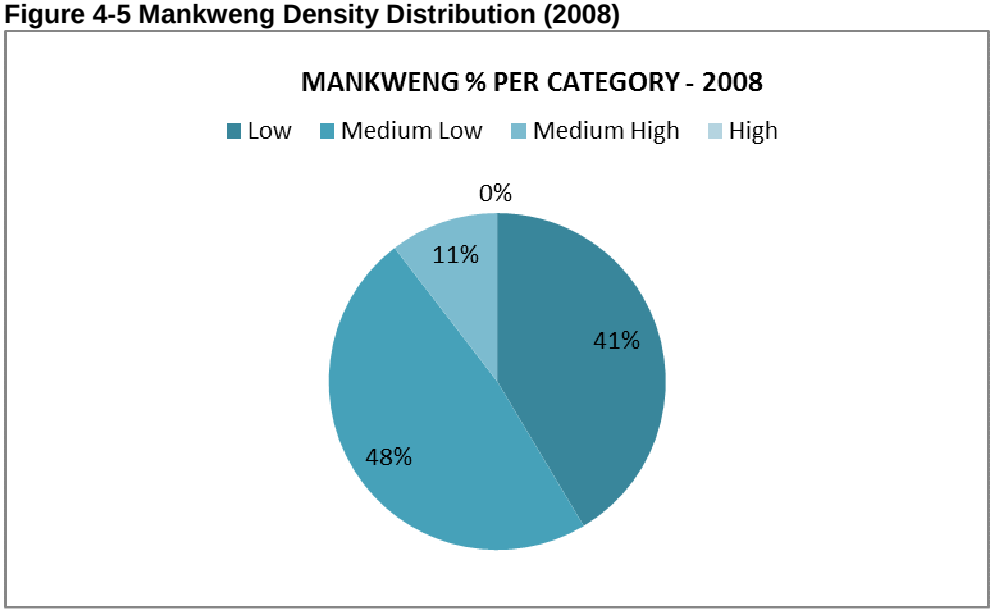
MAP 4-18 Mankweng Net Density



4.6.2.2.3.2.3 Distribution of densities

In 2008, an analysis of the density distribution for the Mankweng Area revealed that 48% of the existing residential development falls in the density categories below 20 dwelling units per hectare. Average net density that falls between 20 and 35 dwelling units per hectare comprise 40% which indicates a significant percentage in the Low-Medium density category. High-Medium and high densities comprise of a very low percentage, at 11 between 35 and 60 dwelling units per hectare and 0% above 85 units per hectare. The density distribution is indicated in **Figure 4-5.**

Figure 4-5 Mankweng Density Distribution (2008)



4.6.2.2.3.3 Erf sizes

A total of 6834 stands were counted for the Mankweng area. These erven were categorised into different stand size categories in order to determine the average stand size. The results are reflected inTable 4-31 below.

The majority of stands (40.3%) in Mankweng fall in the category 400m² to 500m².

Table 4-31 Mankweng – Existing Erf Size Categories

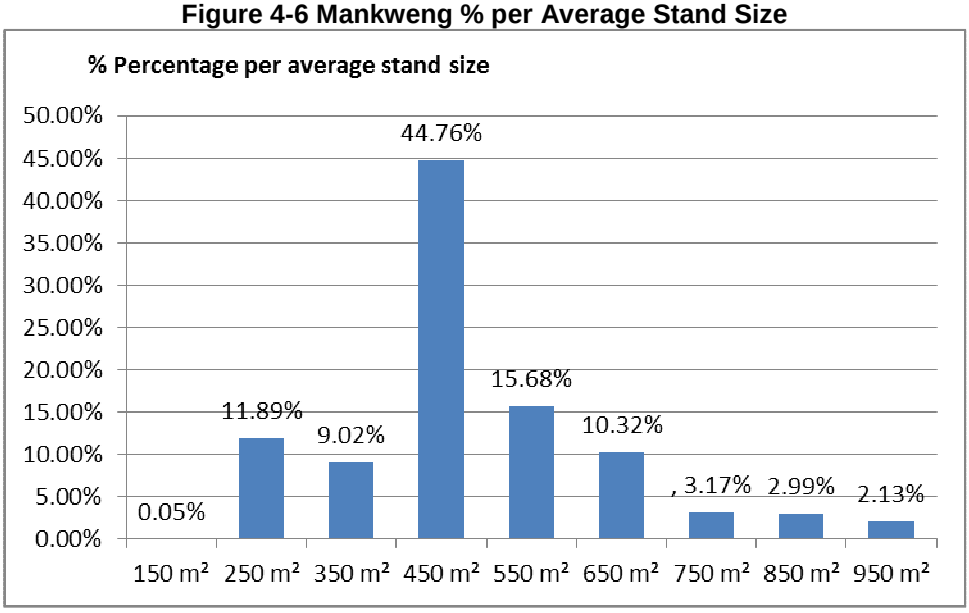
Townships	Erf Size Categories - Mankweng												
	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000	1000-5000	5000-10000	10000-20000	Grand Total
Ga-Silwane							34	61	39	318		1	453
Mankweng-A				9	293	31	7	9	30	215			594
Mankweng-B			1		200	272	21	6	13	20			533
Mankweng-C			155	714	119	31	15	6	3	3			1046
Mankweng-D			15	1						4			20
Mankweng-E			65	259	86	76	19	3	4	4			516
Mankweng-F			18	259	32	70	13	4		3			399
Mankweng-FX1	3	4	76	298	19	2				3			405
Mankweng-G		727	148	11	9	2	1			2			900
Mankweng-G			39	558	46	15	1	2		7			668

Townships	Erf Size Categories - Mankweng												
	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000	1000-5000	5000-10000	10000-20000	Grand Total
X1													
New M4		1	1	4	30	49	41	63	29	48			266
New M8				507	40	11	1	1		1			561
Nobody-Mothapo			1		1	51	27	13	11	23			127
Unknown Area			36	135	90	25	15	16	2	22	3	2	344
Total Erven/ Category	3	732	555	2755	965	635	195	184	131	673	3	3	6834
Percentage	0.0 %	10.7 %	8.1 %	40.3 %	14.1 %	9.3 %	2.9 %	2.7 %	1.9 %	9.8 %	0.0 %	0.0 %	100.0 %

The average stand size determined for stands in Mankweng is 485m².

The **Figure 4-6** below indicates that approximately 45% of stands in Mankweng have an average stands size of 450m².

Figure 4-6 Mankweng % per Average Stand Size



4.6.2.2.3.4 Current Infrastructure Capacities in Mankweng

4.6.2.2.3.4.1 Water and Sewer Systems

60.8% of residents in Mankweng/Nobody/Sebayeng Cluster have water services which are above RDP level, which includes full water borne sewerage and full network of piped water supply. Water services in all villages in wards 7, 24, 27, 29, 30 and 33 are below RDP standard and there is an overall lack of potable water supply in the area. (ARUP, 2010)

Only 10.27% [625 lined pit toilets completed] of households in the Mankweng/ Nobody / Sebayeng Cluster has proper sanitation.

Planning and upgrading of existing water supply systems should take cognisance of the fact that Mankweng area will experienced increased growth and demand for densification.

4.6.2.2.3.4.2 Roads and Stormwater

Infrastructure investment is required to improve the condition of internal distribution roads and their connection to higher order distribution routes. (ARUP, 2010)

4.6.2.2.3.4.3 Electricity

According to the Polokwane NDPG Development Framewokr, 2012, Mankweng/ Nobody/ Sebayeng Cluster requires 16 928 connections. This is an indication that a vast number of households within the settlement areas surrounding Mankweng are still without electricity. Future densification of the existing built-up areas should be planned in conjunction with availability and expansion of electrical services.

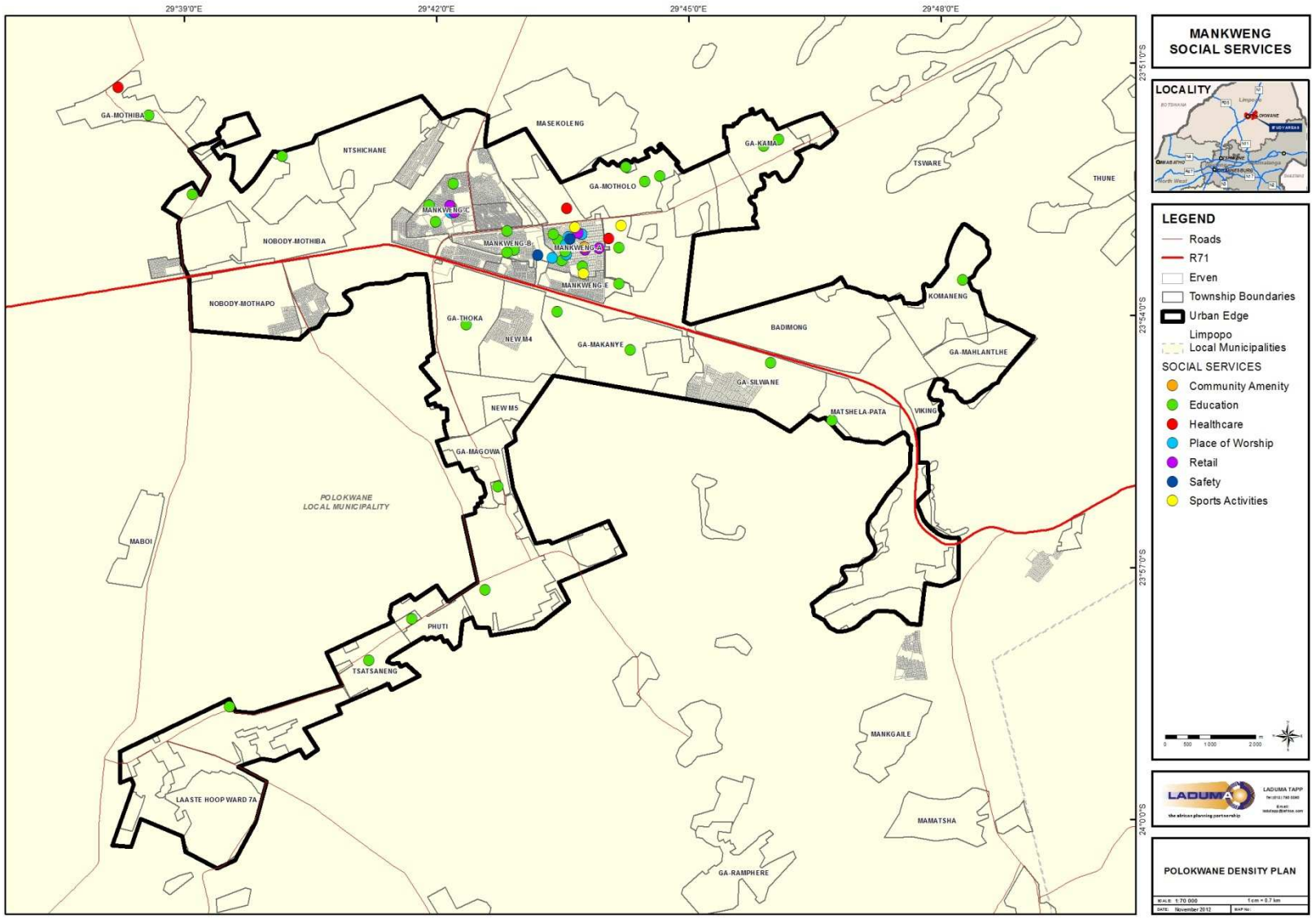
4.6.2.2.3.4.4 Public Transport

The majority of public transport infrastructure is located to the eastern part of Mankweng around the greater business and university precinct. Substantial investment is required to provide a sufficient public transport system towards the west and north of greater Mankweng. (ARUP, 2010)

4.6.2.2.3.4.5 Social Services

Demand exists for the following social facilities: library, community centre, secondary school, sport fields, primary school. (ARUP, 2010) The distribution and availability of existing social services facilities in Mankweng is illustrated on MAP 4-19. The highest concentration of social services facilities occur in the area adjacent and to the west of the University of the North, which provides an ideal opportunities to allow for further densification in this residential area.

MAP 4-19 Social Services Facilities Mankweng



4.6.2.3 Sebayeng

4.6.2.3.1 Demographic profile

The population residing in the Sebayeng area has a low income (average of R3031.6/month). Sebayeng is predominantly a residential area.

Table 4-32 : Sebayeng Demographic Profile

Classification	Municipal Growth Point
Population	44 117
Households	11 360
Percentage Earning Income	83.10%
Weighted Average Income (HH earning income)	R36378.6/annum R3031.6/month
Dominant Land Uses	Residential Subsistence Farming Vacant/unspecified
Desired Land Use Patterns	General Business, Retail, Office Service Related Business Local business Urban residential –single and high density Tourism attractions and museums Short-stay accommodation General recreation and entertainment Community Facilities Service Industries Light industrial, manufacturing, commercial and warehousing
Location Ratings	Residential –74.1% Retail –73.5% Office –67.8% Industrial –67.5%

Source: (Demacon Market Studies, 2010)

4.6.2.3.2 Economic activity nodes

This township is located 30 km to the north-east of the Polokwane CBD and is a less formal and far younger urban area than Mankweng. The Sebayeng area is relatively underdeveloped and has vast tracks of vacant land.

Sebayeng and the surrounding area is characterised by residential uses, subsistence farming and vacant/ unspecified uses. Towards the north there are also some portions of cultivated land.

Agriculture occurs towards the South East edge. Growth potential could occur towards the North West edge. There are three existing areas of retail activity occurring within this node. These should be linked along major roads and reinforced to great opportunity for socio economic development. There is vacant land along these connections which would allow for further densification and growth.

It is important that a growth centre be identified in this area due to the fact that the area is predominantly underdeveloped with no industrial development or urbanisation. The settlement areas are situated far from the R81 route, and only a few townships area formalised, namely Sebayeng A, B, C and D. Access to the main road is restricted by the existing railway line therefore limited future direct access onto the main route.

Sebayeng functions predominantly as a rural area which implies that there will be no demand for future densification within the existing areas. The development focus will be on the upgrading of the existing areas and attending to the rural development needs.

Within the existing formalised towns situated in Sebayeng, the following is noted from the Polokwane NDPG development framework:

- ✓ Sebayeng and the surrounding area is characterised by residential uses, subsistence farming and vacant/ unspecified uses. Towards the north there are also some portions of cultivated land.
- ✓ Agriculture occurs towards the South East edge.
- ✓ Growth potential could occur towards the North West edge.
- ✓ There are three existing areas of retail activity occurring within this node. These should be linked along major roads and reinforced to create opportunity for socio economic development. There is vacant land along these connections which would allow for further densification and growth

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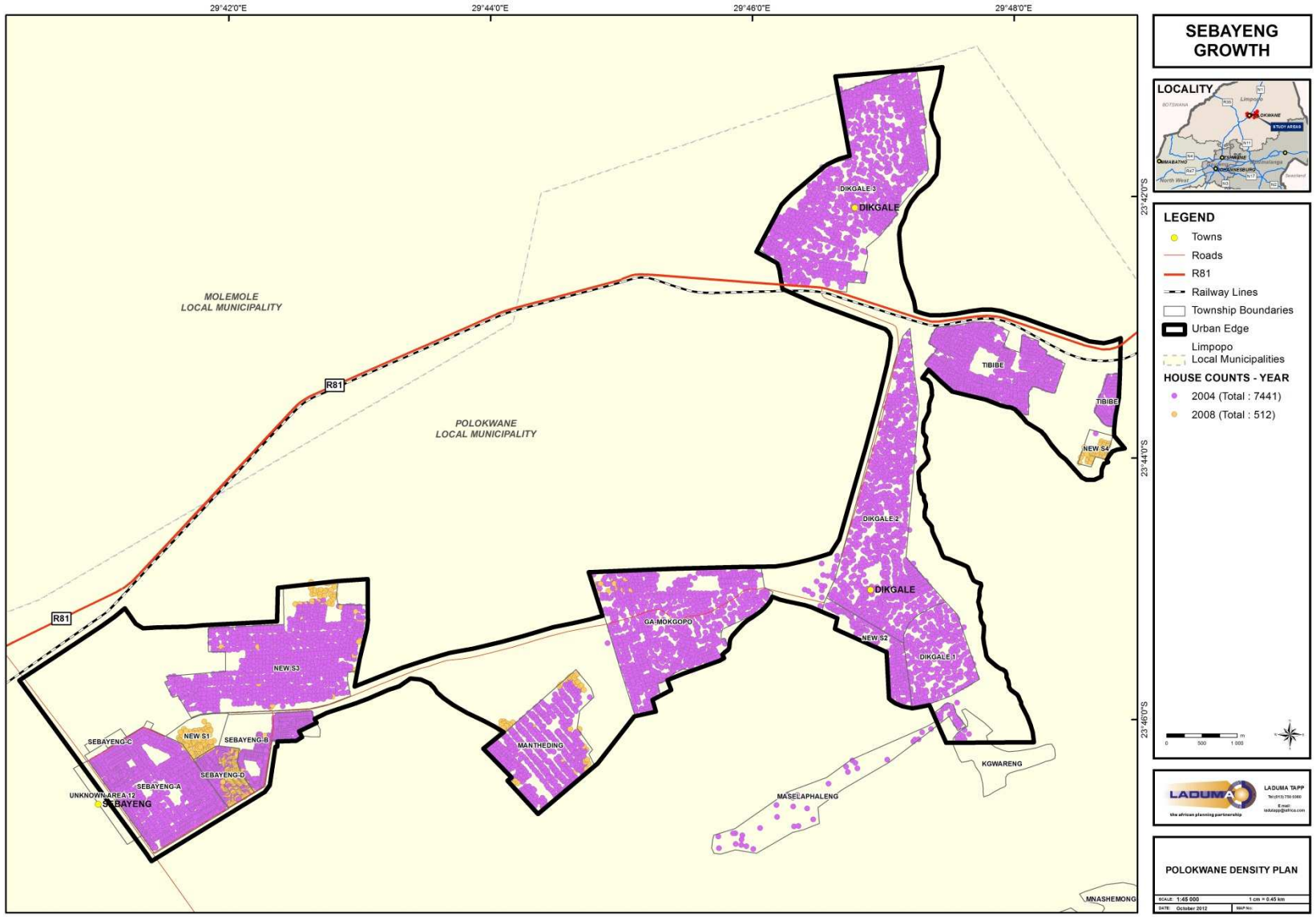
4.6.2.3.3 Residential areas

4.6.2.3.3.1 Distribution of residential areas

A spatial analysis of the growth areas surrounding Sebayeng area revealed the following **(see MAP 4-20):**

- ✓ Sebayeng grew at a very low rate of 0.04, from 7441 houses in 2003 to 7953 houses in 2008.
- ✓ Sibayeng D experience an increase of approximately 345 houses, situated east of Sibayeng.
- ✓ Other new houses established throughout the area, but not clustered in a particular area.

MAP 4-20 Growth - Sebayeng



4.6.2.3.3.2 Densities

4.6.2.3.3.2.1 Gross densities

Sebayeng has a gross density of 4.05 dwelling units per hectare. **(See Table 4-33).** A total number of 7 953 houses were counted, covering a total area of 2140 ha.

Table 4-33 Sebayeng Existing Gross Density

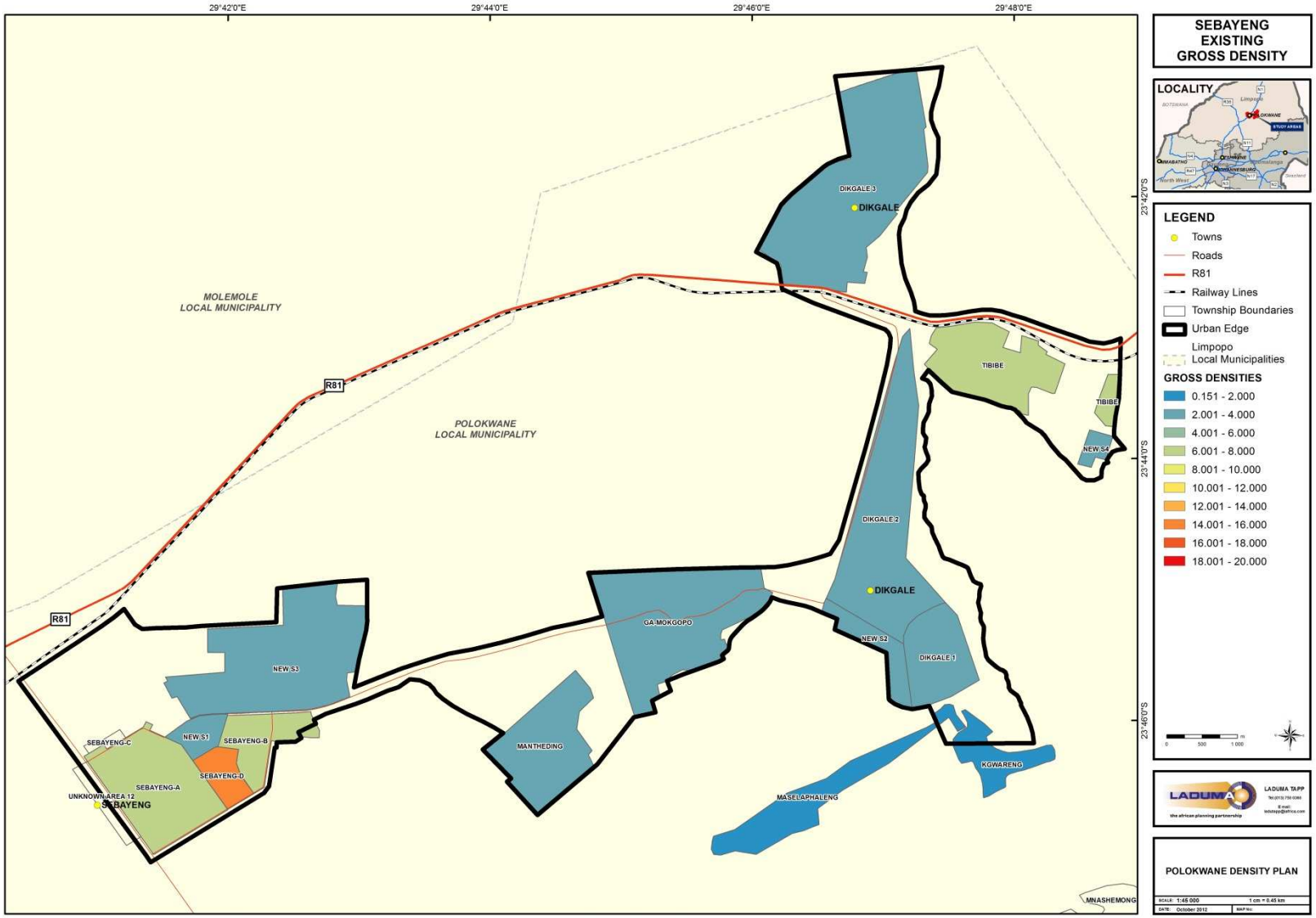
Existing Gross Density - Sibayeng			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Outside	41	0.00	0.00
Kgwareng	9	59.36	0.15
Maselaphaleng	52	115.96	0.45
Dikgale 1	251	99.65	2.52
Dikgale 2	786	278.84	2.82
Dikgale 3	1094	363.05	3.01
Ga-Mokgopo	828	274.66	3.01
New S3	988	293.55	3.37
Mantheding	512	148.75	3.44
New S2	166	45.84	3.62
New S1	113	29.61	3.82
New S4	54	13.99	3.86
Sebayeng-A	1076	177.78	6.05
Sebayeng-B	504	71.72	7.03
Tibibe	945	130.74	7.23
Sebayeng-D	534	36.84	14.50
Total/Average	7953	2140.34	4.05

The settlement area known as Kgwareng has the lowest gross density (0,15 units per hectare) and Sebayeng-D has the highest gross density at 14,5 units per hectare. It is important to take note that Sebayeng A, Sebayeng B and Sebayeng D are the only formalised townships in this planning area.

The existing gross density for Sebayeng A (7.03 units per hectare) and Sebayeng B (7.23 units per hectare) and Sebayeng D (14.05 units per hectare) include stands that are larger than 1000m² that has an effect on the actual gross density.

A map indicating the existing gross density of residential units in Sebayeng is attached as **MAP 4-21.**

MAP 4-21 Sebayeng Gross Density



4.6.2.3.3.2.2 Net densities

The net density in Sebayeng area is indicated in Table 4-34 below.

Table 4-34 Sebayeng Net Density

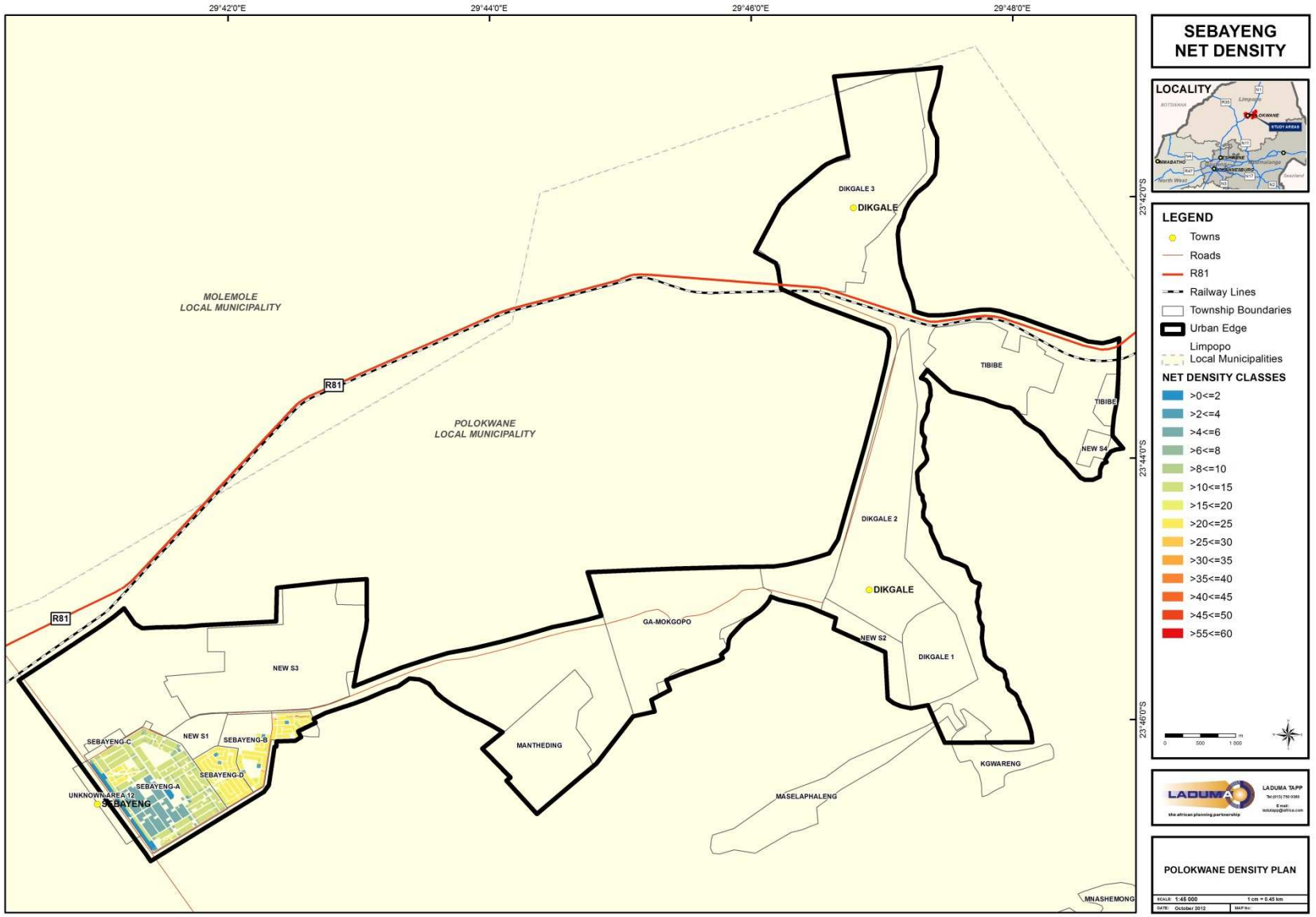
Sebayeng Existing Net Density			
Density Category	**Counted Units**	**% Distribution**	**Density Class**
Low	3	0.15%	>0<=2
Low	5	0.25%	>2<=4
Low	146	7.20%	>4<=6
Low	15	0.74%	>6<=8
Low	81	3.99%	>8<=10
Low	665	32.77%	>10<=15
Low	131	6.46%	>15<=20
Medium Low	951	46.87%	>20<=25
Medium Low	11	0.54%	>25<=30
Medium Low	7	0.34%	>30<=35
Medium High	7	0.34%	>35<=40
Medium High	1	0.05%	>40<=45
Medium High	4	0.20%	>45<=50
Medium High	2	0.10%	>55<=60
TOTAL	2029	100.00%	

The net density for only the formalised township areas was determined and the following deductions could be made:

- ✓ Sebayeng A with a total number of 999 stands, has primarily a low density of between 10 to 15 units per hectare (651 stands)
- ✓ The majority of stands in Sebayeng B and Sebayeng D fall within a low medium density category of between 20 to 25 units per hectare.
- ✓ No high density developments exist in the Sebayeng area
- ✓ Less than 1% of existing residential development is of a medium to high density
- ✓ The majority of residential units in the Sebayeng area (46.87%) fall between 20 to 25 units per hectare.

A map, indicating the distribution of net density in Sebayeng is attached as **MAP 4-22.**

MAP 4-22 Sebayeng Net Density

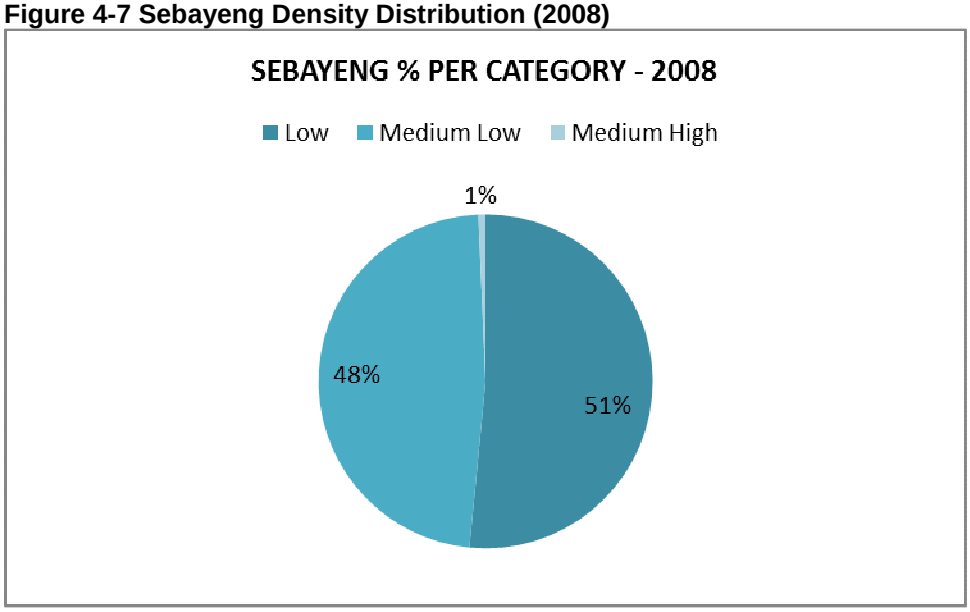


4.6.2.3.3.3 Distribution of densities

In 2008, an analysis of the density distribution for the Sebayeng Area revealed that 51% of the existing residential development falls in the density categories below 20 dwelling units per hectare.

Average net density that falls between 20 and 35 dwelling units per hectare comprise 48% which indicates a significant percentage in the Low-Medium density category. High-Medium comprise of a very low percentage, at 1% between 35 and 60 dwelling units per hectare and 0% above 85 units per hectare. The density distribution is indicated in Figure 4-7.

Figure 4-7 Sebayeng Density Distribution (2008)



4.6.2.3.3.4 Erf sizes

A total of 2030 formalised stands were counted for the Sebayeng area. These erven were categorised into different stand size categories in order to determine the average stand size. The results are reflected in Table 4-35 below.

The majority of stands (47.2%) in formalised Sebayeng fall in the category 400m² to 500m².

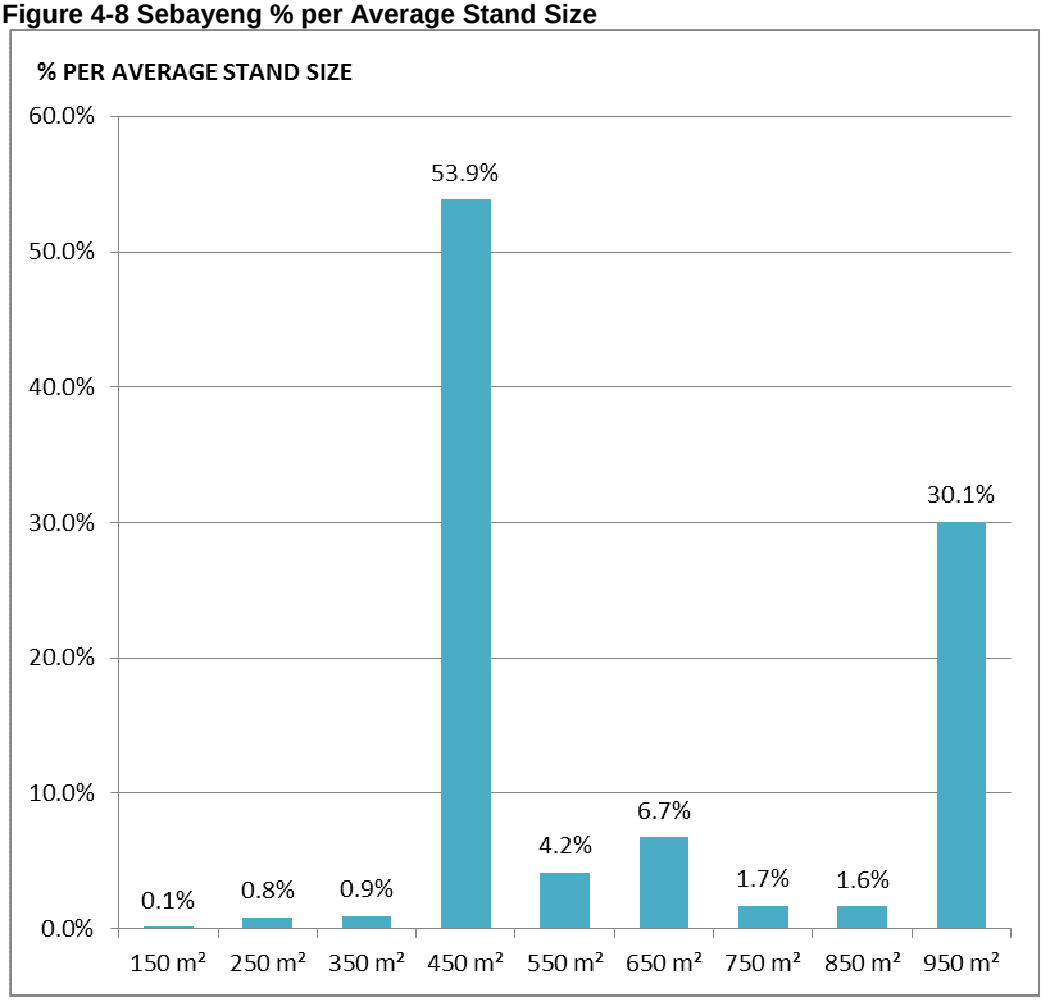
Table 4-35 Sebayeng – Existing Erf Size Categories

Townships	Erf Size Categories - Sebayeng														
	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1000	1000-5000	5000-10000	10000-20000	20000-30000	40000-50000	Grand Total
Sebayeng-A	1		4	64	23	76	23	29	535	240		1			996
Sebayeng-B	1	14	9	425	18	11	3			4	1				486
Sebayeng-D		1	3	452	33	33	4			2					528
Total Erven/Category	2	15	16	941	74	120	30	29	535	246	1	1			2010
Persentage	0.1%	0.7%	0.8%	47.2%	3.6%	5.9%	1.5%	1.4%	26.4%	12.2%	0.0%	0.0%	0.0%	0.0%	100.0%

The average stand size determined for formalised stands in Sebayeng is 626m².

The Figure 4-8 below indicates that approximately 54% of stands in Sebayeng have an average stands size of 450m² and 30% of stands average 950m².

Figure 4-8 Sebayeng % per Average Stand Size



4.6.2.3.4 Current Infrastructure Capacities in Sebayeng

4.6.2.3.4.1 Water and Sewer Systems

The roll-out of water infrastructure as well as the upgrading and provision of sewerage facilities and VIP toilets has been acknowledged in terms of the Polokwane NDPG Development Framework. Densification of existing stands will be of low priority, due to a lack of existing engineering services.

4.6.2.3.4.2 Roads and Stormwater

Sebayeng is situated along the feeder route between Mankweng, the R81 and the N1. A lower order road links the CBD of Sebayeng with Mantheding and Go-Makgopo to the east.

This east west road within Sebayeng holds great potential to develop into a substantial activity corridor. Substantial infrastructure investment is required to upgrade the road network within the larger Sebayeng precinct. (ARUP, 2010). Future densification should therefore be focussed along existing lower order roads surrounding the CBD of Sebayeng.

4.6.2.3.4.3 Electricity

The roll out of electricity infrastructure is one of the important recommendations made by the Polokwane NDPG Development Framework. (ARUP, 2010) Continual improvement of electrical services to the Sebayeng area will support the future densification of the area.

4.6.2.3.4.4 Public Transport

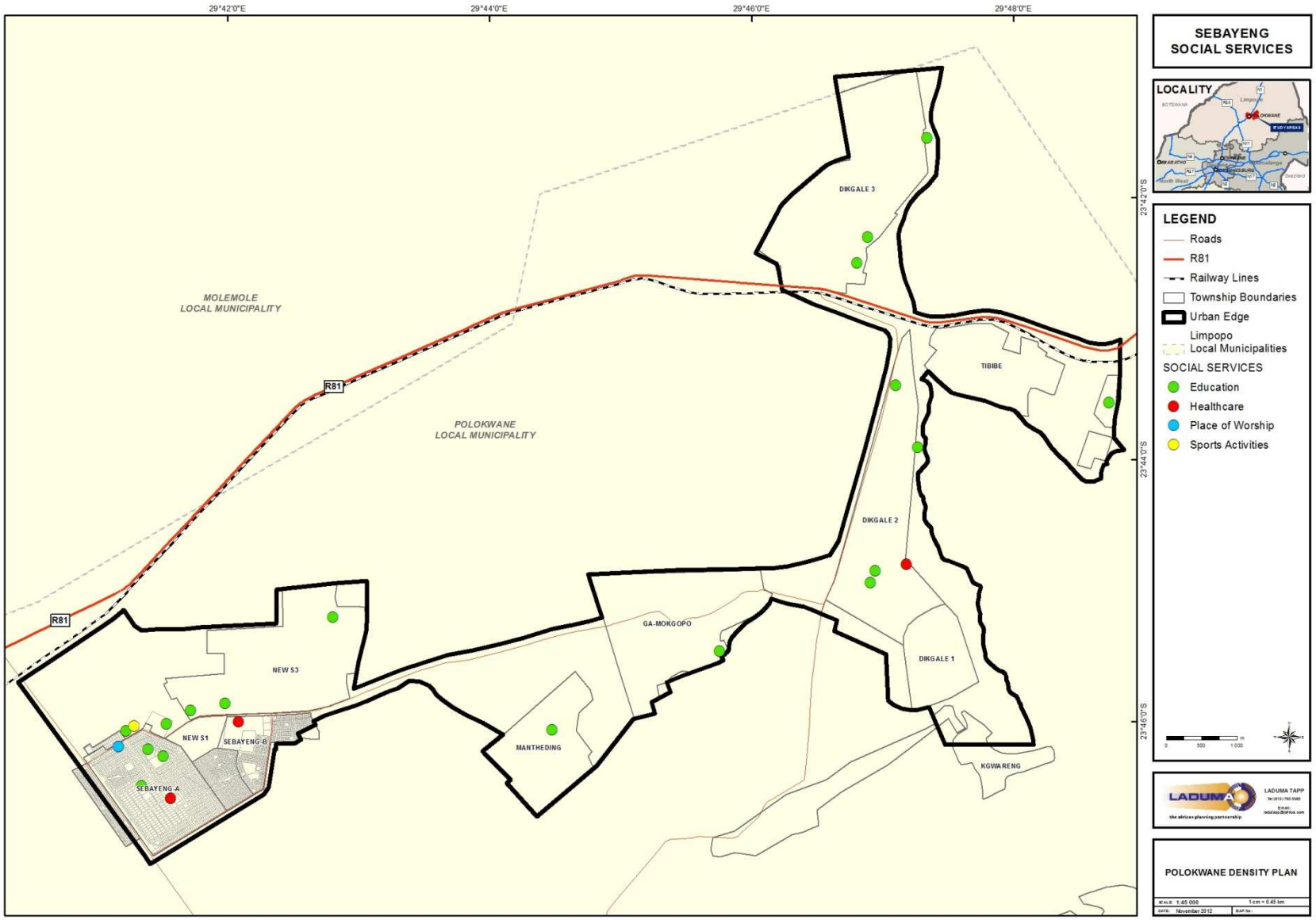
The majority of the public transport infrastructure is situated along the east west corridor of Sebayeng. The public transport infrastructure found within the adjoining precincts is completely insufficient and requires substantial investment to facilitate public transport network with access to all. (ARUP, 2010)

Thus, public transport facilities are predominantly situated along the major access route and further investment is required to provide access to public transport facilities in peripheral areas. Further densification of the areas along the major access routes can only be justified in conjunction with the upgrading of the route and the provision of public transport facilities.

4.6.2.3.4.5 Social Services

According to the Polokwane NDPG development framework, demand exists for the following social services facilities: public open space, community centre, library, sport fields, clinic, secondary school, primary school, FET College, police station and post office. The northern part of Sebayeng is residential with a lack of any social, recreational and commercial facilities. This area has the highest concentration of social amenities. This hub should be densified and more socio- economic facilities introduced, especially as the node grows and develops. (ARUP, 2010). The distribution of existing social services facilities in Sebayeng area is indicated on the map attached as MAP 4-23.

MAP 4-23 Social Services Facilities Sebayeng



5 DEVELOPMENT ISSUES

5.1 General implications

5.1.1 Policy issues

Government policies duly recognize the need for densification of urban areas in order to address the spatial legacy of apartheid where people live far from their place of work and have to travel long distances to enable them to participate in an economic system. An urban densification policy needs to challenge the apartheid geography in this regard by accepting the following complementary strategies:

- ✓ Increasing urban population density, while improving the liveability of cities by providing parks and other open spaces, and ensuring safety
- ✓ Providing more reliable and affordable public transport with better co-ordination across municipalities and between different modes
- ✓ Moving jobs and investment towards dense townships that area on the margins of cities. Building new settlements far from places of work should be discouraged, chiefly through planning and zoning regulations responsive to government

5.1.2 Locality and accessibility issues

The existing spatial distribution of the planning areas within the study area has significant implications for future densification of the areas:

- ✓ Predominantly rural areas situated within the urban edges are far from economic opportunities. Sebayeng is situated approximately 29km from Polokwane CBD. Mankweng is situated approximately 25km from Polokwane CBD. People live far from the existing work opportunities in Polokwane.
- ✓ The largest concentration of existing economic opportunities exists in the Polokwane area. Existing development and increased densities occur in the Polokwane-Seshego area which is a strong indication of increasing urbanization occurring in the Polokwane-Seshego area.
- ✓ Urban sprawl in the study area creates long travel distances with fragmented and dispersed urban and rural activity patterns. This makes it difficult to develop a viable public transport system. This has a negative impact on the mobility of poorer people, who are dependent on public transport (travel and fuel costs), and is unsustainable in an oil-constrained world.
- ✓ Better mobility and accessibility is required in order to transport people that are residing in Sebayeng and Mankweng to Polokwane-Seshego area. Road based transport (including private transport) with increased traffic congestion and carbon dioxide (CO_2) emissions has significant environmental pollution consequences.
- ✓ Mankweng and Sebayeng are situated approximately 12 km from each other, yet there is no significant economic and / or transportation link between the two areas which indicates that there is no real interaction between these two areas. These settlement areas have predominantly a residential function which is an indication that the future destiny of these areas will probably remain dormitory settlements.
- ✓ The overall gross density of the entire study area is low. The unit cost of providing the necessary infrastructure required to service low-density forms of urban development is far greater than the unit and operating cost of servicing medium to higher density from of urban development.
- ✓ Residential development in Mankweng and Sebayeng is primarily of a rural residential character (satellite townships) and is fragmented by agricultural activities. The inefficiency caused by this fragmented and low-density form of development has serious economic implications, limiting access to opportunities and causing operational inefficiencies and a wastage of supporting economic resources (both natural and built). The provision of employment opportunities closer to these areas could be considered as an alternative and in order to reduce the demand for transportation.

5.1.3 Urbanization trend

Due to a strong urbanization trend, the Polokwane / Seshego area will remain the main area to focus growth and future new development and to create job opportunities and economic growth.

It is important that built-up and urbanised areas be stimulated by providing a higher level of service infrastructure which will ensure that appropriate services are available for residential densification. The higher level of services will also attract residential settlements with the implication that certain threshold values in population be reached, to provide for higher levels of social, physical, institutional and economic services.

5.2 Planning Area specific implications

5.2.1 Polokwane-Seshego

5.2.1.1 Densities issues

5.2.1.1.1 Existing densities

Polokwane is characterized by significantly low to medium dense residential neighbourhoods. Slight increases in densities are mainly being experienced in lower income areas situated on the periphery of the City, such as the Seshego area. Such low densities along activity corridors as well as urban sprawl on the peripheral areas compromise densification.

5.2.1.1.2 Potential densities

A total number of 6488 vacant stands exist in the Polokwane-Seshego area, which represents 11% of counted stands (58 692). The existing gross density could thus be increased to 12.07 units per hectare taking into account the potential development of existing vacant stands.

Figure 5-1, 76% of all stands available in Polokwane have been developed. Medium residential stands represent 5% and informal houses 8% of the total stand count in Polokwane.

The Polokwane – Seshego area thus has an existing potential gross density of 12.07 units per hectare as depicted in Table 5-1 below.

Table 5-1 Polokwane-Seshego Potential Gross Density

Potential Gross Density - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Outside Township	188	0.00	0.00
Pietersburg X30	26	74.20	0.35
Unknown Area 4	130	134.65	0.97
Bendor X89	11	8.53	1.29
New P3	107	67.29	1.59
Bendor X76	2	1.06	1.89
Seshego-9a X3	36	16.79	2.14
Pietersburg X6	160	71.08	2.25
Pietersburg	774	340.30	2.27
New P5	327	118.90	2.75
Pietersburg X4	271	91.67	2.96
Seshego-F X1	2	0.66	3.03
Bendor (W)	40	12.58	3.18
Seshego-9d	63	19.80	3.18
Kgohlwane	688	195.08	3.53
Pietersburg X7	261	72.28	3.61
Mokgokong	578	159.86	3.62
Bendor X38	33	8.56	3.85
Annadale	582	140.04	4.16
Bendor X77	36	8.57	4.20
Pietersburg X14	7	1.61	4.36
Bloedrivier	1100	234.77	4.69
Welgelegen	154	32.21	4.78
New P8	546	111.26	4.91
Welgelegen (N)	82	16.34	5.02
Seshego-F	487	96.48	5.05
New P1	246	48.01	5.12
Bendor	852	162.69	5.24
Pietersburg X11	3581	680.43	5.26
Ivypark (E)	118	22.37	5.27
Nirvana	273	51.15	5.34
New P6	350	64.14	5.46
Bendor X120	466	82.90	5.62
Bendor 110	56	9.94	5.63
Bendor X88	48	8.30	5.78
Pietersburg X28	719	120.67	5.96

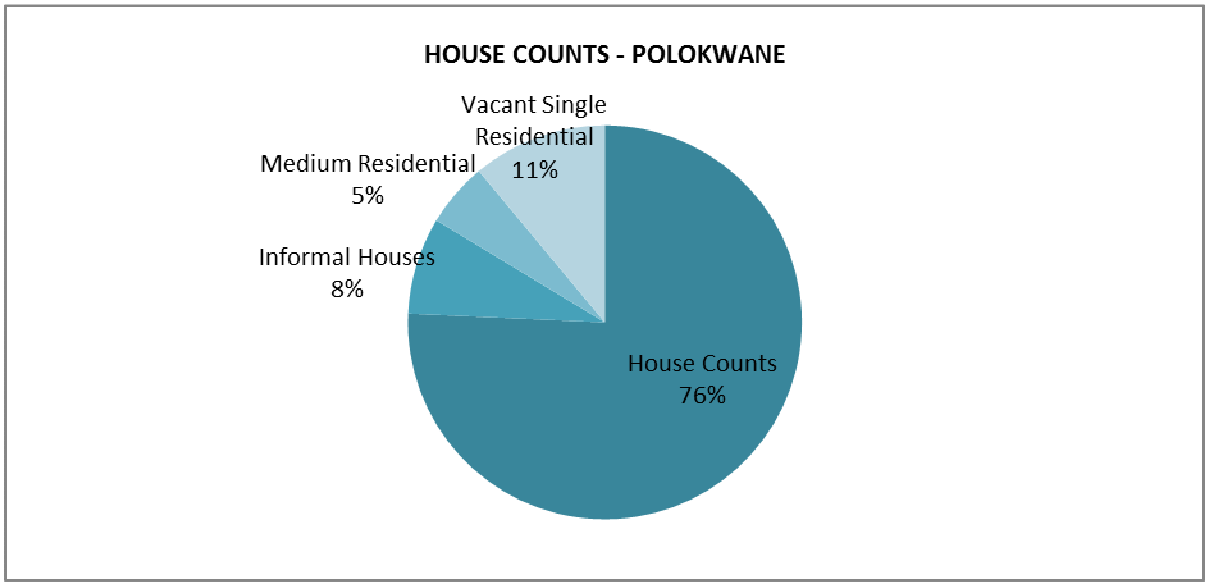
Potential Gross Density - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
New P2	831	138.19	6.01
Seshego-9c	100	16.24	6.16
Bendor X7	58	9.38	6.19
Unknown Area 6	414	66.81	6.20
Bendor X8	101	15.78	6.40
Seshego-9b	72	11.05	6.51
Bendor X68	45	6.74	6.68
Nirvana X1	415	60.55	6.85
Seshego-E X5	168	24.05	6.99
Bendor X92	139	19.84	7.01
Seshego-9e X1	57	8.11	7.03
Bendor X72	83	11.35	7.31
Bendor X 87	314	42.88	7.32
Bendor X91	118	16.04	7.36
Ivypark	140	18.94	7.39
Perskebult	5172	698.48	7.40
Welgelegen X4	66	8.57	7.70
Bendor X30	66	8.57	7.71
Peninapark	412	53.34	7.72
Seshego-H	1425	183.95	7.75
Seshego-D	1364	174.47	7.82
Bendor X95	147	18.20	8.08
Bendor X 78	68	8.30	8.19
Nirvana X2	76	9.26	8.20
Bendor X94	178	21.37	8.33
Bendor X35	72	8.58	8.39
Bendor X10	94	10.96	8.58
Bendor X97	124	14.37	8.63
Bendor X74	29	3.31	8.77
Bendor X63	26	2.96	8.79
Seshego-E X4	358	40.28	8.89
Bendor X16	51	5.63	9.06
Seshego-9a X2	56	6.00	9.33
Westenburg	624	65.82	9.48
Seshego-9f	35	3.65	9.58
Bendor X101	604	60.77	9.94
Seshego-F (S)	383	38.48	9.95
Ivypark X32	98	9.81	9.99
Seshego-A	1934	189.42	10.21
Bendor X64	44	4.25	10.34
Bendor X82	84	8.01	10.49
Seshego-E X1	326	30.94	10.54

Potential Gross Density - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Bendor X80	182	17.14	10.62
Seshego-B	1956	181.94	10.75
Bendor X84	225	19.93	11.29
Seshego-9h	207	18.20	11.37
Polokwane X71	1503	130.25	11.54
Bendor X11	111	9.43	11.77
Seshego-C	2077	175.36	11.84
New P4	786	63.72	12.34
Polokwane X79	494	39.38	12.54
Bendor X20	17	1.35	12.63
Bendor X53	34	2.62	12.98
Annadale X 2	212	16.31	13.00
Polokwane X76	1317	100.73	13.07
Seshego-9g	404	30.71	13.15
Welgelegen X1	192	14.52	13.22
Bendor X75	101	7.51	13.45
Seshego-E	712	51.92	13.71
Seshego-9f X4	46	3.34	13.78
Seshego-D X2	37	2.68	13.80
Nirvana X3	291	20.85	13.96
Ivypark X9	88	6.29	13.98
Seshego-D X1	164	11.67	14.06
Bendor X22	29	2.05	14.13
Bendor X 85	122	8.57	14.24
Bendor X17	169	11.87	14.24
Bendor X 81	63	4.34	14.53
Bendor X32	60	4.07	14.75
Pietersburg X33	60	4.06	14.78
Seshego-9f X1	54	3.65	14.80
Seshego-9e	69	4.62	14.94
New P7	489	32.31	15.13
Seshego-9f X5	27	1.78	15.21
Seshego-9f X2	24	1.57	15.29
Bendor X12	91	5.91	15.41
Seshego-9f X3	52	3.37	15.42
Bendor X45	73	4.66	15.67
Seshego-9e X4	61	3.84	15.89
Bendor X44	135	8.45	15.98
Seshego-9a	116	7.14	16.25
Pietersburg X36	49	3.00	16.33
Seshego-9a X1	65	3.96	16.43
Bendor X62	59	3.58	16.49

Potential Gross Density - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Pietersburg X29	351	21.13	16.61
Seshego-E X3	316	18.94	16.68
Bendor X18	81	4.81	16.84
Seshego-9e X3	49	2.91	16.87
Bendor X23	85	5.02	16.95
Seshego-A X1	733	43.21	16.97
Pietersburg X44	1697	99.57	17.04
Pietersburg X65	538	31.50	17.08
Seshego-9e X2	71	4.13	17.19
Pietersburg X35	51	2.96	17.24
Pietersburg X34	49	2.84	17.26
Bendor X56	59	3.36	17.54
Seshego-E X6	216	12.07	17.90
Seshego-9k	45	2.50	18.01
Ivypark X34	217	11.97	18.12
Bendor X19	33	1.80	18.29
Seshego-9a X4	108	5.89	18.34
Bendor X24	34	1.85	18.36
Pietersburg X61	190	10.30	18.45
New Pietersburg	4163	224.22	18.57
Peninapark X2	140	7.40	18.91
Seshego-9a X5	134	7.05	19.02
Peninapark X1	163	8.56	19.04
Seshego-A X2	504	26.45	19.05
Bendor X25	28	1.44	19.40
Seshego-9l	1070	55.13	19.41
Bendor X70	76	3.91	19.46
Pietersburg X37	35	1.80	19.48
Ivypark X17	210	10.78	19.49
Ivypark X22	242	12.19	19.86
Seshego-9k X 1	136	6.78	20.06
Seshego-E X2	503	25.07	20.06
Bendor X26	75	3.72	20.14
Seshego-9j	144	7.12	20.22
Westenburg X2	235	11.62	20.22
Seshego-9b X1	82	4.03	20.33
Westenburg X1	99	4.87	20.35
Bendor X21	50	2.42	20.64
Ivypark X21	182	8.57	21.23
Seshego-9b X2	63	2.95	21.36
Ivypark X20	183	8.56	21.37
Pietersburg X38	35	1.63	21.42

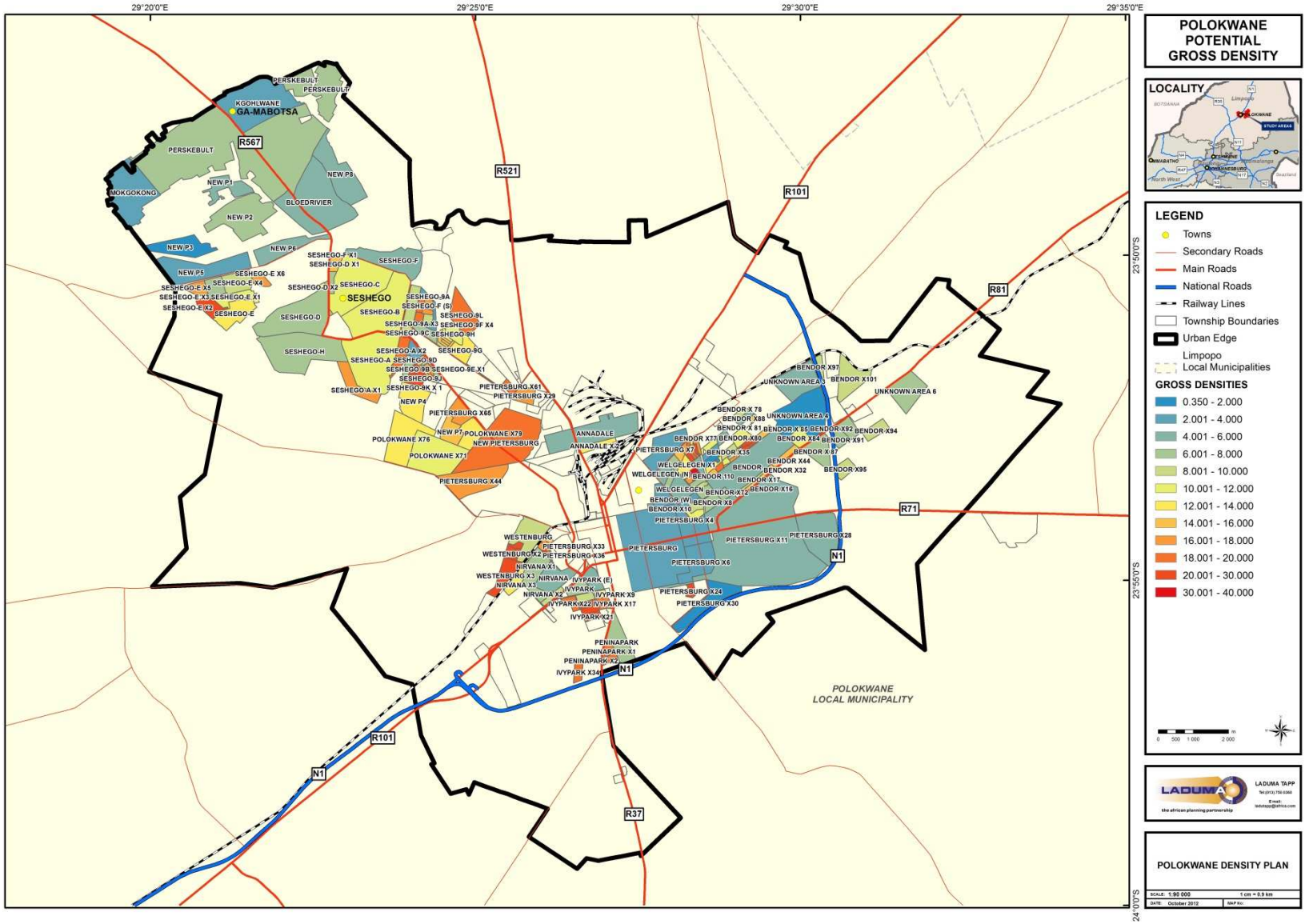
Potential Gross Density - Polokwane			
Township Name	**Count / Township**	**Township Area (Ha)**	**Gross Density**
Ivypark X19	181	7.96	22.75
Bendor X51	135	5.86	23.05
Pietersburg X24	197	7.93	24.84
Westenburg X3	963	37.81	25.47
Bendor X52	132	5.08	25.99
Bendor X55	105	3.43	30.58
Bendor X54	110	3.12	35.21
Total	**58692**	**7291.67**	**12.07**

Figure 5-1 House Counts including Vacant Stands - Polokwane



A map indicating the potential gross density for Polokwane-Seshego is attached as **MAP 5-1.**

MAP 5-1 Potential Gross Density – Polokwane



5.2.1.1.2.1 Projection of density distribution

Three (3) scenarios are herewith sketched for future distribution of densities and the impact on the future land requirements in the Polokwane-Seshego Area. It is depicted in **Table 5-2**, **Table 5-3** and **Table 5-4** below.

5.2.1.1.2.1.1 Scenario 1 – Continue at existing density distribution

Scenario 1 sketches the impact on the future land requirement should the current density distribution remains over the next 15 years. It shows that the projected number of units in the low and low-medium categories (85 912) remaining at 98% of the total distribution.

This scenario will result in a future land requirement of 1697 hectares in the Polokwane-Seshego area to provide for residential development at densities of below 35 units per hectare. It will mean that the objective of densification will not be reached and land as scarce resource will be exploited in order to provide in the future demand for residential development.

Table 5-2 Scenario 1: Polokwane-Seshego Existing and Projected Density Distribution

Polokwane-Seshego Existing And Projected Density Distribution (Existing Distribution) (Scenario 1)						
Year	**Density Category**	**Low**	**Low Medium**	**High Medium**	**High**	**Total/ Projected**
	@ DENSITY	**20u/Ha**	**35u/Ha**	**60u/Ha**	**85u/Ha**	
2008	Units	16747	23825	853	6	41431
	% Per Category	40	58	2	0	100
2017	Projected Distribtuion (% Per Category)	40.42	57.51	2.06	0.01	100
	Projected Units	25615	36441	1305	9	63370
	Land Required (Ha)	443	360	8	0	811
2022	Projected Distribtuion (% Per Category)	40.42	57.51	2.06	0.01	100
	Projected Units	30313	43125	1544	11	74994
	Land Required (Ha)	235	191	4	0	430
2027	Projected Distribtuion (% Per Category)	40.42	57.51	2.06	0.01	100
	Projected Units	35462	50450	1806	13	87732
	Land Required (Ha)	257	209	4	0	471
	Total Land Required(Ha)	936	761	16	0	1712

5.2.1.1.2.1.2 Scenario 2 – Reducing lower density distribution

Scenario 2 sketches the impact on the future land requirement should the current lower density distribution be reduced over the next 15 years. At a reduced percentage, it shows that the projected number of units in the low and low-medium categories (65 839) could be reduced to 27% of the total distribution by 2027. The projected demand for residential development by 2027, namely 87 732 residential units could then be provided by 13% (that is 11 374 units) at high-medium densities and 11,9% (that is 10480 units) at densities higher that 85 units per hectare.

This scenario will result in a future land requirement of 575 hectares in the Polokwane-Seshego area to provide for residential development at densities of below 35 units per hectare. Compare to scenario 1, the overall land requirement to accommodate the projected growth could be reduced to 1179 hectares that is 533 hectares less land required. Scenario 2 is depicted in **Table 5-3** below.

Table 5-3 Scenario 2: Polokwane-Seshego Existing and Projected Density Distribution

Polokwane-Seshego Existing And Projected Density Distribution (Scenario 2)						
Year	**Density Category**	**Low**	**Low Medium**	**High Medium**	**High**	**Total/ Projected**
	Density	**20u/ha**	**35u/ha**	**60u/ha**	**85u/ha**	
2008	Units	16747	23825	853	6	41431
	% Per Category	40.42	57.51	2.06	0.014	100
2017	Projected Distribtuion (% Per Category)	33.7	52.5	7.2	7.0	100
	Projected Units	21357	33290	4590	4436	63370
	Land Required (Ha)	230	270	62	52	615
2022	Projected Distribtuion (% Per Category)	30.5	50.0	10.2	9.8	100
	Projected Units	21703	35592	7237	6995	71244
	Land Required (Ha)	17	66	44	30	157
2027	Projected Distribtuion (% Per Category)	27.5	47.5	13.0	11.9	100
	Projected Units	24158	41681	11374	10480	87732
	Land Required (Ha)	123	174	69	41	407
	Total Land Required(Ha)	371	510	175	123	1179

5.2.1.1.2.1.3 Scenario 3 – Increasing higher density distribution

Scenario 3 sketches the impact on the future land requirement should the distribution of density remain to a great extent unchanged up to 2017 where after the distribution to higher density be increased up to 2027(over a 10 year period). This scenario illustrates that by 2027, 16% of the density distribution could be catered for in the high-medium density category (between 60 and 85 units per hectare) and 17% at densities higher that 85 units per hectare. At these increased percentages, it shows that the projected number of units in the high-medium to high density categories could increase to 28 951 units (in total 33% of the total distribution) by 2027.

Compared to Scenario 1 and 2, the projected demand for residential development by 2027, namely 87 732 residential units could then be provided on less land (970 hectare). Scenario 3 is depicted in **Table 5-4** below.

Table 5-4 Scenario 3: Polokwane-Seshego Existing and Projected Density Distribution

Polokwane-Seshego Existing And Projected Density Distribution (Scenario 3)						
Year	**Density Category**	**Low**	**Low Medium**	**High Medium**	**High**	**Total/ Projected**
	Density	**20u/ha**	**35u/ha**	**60u/ha**	**85u/ha**	
2008	Units	16747	23825	853	6	41431
	% Per Category	40.42	57.51	2.06	0.01	100
2017	Projected Distribution (% Per Category)	40	56	3	1	100
	Projected Units	25348	35487	1901	634	63370
	Land Required (Ha)	430	333	17	7	788
2022	Projected Distribution (% Per Category)	32	50	10	8	100
	Projected Units	23998	37497	7499	5999	74994
	Land Required (Ha)	-68	57	93	63	146
2027	Projected Distribution (% Per Category)	22	45	16	17	100
	Projected Units	19301	39479	14037	14914	87732

Polokwane-Seshego Existing And Projected Density Distribution (Scenario 3)						
Year	**Density Category**	**Low**	**Low Medium**	**High Medium**	**High**	**Total/ Projected**
	Land Required (Ha)	-235	57	109	105	36
	Total Land Required(Ha)	128	447	220	175	970

Figure 5-2 illustrates comparison of the percentage (%) distribution between the density categories over the next 15 years.

Figure 5-2 Projection at Current Density Distribution

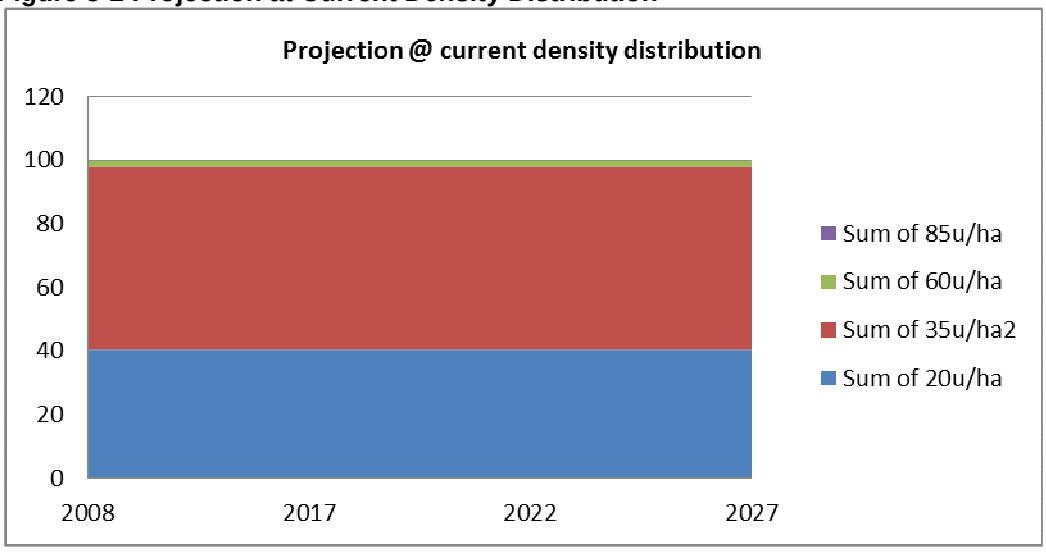


Figure 5-3 Projection at Decreasing of Lower Densities

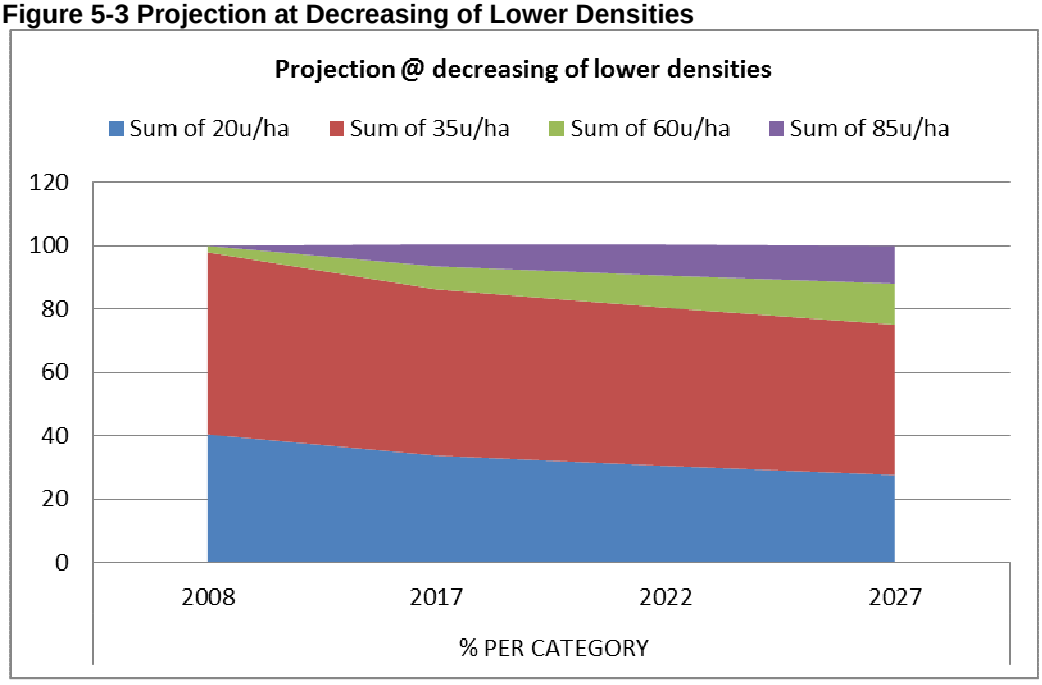
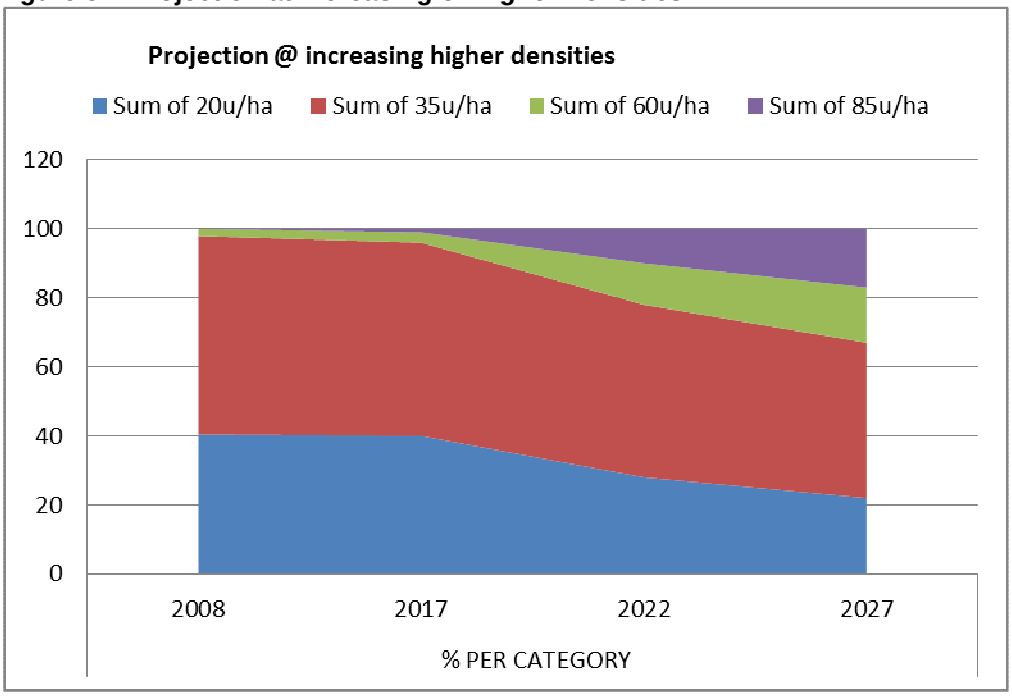


Figure 5-4 Projection at Increasing of Higher Densities



5.2.1.2 Spatial implications

The following spatial issues with specific reference to the Polokwane-Seshego area are noteworthy:

- ✓ The City is currently unsustainable in terms of its current spatial morphology.
- ✓ The influx of new housing units in the northern and north western parts of Seshego due to increasing urbanization and population migration are mainly un-formalised and lead to unwanted urban sprawl.
- ✓ The growing urban population place additional demand for facilities for social and cultural use, such as community centres, and personal and community development, such as resource centres, that will be available within the wider community. Particular community facilities that should be provided with increased population growth and densities, include:
  - o Schools
  - o Childcare
  - o Community Centres
  - o Healthcare facilities
  - o Neighbourhood centre uses
- ✓ Existing school sites within the CBD and extension areas should be retained for the development of social / educational facilities in order to provide for the future demand which will result from densification.
- ✓ Inappropriate and unsustainable residential development will result in the inefficient use of land as a scarce resource.
- ✓ There has been a long term trend of people travelling to work by cars and busses, due to long travelling distances as well as a lack of public transport services within existing neighbourhoods that is not contributing towards the creation of a sustainable city.
- ✓ The CBD and immediate CBD extension areas have the potential for the creation of sustainable patterns of development.
- ✓ The projected increase of population within Polokwane City and its city centre can assist in the regeneration of the area.
- ✓ Limited affordable housing is provided in the inner city.
- ✓ Lack of opportunity for alternative modes of travel such as walking, cycling and public transport.
- ✓ Accessibility and the provision of public transportation services to residential suburbs in close proximity to the CBD, such as Annadale, etc. are insufficient and therefor compromising densification opportunities.

- ✓ The Mall of the North offers an important nodal development which can stimulate growth. New residential development surrounding the Mall is of relative medium densities, however many opportunities to fast track development surrounding the Mall have yet to be exploited.
- ✓ Many established residential areas has been developed to the full and has no more opportunity for further densification. These areas should not be considered for further densification.
- ✓ Many inner suburbs contain large houses on relatively extensive sites whose conversion to multiple dwellings without a dramatic alteration in the public character of the area is achievable.
- ✓ Well-designed open space is more important in higher density residential developments. Existing open spaces in the CBD area will become under pressure for development. The functionality of existing open spaces should be properly assessed in order to encourage its use for recreational purposes.
- ✓ The development potential for Seshego is limited to a retail centre, office component, and light industrial / warehousing and residential development of approximately 1200 erven. To cater for this potential Demacon Market Studies estimated that approximately 74 hectare land will be required, which include for the provision of social facilities in Seshego (Demacon Market Studies, 2010)

Table 5-5 Seshego Development Potential / Land use budget

Land Use	Size/Number	Land Requirement (ha)
Economic Uses		
Retail Centre (m2/GLA)	20000 to 25 000	7.5
Office Component (m2/GLA)	11 200	3.4
Light industrial/warehousing (m2/GLA)	50 000	15
Residential	1 200	25.5
Social Facilities		
Secondary School	6	6
Clinic	13	2.6
Day Hospital	11	5.5
Community Centre	4	2
Police Station	3	0.9
Sport Stadium	1	3
Library	10	0.1
Fire station	2	2.4
Post Office	9	0.2
Total		74

Source: (Demacon Market Studies, 2010)

5.2.2 Mankweng

5.2.2.1 Densities issues

5.2.2.1.1 Existing densities

Mankweng is characterized by primarily low density un-formalised settlements. These settlements, although situated within the urban edge, are predominantly rural in nature and situated far from transport / activity corridors. These settlement areas pose challenges with regard to the provision of adequate services in order to uplift the quality of life of people residing in these areas.

5.2.2.1.2 Spatial implications

The following spatial issues have a direct implication on the future densification of Mankweng and needs to be taken into account in developing a densification concept plan:

- ✓ Mankweng functions as a regional growth point in terms of the Settlement Hierarchy determined. The current scale and form of development found in Mankweng should therefore be appropriate to its position in terms of a regional growth centre.
- ✓ The current shape and form of the Mankweng area follows the boundaries of the existing urbanized settlements and small towns or villages situated in close proximity to the main centre. Smaller villages cannot effectively access the employment centre due to its localities far from exiting activity/ transport corridors.
- ✓ The majority of people residing in the Mankweng area are at low income levels. The current layout of Mankweng cannot effectively cater for pedestrians and cyclists. The employment centre is not easy accessible to all residents.
- ✓ New interventions such as the creation of new streets or infill redevelopment should be identified in order to make optimum use of the existing transport corridor and to create greater mobility.
- ✓ New residential development will be necessary in order to accommodate future growth. However, new residential development may give rise to additional requirements which might spark the need to strengthen existing functions in Mankweng such as the need for additional retail capacity.
- ✓ Mankweng, which is accepted as a district or regional growth point also provides services to the Sebayeng/Dikgale area and has a population above 100 000 people, which justifies another such centre.
- ✓ Planning for new development either by means of infill development, identified brownfield sites or new green field development should be phased in line with the availability of essential social and community infrastructure such as schools, amenities and other facilities.
- ✓ Mankweng consist of limited space for expansions along the primary activity corridor and due to the landscape character of the area it may be challenging to provide for greater connectivity between and within the planning area.
- ✓ In terms of sustainability and safety, the current transport system is lacking.
- ✓ The current street system is unattractive and does not contribute to the creation of a sense of place.
- ✓ Extensive proposals for new development, including residential development, in Mankweng cannot be considered in the absence of an adopted precinct plan.
- ✓ The current distribution of residential areas in Mankweng does not contribute to a more compact town but is posing challenges with regard to provision of water services, schools, shops, libraries, health centres, childcare facilities and other physical and social infrastructure. It is appropriate that the investment in such services is utilised properly through the prioritization of development that either re-uses brown-field development land such as central area sites or through the development of acceptable “green-field” sites at suitable locations within the immediate environs of existing transport corridor.
- ✓ No high density developments exist in the Mankweng area, therefore higher densities should be considered and properly planned as appropriate in certain locations such as current and or planned employment / retail centres near existing and/ or planned high quality public transport corridors.
- ✓ Urban growth in Mankweng has basically been in the form of the development of single homes in the widespread settlement areas. The majority of people seek to develop a house in an unserviced rural area. Options should be considered to offer lower densities in areas where services are available and within walking distance.
- ✓ The municipality has a vital role to play in encouraging development through the provision of essential services, in carrying out local planning functions and in utilizing their extensive local knowledge in identifying new development opportunities in facilitating and encouraging sustainable forms of development.
- ✓ A part of Mankweng area is situated within 30 minute travel time range from Polokwane city, whilst a greater part of the Mankweng settlements are located more remotely from the main urban centre. The transport corridors between such centres face challenges in sustaining the population and attracting development in the face of a wider process of economic restructuring of the rural economy that they traditionally depended on.
- ✓ The development potential for Mankweng is limited to a retail centre, office component, and light industrial / warehousing and residential development of approximately 2000 erven. To

cater for this potential Demacon Market Studies estimated that approximately 108 hectare land will be required, which include for the provision of social facilities. (Demacon Market Studies, 2010)

Table 5-6 Mankweng Development Potential/ Land use budget

Land Use	Size/Number	Land Requirement (ha)
Economic Uses		
Retail Centre (m2/GLA)	25 000	7.5
Office Component (m2/GLA)	15 000	4.5
Light industrial/warehousing (m2/GLA)	26 000	7.8
Residential	2 000	66.7
Social Facilities		
Clinic	19	3.8
Day Hospital	13	0.5
Community Hospital	1	1.5
Community Centre	4	2
Police Station	4	1.2
Sport Stadium	2	6
Library	12	0.2
Fire station	1	1.2
Post Office	10	0.1
Total		109

Source: (Demacon Market Studies, 2010)

5.2.3 Sebayeng

5.2.3.1 Densities issues

Sebayeng is characterized by primarily low density un-formalised settlements. These settlements, although situated within the urban edge, are predominantly rural in nature and situated far from transport / activity corridors. These settlement areas pose challenges with regard to the provision of adequate services in order to uplift the quality of life of people residing in these areas.

5.2.3.2 Spatial implications

The following spatial issues have a direct implication on the future densification of Sebayeng and needs to be taken into account in developing a densification concept plan:

- ✓ Sebayeng functions as a local growth point in terms of the Settlement Hierarchy determined. The current scale and form of development found in Sebayeng should therefore be appropriate to its position in terms of a local growth centre.
- ✓ The current shape and form of the Mankweng area follows the boundaries of the existing urbanized settlements and small towns or villages situated in the surrounding area. These widespread smaller villages cannot effectively access the employment centre due to its localities far from exiting activity/ transport corridors.
- ✓ The majority of people residing in the Sebayeng area are at low income levels. The current layout of Sebayeng planning area cannot effectively cater for pedestrians and cyclists. The employment centres is not easy accessible to all residents.
- ✓ New interventions such as the creation of new streets or infill redevelopment should be identified in order to make optimum use of the existing transport corridor and to create greater mobility.
- ✓ New residential development will be necessary in order to accommodate future growth. However, new residential development may give rise to additional requirements which might spark the need to strengthen existing functions in Sebayeng such as the need for additional retail capacity.

- ✓ Planning for new development either by means of infill development, identified brownfield sites or new green field development should be phased in line with the availability of essential social and community infrastructure such as schools, amenities and other facilities.
- ✓ Sebayeng consist of adequate space for expansions towards the primary transport corridor.
- ✓ The location of the railway line could impede development directly adjacent to the road, but should be carefully planned. Existing connectivity between and within the planning area is not contribution towards a compact city
- ✓ In terms of sustainability and safety, the current transport system is lacking.
- ✓ The current street system is unattractive and does not contribute to the creation of a sense of place.
- ✓ Extensive proposals for new development, including residential development, in Sebayeng cannot be considered in the absence of an adopted precinct plan.
- ✓ The current distribution of residential areas in Sebayeng does not contribute toward a sustainable settlement and is posing challenges with regard to provision of water services, schools, shops, libraries, health centres, childcare facilities and other physical and social infrastructure. It is appropriate that the investment in such services is utilised properly through the prioritization of development that either re-uses brown-field development land such as central area sites or through the development of acceptable "green-field" sites at suitable locations within the immediate environs of existing transport corridor.
- ✓ No high density developments exist in the Sebayeng area, therefore higher densities should be considered and properly planned as appropriate in certain locations such as current and or planned employment / retail centres near existing and/ or planned high quality public transport corridors.
- ✓ Urban growth in Sebayeng has basically been in the form of the development of single homes in the widespread settlement areas. The majority of people seek to develop a house in an unserviced rural area. Options should be considered to offer lower densities in areas where services are available and within walking distance.
- ✓ The municipality has a vital role to play in encouraging development through the provision of essential services, in carrying out local planning functions and in utilizing their extensive local knowledge in identifying new development opportunities in facilitating and encouraging sustainable forms of development in the Sebayeng area.
- ✓ Sebayeng area is situated within 30 minute travel time range from Polokwane city, whilst a greater part of the Sebayeng settlements are located more remotely from the main urban centre. The transport corridors between such centres face challenges in sustaining the population and attracting development in the face of a wider process of economic restructuring of the rural economy that they traditionally depended on.
- ✓ Settlements area surrounded by agriculture activities and future development and densification of the area should take cognizance of the protection of agricultural land for food supply for a growing population and to cater for people in subsistence farming.
- ✓ The area is experiencing limited growth and it will be difficult to promote economic growth in this area.
- ✓ As urbanization towards the major growth centre continues to take place, it is only expected that population figures within the urban edge of Sebayeng area will grow at a low rate and it may even slowly decrease over the next couple of years.
- ✓ There exists therefore limited potential for Sebayeng to expand, however it is possible that densification of these settlements could be considered.
- ✓ The development potential for Sebayeng is limited to a retail centre, office component and residential development of approximately 300 erven. To cater for this potential Demacon Market Studies estimated that approximately 22 hectare land will be required, which include for the provision of social facilities. (Demacon Market Studies, 2010)

Table 5-7 Sebayeng Development Potential / Land use budget

Land Use	Size/Number	Land Requirement (ha)
Economic Uses		
Retail Centre (m2/GLA)	7 000	2.1
Office Component (m^2/GLA)	3 600	1.1

Land Use	Size/Number	Land Requirement (ha)
Residential	300	10
Social Facilities		
Clinic	3	0.6
Day Hospital	4	2
Community Hospital	1	1.5
Community Centre	1	0.5
Police Station	2	3
Sport Stadium	1	0.6
Fire station	1	1.2
Post Office	3	0.04
Total		22.6

Source: (Demacon Market Studies, 2010)

6 DENSIFICATION CONCEPT

6.1 Appropriate locations for increased densities

In general, increased densities could be encouraged in the following locations:

Appropriate location	Explanation
Activity Nodes (CBD)	Range of employment, recreation, educational, commercial and retail uses can help to curtail travel demand. Greatest potential for the creation of sustainable patterns of development; Can assist in regeneration; Make more intensive use of existing infrastructure; Support local services and employment; Encourage affordable housing provision; Sustain alternative modes of travel such as walking, cycling and public transport.
'Brownfield' sites	Any land which has been subjected to building, engineering or other operations, excluding temporary uses or urban parks.
Public transport corridors	Land use planning underpins the efficiency of public transport services by sustainable settlement patterns – including higher densities – on lands within existing or planned transport corridors. Residential development in tandem with new public transport infrastructure / services should be considered. Walking distances from public transport nodes (e.g. stations / halts /bus/taxi stops) should be used in defining such corridors. It is recommended that increased densities should be promoted within 500 metres walking distance of a bus stop, or within 1km of a bus/taxi station.
'Infill' sites	The provision of additional dwellings within suburban areas of built up urban areas, proximate to existing or due to be improved public transport corridors provides the potential for revitalising areas by utilising the capacity of existing social and physical infrastructure. Such development can be provided either by infill or by sub-division: Infill residential development: Potential sites may range from small gap infill, unused or derelict land, vacant land areas or sites. Subdivision of stands / dwellings: Residential areas contain large houses on relatively large sites whose conversion to multiple dwellings without a dramatic alteration in the public character of the area is achievable. In such areas, particularly those which are well served by public transport, their conversion into multiple units should be promoted.
'Greenfield' sites	Open lands on the periphery whose development will require the provision of new infrastructure, roads, sewers and ancillary social and commercial facilities, schools, shops, employment and community facilities.

The above locational categories were used to arrive at a densification concept for each of the three (3) planning areas.

6.2 Means of achieving densification

Densification can take place at the appropriate locations as described above in a number of ways that can be facilitated and managed by a range of zoning and land use regulations.

These include, inter alia the following:

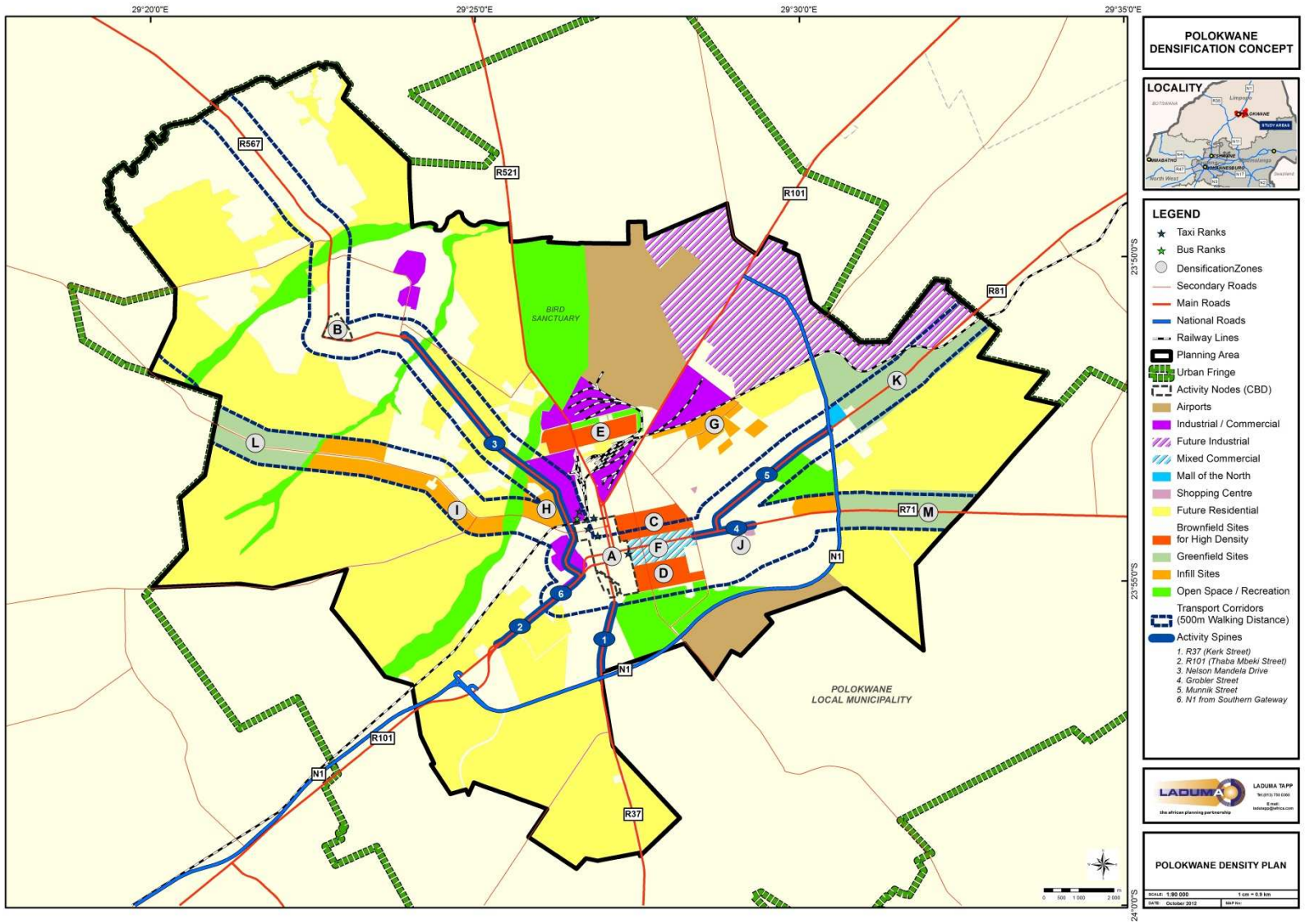
- ✓ Construction of attached/detached second dwellings, including the changing of non-residential buildings, or parts of buildings, to residential buildings (e.g. garages)
- ✓ Increasing of existing bulk rights through the extension of the building or adding on to floors in order to accommodate and increased number of units
- ✓ Block consolidation of erven with redevelopment at higher densities
- ✓ Subdivision of land and redevelopment at higher densities
- ✓ Consolidation with redevelopment at higher densities, including the demolition and integration of existing structures
- ✓ Higher density infill on vacant and under utilised land throughout the built area of the city
- ✓ Consolidation of sites within a street block to create a single, larger parcel for redevelopment into multi storey dwelling units.

6.3 Proposed areas for densification

6.3.1 Densification concept for the Polokwane-Seshego Area

The densification concept for the Polokwane Seshego area is attached as **MAP 6-1.**

MAP 6-1 Densification Concept Polokwane - Seshego



Densification is proposed at the following localities:

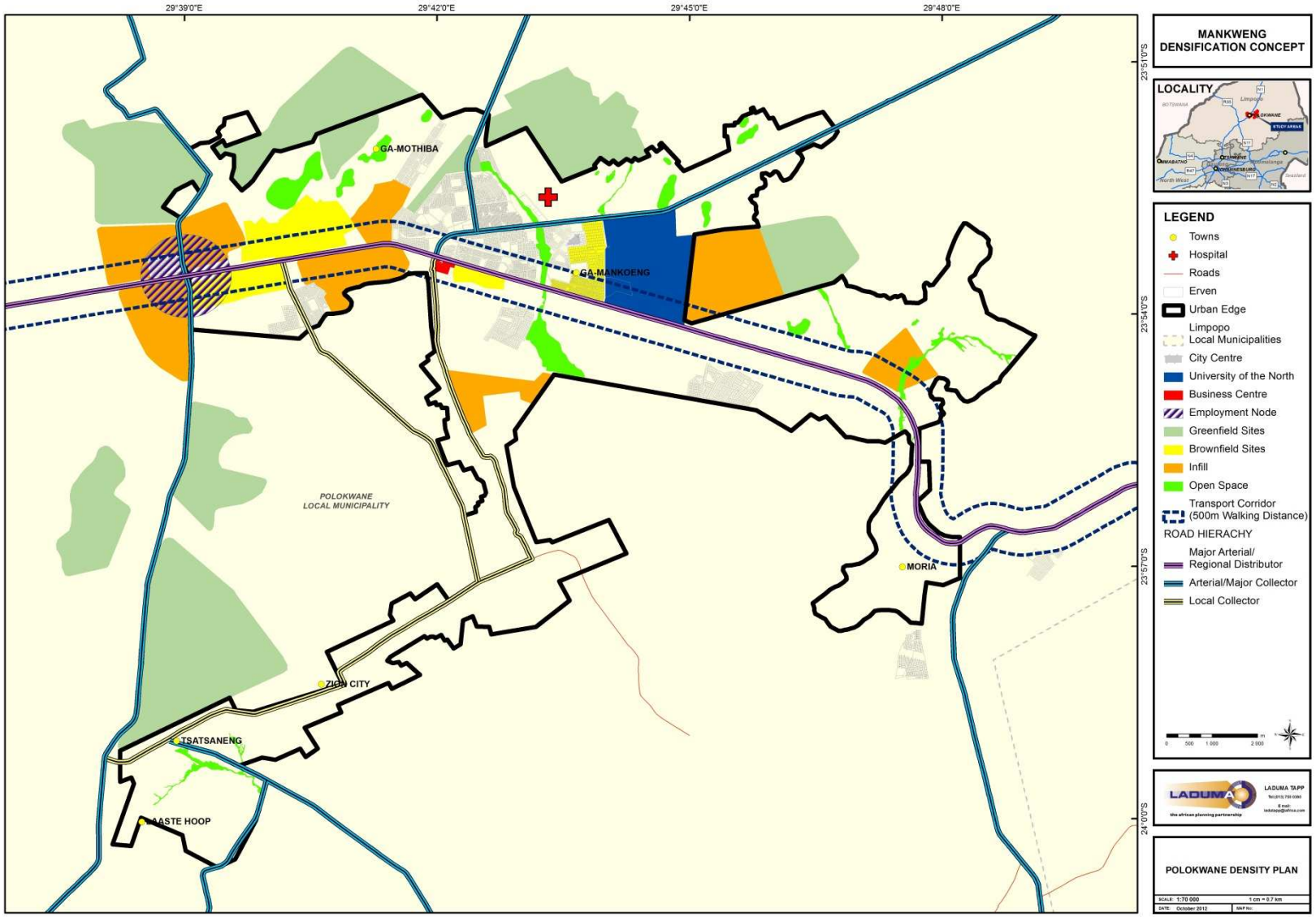
Appropriate locality	Zone on Map	Identified opportunity for densification
Activity Nodes (e.g. CBD)	A	o Polokwane CBD for the development of affordable housing provision, especially in the north and western parts of the CBD that is currently experiencing trends of increasing decay and densification. o By promoting this area for high density residential development, it can assist in the regeneration of the CBD.
	B	o Existing central activity node in Seshego should be promoted for densification. o Any planned shopping centre of a high order in Seshego needs to encourage densification in proximate areas.
'Brownfield' areas	C and D	o The areas between Hospital Park, Potgieter Avenue, Oost and Suid Street/s, including the area (between Compensatie, Van Boeschoten, Magasyn, Grobler and Thabo Mbeki Streets) identified as a regional medical node provide for an ideal opportunity for densification which is in close proximity of the CBD where employment opportunities exists.
	E	o Annadale situated north of the existing CBD and directly adjacent to existing industrial areas and in close proximity to the International Airport provides excellent opportunity for increased densities.
	F	o In particular, the street blocks between Grobler and Thabo Mbeki Streets, act as activity spines. Re-development of these areas to higher densities should be promoted in combination with mixed use development.
Along transport corridors		o Public transport amenities e.g. taxi- bus and railway facilities are focused in the north western part of Polokwane CBD between the Buite Street taxi holding area and the Polokwane Railway station. The capacity of public transport should also be taken into consideration in considering appropriate densities. o Significant transport corridors in Polokwane that should be considered for the creation of higher density zones alongside the corridor include the following: ✓ Activity spines close to the CBD has the potential for car-free developments. These locations are close to existing and/ or future public transport corridors where higher densities should be promoted. The activity spines are: ✓ R37 (Kerk Street) ✓ R101 (Thabo Mbeki Street) towards Mypark township extensions ✓ Nelson Mandela Drive towards Seshego ✓ Grobler Street from Biccard Street to Savanna Mall ✓ Munnik Street towards regional node (Mall of the North) ✓ Along the N1 from the southern gateway ✓ Future links between the taxi/bus terminus, the railway station and Polokwane International Airport. The Polokwane International Airport in the northern part of the city serves a national and international market.
'Infill' sites	G	o The small and larger farm portions situated on either side of Diemeer Street towards the east of the Bendor Extensions and up to Velspaat Street could be used for infill residential development. It is situated in close proximity to the existing industrial/ commercial area situated between the railway line, Landdros Mare and Velspaat Street. It is in close proximity to the international airport and future commercial areas.

	H	o The area situated between West Street and Nelson Mandela Drive is situated in close proximity to the CBD, industrial areas and main transport corridors and could therefore be developed for higher density residential infill development.
	I	o Infill along the Matlala Road towards the west provides opportunity for sustainable higher density infill residential development.
Subdivision of stands/dwellings	J	o Many erven situated close to the CBD, especially within the eastern suburbs such as Pietersburg Extensions contain relative large stands (in excess of 1000m²) which could be subdivided into multiple stands and/ or dwellings.
'Green field' Sites	K	o Vacant land surrounding and in proximity to the Mall of the North provides the ideal opportunity for the development of higher density residential green field development, situated within 500m walking distance from a main transport corridor and in close proximity to economic and job opportunities offered by the regional business node.
	L	o Vacant land further along Matlala Road towards the west could also provide for sustainable green field developments due to its accessibility to the important transportation corridor.
	M	o Other areas to be considered for sustainable residential development include the area situated further out along Grobler Street towards the east which is considered as a major transportation route and major arterial road.
Furture Residential areas within Urban Edge		o A vast number of potential areas for future residential development fall within the urban edge of Polokwane. It is however proposed that the development of these areas be considered with township establishment which includes infrastructure provision and the provision of amenities.

6.3.2 Densification concept for the Mankweng Area

The densification concept for the Mankweng Area is attached as **MAP 6-2 Densification Concept Mankweng.**

MAP 6-2 Densification Concept Mankweng



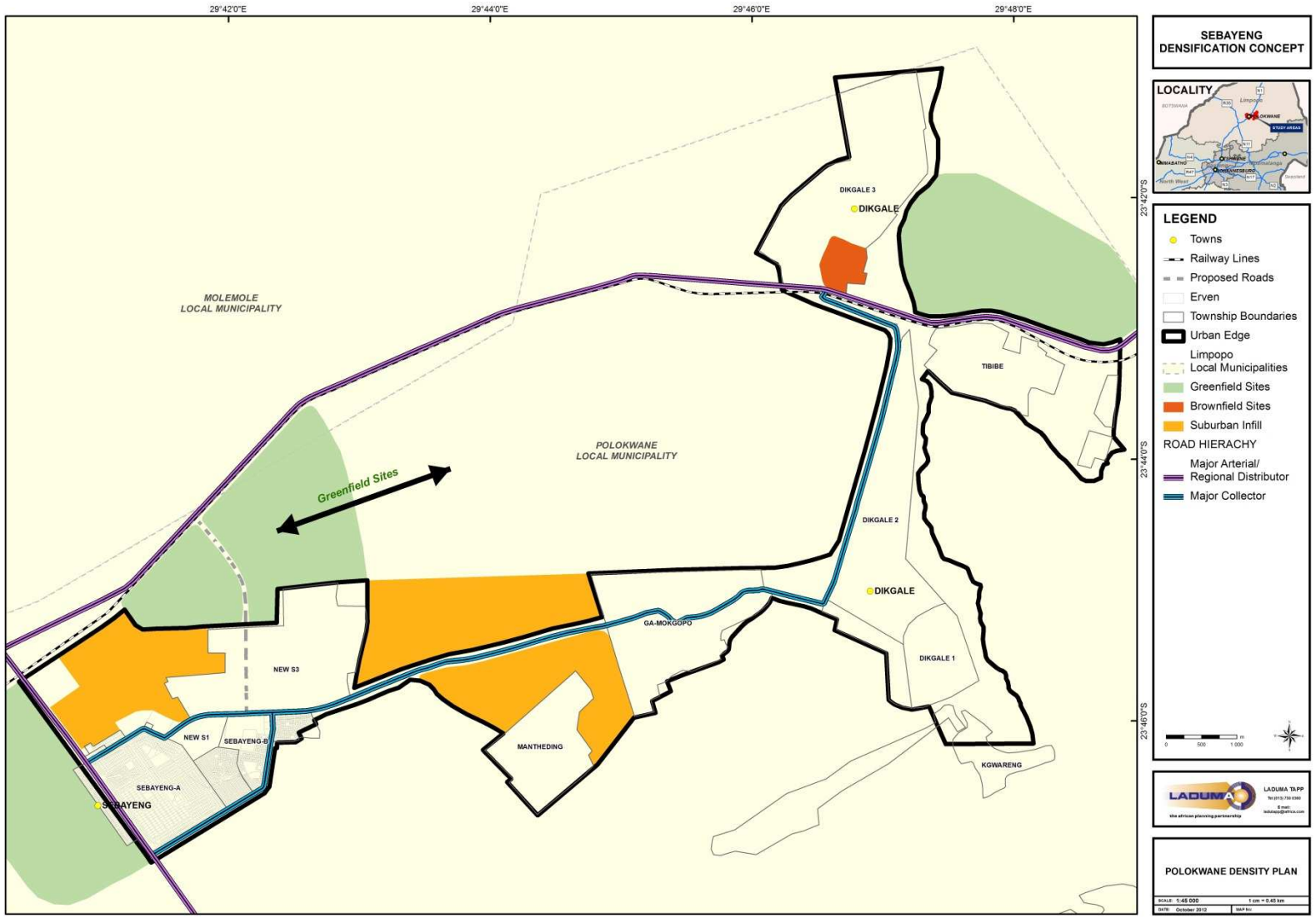
Densification is proposed at the following localities:

Appropriate locality	Identified opportunity for densification
Activity Centres	o It is proposed that higher density residential development be considered in combination with the existing mixed uses found in the existing Mankweng CBD. o By promoting this area for high density residential development, it can assist in the regeneration of the CBD. o Proposed mixed use node at the existing Twin City Centre provides for opportunity for higher density mixed income housing.
"Brownfield" areas	o The area situated adjacent and directly west of the University o Along main arterial road nearby existing business centre o Closer to major transportation corridor and proposed employment centre
Along transport corridors	o Along R71 where Mixed income housing has been proposed and within 500m walking distance from the transport route
"Infill" areas	o The small and larger gap sites situated along the transport corridor R71.
Subdivision of stands/dwellings	o Should be considered on all erven in excess of 600m², where the possibility exists to create an additional stand of not less than 300m².
"Green field" Sites	o Vacant land outside the urban edge that has potential to be developed into sustainable residential areas due to locational factors.

6.3.3 Densification concept for the Sebayeng Area

The densification concept for the Sebayeng Area is attached as **MAP 6-3.**

MAP 6-3 Densification Concept Sebayeng



Densification is proposed at the following localities:

Appropriate locality	Identified opportunity for densification
Activity Centre	o It is proposed that higher density residential development be considered in combination with the existing mixed uses found in the existing Sebayeng CBD. o By promoting this area for high density residential development, it can assist in the regeneration of the local business centre. o Proposed mixed use node where higher mixed income housing are promoted.
"Brownfield" areas	o The area situated adjacent of proposed employment centre where existing concentration of social facilities exists.
Along transport corridors	o Public transport amenities e.g. taxi- bus and railway facilities are focused
"Infill" areas	o Large areas available within and strategically located next to the urban edge which is situated along the main arterial route linking the various settlement areas within the Sebayeng planning area.
Subdivision of stands/dwellings	o Should be considered on all erven in excess of 600m², where the creation of an additional stand/s of not less than 300m² is possible.
"Green field" Sites	o Vacant land outside the urban edge that has potential and is strategically situated which can be developed into sustainable residential areas due to locational factors. Development of these areas should be considered in conjunction with the phasing of the provision of infrastructure and other community amenities.

7 PROPOSED Ddensification FRAMEWORK

7.1 Goal

The densification framework seeks to improve the sustainability of the urban areas in the Polokwane municipal area and to enhance the quality of the built environment.

7.2 Objectives

The more specific objectives of the densification framework are to:

- ✓ Ensure optimal and efficient use of infrastructure, services, facilities and land;
- ✓ Support the development of a viable public transport system and to improve access to resources and amenities
- ✓ Manage and enhance the built environment without compromising the natural environment and significant cultural landscapes
- ✓ Provide a framework and guidelines to assess development applications
- ✓ Provide certainty to homeowners and investors regarding areas identified for densification
- ✓ Ensure that the scale and character of higher density developments are appropriate
- ✓ Support mixed land uses and provide for economic opportunities in integrated neighbourhoods/ settlements
- ✓ Contribute to safe and attractive neighbourhoods

7.3 Density Priority Zones

In the short term, next five years, the density priority zones should be:

- ✓ Development and activity routes and streets along transportation corridors
- ✓ Areas where Zoning Rights correlate with medium to higher density residential uses and where infrastructure capacity exists or be planned within the next 3 years
- ✓ 'Infill' sites close to economic opportunities, social amenities and transportation routes
- ✓ 'Greenfield' site developments within the urban edges and adjacent to existing development.

The interface area from the existing built up area should be encouraged to develop first. Leapfrog development will only be allowed if sufficient merit can be proven. The subdivision of farms within the interface area should be discouraged.

7.4 Areas for different types of densification

It is proposed that a compact city concept be promoted. The following more specific guidelines on the location of middle to higher densities and the parameters suited to the different locations is herewith proposed:

7.4.1 Polokwane – Seshego

7.4.1.1 Single density residential zoned areas

Densification of all single, residential-zoned areas in all urban areas should be permitted subject to the following guidelines:

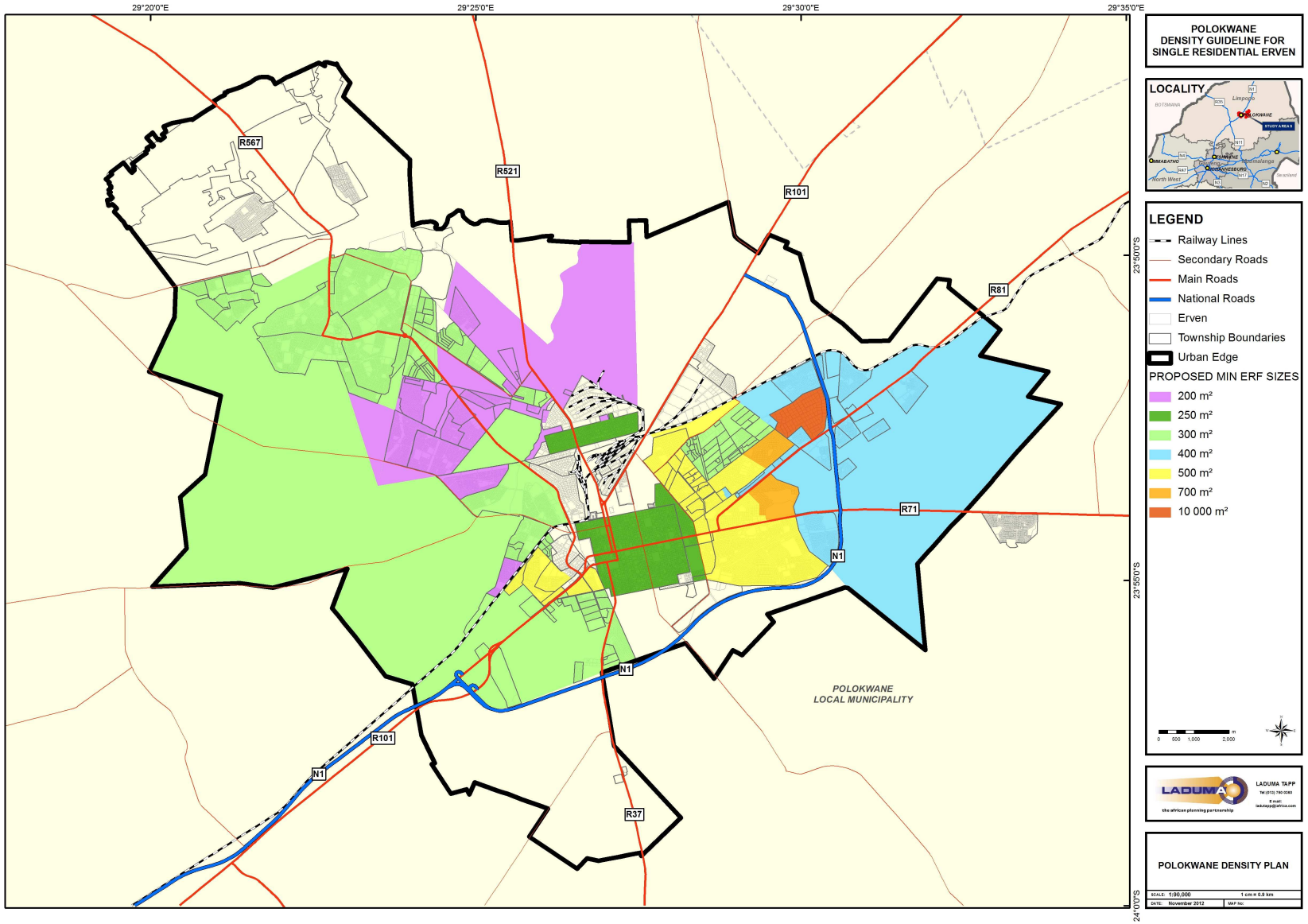
- ✓ Subdivision of existing stands should be in line with the minimum allowable erf sizes permitted in terms of the density guideline as indicated on MAP 7-1;
- ✓ If applicable, the necessary zoning rights should be acquired in terms of the Town Planning Scheme prior to the approval of a subdivision of a single title residential stand;
- ✓ Second dwelling units could be permitted on all single density residential zoned stands with the consent of the municipality, and subject to the payment of service contribution.
- ✓ Subdivision of **single residential stands within the CBD** and immediate surrounding area (Pietersburg Town) should not be encouraged. However, should site specific circumstances exists to provide for a single residential stand/s within the CBD, the following guidelines apply:

- o A minimum stand size of **250m²**
- o The need and desirability of the proposed subdivision should be illustrated / proven.
- o A site development plan that addresses the position of structures, ingress /egress to and from a public road and aesthetical quality / treatment of proposed dwelling units should be submitted to the municipality for approval

✓ Additional residential accommodation by means of **rooming or lodging, excluding a residential building** could be supported on **all single title residential stands** but subject to the following guidelines:

- o The main dwelling house should be permanently occupied by a single family plus a maximum of 4 additional persons.
- o The provision of additional rooms / lodging / boarding facilities on a single title residential stand is subject to the written / special consent of the municipality and the required procedures to follow should be addressed in a land use management scheme.

MAP 7-1 Densification guideline for single Residential erven (Residential 1)



7.4.1.2 Medium to higher density residential zoned areas

Densification of all medium to higher density residential-zoned areas in appropriate localities should be encouraged subject to the following guidelines: See MAP 7-2.

- ✓ Medium to higher density residential development within existing and future neighbourhoods that refers to the development of multi-family, multiple-unit residential developments which density normally exceeds those found on the surrounding Residential 1 zoned / single density residential areas.

- ✓ In addition to areas predominantly composed of existing or planned medium density residential development, the preferred locations for medium to higher density residential areas include lands in close proximity to shopping areas, commercial districts, designated open space areas or regional facilities, lands adjacent to a multi-family, high density residential designation and land s abutting an arterial, primary collector or secondary collector road.

- ✓ Consideration should also be given to criteria such as compatibility, municipal services, traffic considerations and buffering of the site to protect any adjacent low and / or single density residential uses.

- ✓ Within defined transport and activity corridor areas a density guideline of up to 75 units per hectare is proposed.

- ✓ Densities in Polokwane CBD as well as the mixed use area earmarked for expansion of the CBD and along the activity spine should be encouraged to be higher than 60 dwelling units per hectare but not higher than 85 dwelling units per hectare.

- ✓ In areas immediate surrounding the CBD, including Annadale high densities should be promoted (up to 85 dwelling units per hectare).

- ✓ Densities for medium to higher density development within areas surrounding Bendor residential extensions north of Munnik Street should be between 30 and 64 dwelling units per hectare.

- ✓ All other areas a medium density guideline of between 20 and 50 dwelling units per hectare is deemed to promote densification within the urban edge and built up areas of Polokwane.

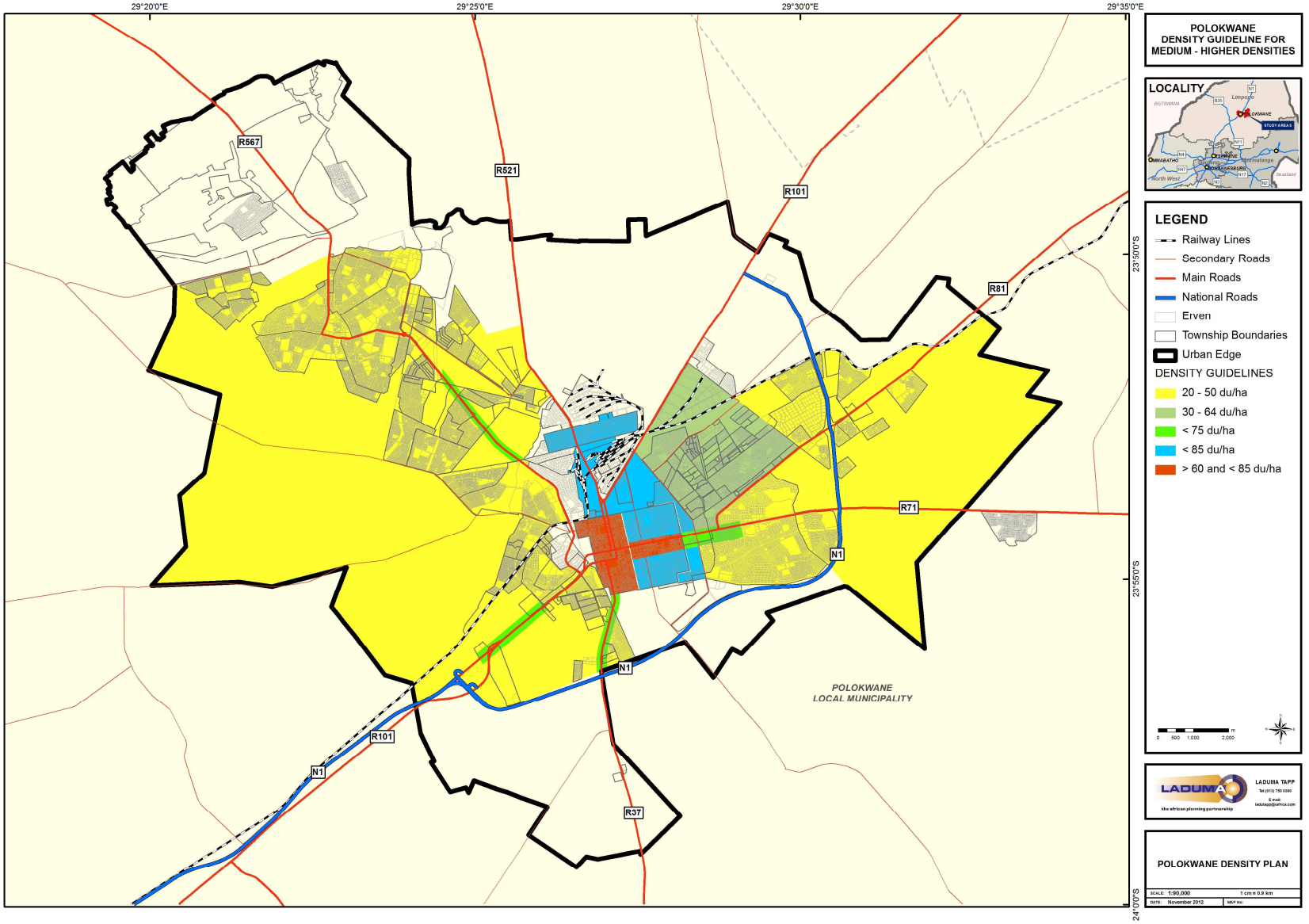
- ✓ Higher density mixed income residential uses (up to 75 dwelling units per hectare) should be permitted at localities earmarked for Mixed Use Nodes, e.g:
    - ✓ Westenburg at the intersection between West Street and Doloriet Street;
    - ✓ Seshego along Nelson Mandela Drive.

- ✓ Higher densities of up to 50 dwelling units per hectare to be permitted at areas earmarked for mixed income residential nodes, e.g. along West Street opposite small river (Westenburg)

- ✓ The development of residential buildings consisting of **rooming or permanent lodging facilities within medium to higher density residential zoned areas** could be supported, subject to the following guidelines:
    - ✓ The maximum number of rooms to be permitted be based on the maximum water demand of the development;
    - ✓ The average water demand for the development of a residential building consisting of rooms only should not exceed the average water demand for the maximum permitted dwelling units (see **MAP 7-2)** on the site;
    - ✓ A site development plan that addresses aspects such as entrances/exits, coverage, floor area ratio, height, position of buildings, building restriction areas, parking, play parks and architectural finishes should be submitted to the municipality for approval prior to the submission of building plans;
    - ✓ Parking should be provided to the satisfaction of the municipality in terms of parking requirements to be addressed in a land use management scheme. In cases of low vehicle ownership, relaxation of parking requirements could be considered on merit. However, it is recommended that the municipality conducts a study on the provision of parking at medium to high density residential uses in areas where low car ownership is evident to determine an appropriate parking ratio;
    - ✓ Open space / play parks should be provided as part of the higher density development to the satisfaction of the municipality. 10% of the area of the site or not less than 250m² should be reserved for open space.

- ✓ The required procedures to follow should be addressed in a land use management scheme.

MAP 7-2 Densification guideline for Medium to Higher density residential areas

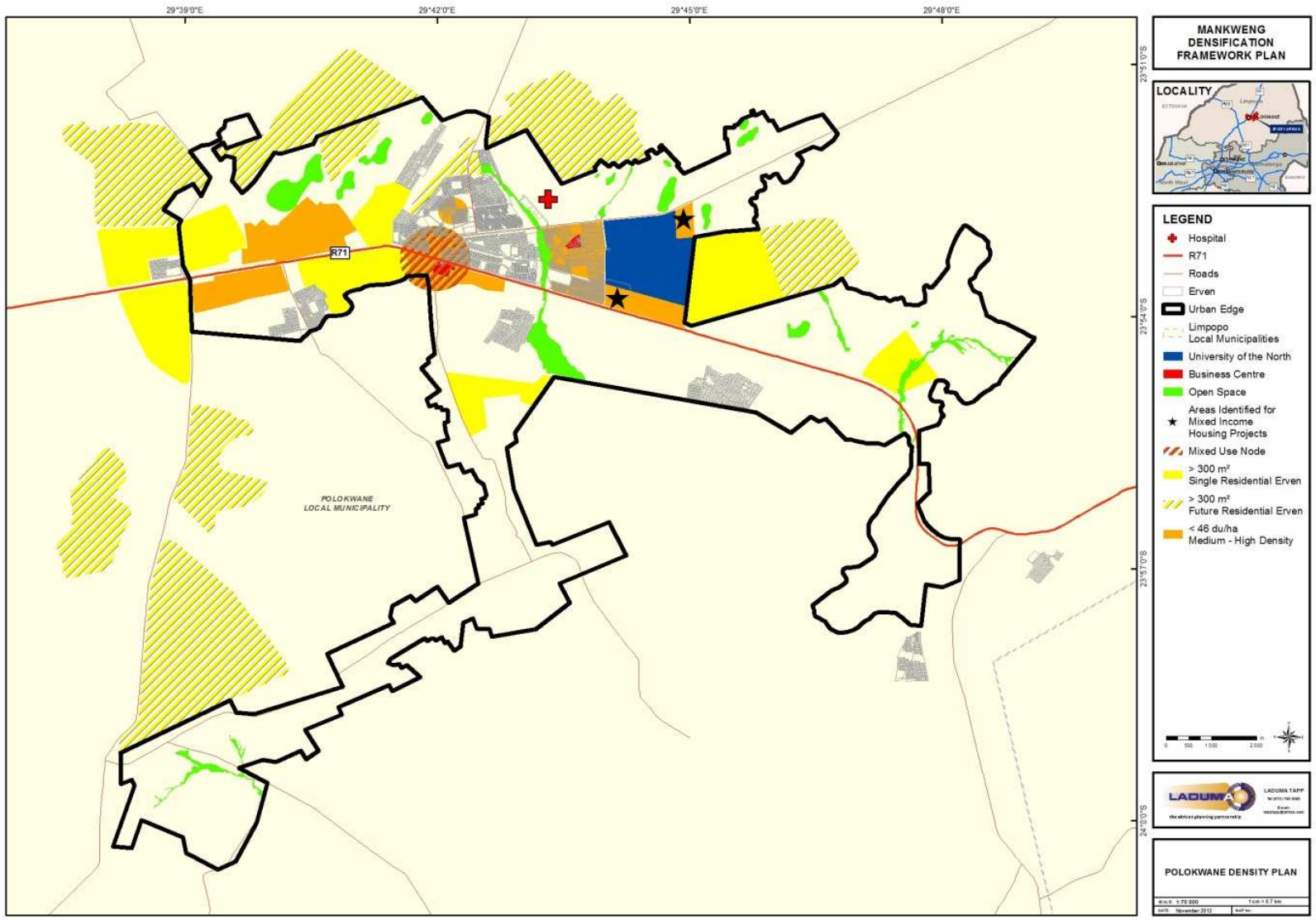


7.4.2 Mankweng

Densification in the Mankweng area to be promoted subject to the following guidelines and as illustrated on **MAP 7-3.**

- ✓ A minimum erf size of 300m² to be applicable on all existing single title residential stands as well as future residential stands at proposed infill and green field sites.
- ✓ Medium to higher densities of up to 46 dwelling units per hectare be permitted in the following instances:
- ✓ Areas earmarked for mixed income housing
- ✓ Mixed used node surrounding the existing Twin City Centre
- ✓ Existing residential areas situated to the west of the University of the Mall and surrounding the existing business centre in Mankweng
- ✓ Infill sites located along the major transport route R71.
- ✓ Parking should be provided to the satisfaction of the municipality in terms of parking requirements to be addressed in a land use management scheme. In cases of low vehicle ownership, relaxation of parking requirements could be considered on merit. However, it is recommended that the municipality conducts a study on the provision of parking at medium to high density residential uses in areas where low car ownership is evident to determine an appropriate parking ratio.

MAP 7-3 Mankweng Densification Framework Plan



7.4.3 Sebayeng

Densification in Sebayeng area is to be promoted subject to the following guidelines: See **MAP 7-4.**

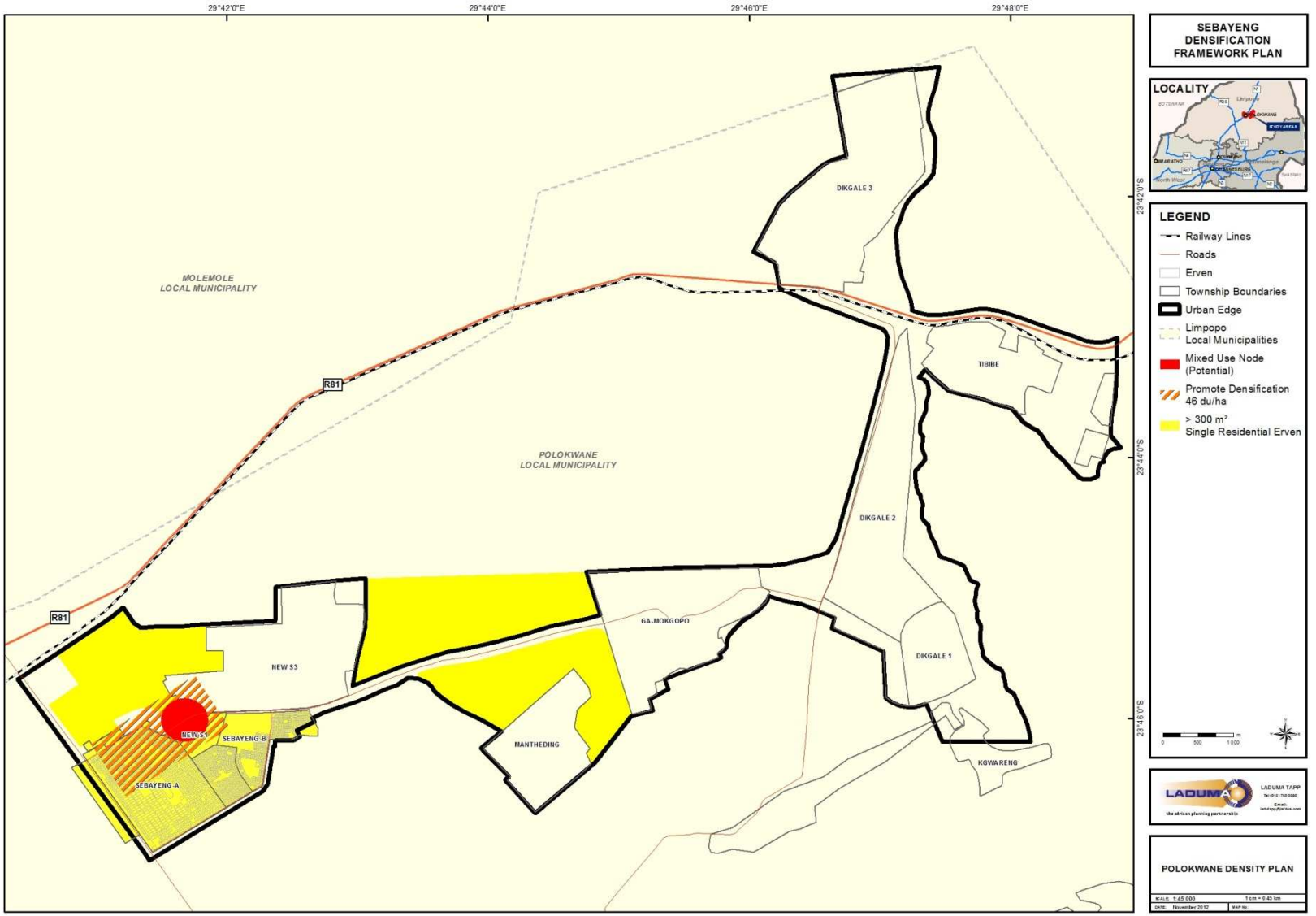
- ✓ A minimum erf size of 300m² to be applicable on all existing single title residential stands as well as future residential stands at proposed infill and green field sites

- ✓ Medium to higher densities of up to 46 dwelling units per hectare be permitted in the following instances:
    - o Areas earmarked for mixed income housing
    - o At mixed used node

- ✓ Existing residential areas centrally located within the hub identified by the Polokwane NDPG Development Framework.

- ✓ Parking should be provided to the satisfaction of the municipality in terms of parking requirements to be addressed in a land use management scheme. In cases of low vehicle ownership, relaxation of parking requirements could be considered on merit. However, it is recommended that the municipality conducts a study on the provision of parking at medium to high density residential uses in areas where low car ownership is evident to determine an appropriate parking ratio

MAP 7-4 Sebayeng Densification Framework Plan



7.5 Guidelines for Higher Density Residential Development

Quality architecture and vibrant and inclusive urban spaces are the central ingredients of liveable communities. Future generations should inherit a legacy of design that responds to the challenges of today and serves the needs of the future.

These guidelines are proposed to promote well-designed higher-density housing in activity centres and other strategic redevelopment sites that are close to public transport.

Higher density housing is encouraged to locate in activity centres to:

- ✓ provide for the forecast increase in population and households
- ✓ ensure the available housing stock better matches changing demand by widening housing choice,
- ✓ support opportunities for a wide range of income groups to choose housing in well-served locations
- ✓ increase local population base that supports activity centres and local businesses and
- ✓ encourages walking, cycling and public transport alternatives.

The guidelines should be supported by detailed precinct plans and local policies developed for activity centres.

7.5.1 Purpose of these Guidelines

In order to assist developers and designers when developing proposals and preparing applications and to assist the municipality when assessing applications, suggested guidelines have been compiled.

The Guidelines are structured around six elements of design consideration:

- ✓ Urban context
- ✓ Building envelope
- ✓ Street pattern and street-edge quality
- ✓ Circulation and services
- ✓ Building layout and design
- ✓ Open space and landscape design

Under each element is a series of general design objectives. Each objective has a corresponding set of related design suggestions that will generally achieve a good design response.

The guidelines are attached as **Annexure B: Guidelines for Higher Density Residential Development**

Good design of higher density residential developments is a creative process that can be said to be achieved where a proposal: (Department of Sustainability and Environment)

- ✓ responds and contributes to its natural and built context
- ✓ provides an appropriate scale in terms of the bulk and height relative to the scale of the street and
- ✓ surrounding buildings (in keeping with existing or preferred neighbourhood character)
- ✓ achieves an appropriate built form for a site and building in terms of building alignment, proportions,
- ✓ building type and elements
- ✓ has a density appropriate for a site and its context (in keeping with existing or preferred neighbourhood
- ✓ character)
- ✓ recognises that landscape and buildings operate as an integrated and sustainable system
- ✓ optimises safety and security for internal and public spaces
- ✓ responds to its social context in terms of access to housing diversity and to services
- ✓ makes efficient use of natural resources, energy and water throughout its full life cycle

7.5.2 Related Guidelines

7.5.2.1 Sustainability

The achievement of sustainable design outcomes needs to be considered. The CSIR under the patronage of the Department of Housing has published **Guidelines for Human Settlement Planning and Design (2000).** This document encourages Government Departments and building professionals to address the following principles for achieving well-performing settlements:

- ✓ Structural principles
- ✓ The principle of reinforcement
- ✓ The principle of continuity (green space, movement, built form, public space)
- ✓ The principle of discontinuity (movement, built form)
- ✓ The principle of externalisation
- ✓ The principle of concentration along routes
- ✓ Accommodating sameness and diversity
- ✓ Spatial principles
- ✓ Definition
- ✓ Scale
- ✓ Flexibility
- ✓ Intensity of space use

New regulations introduced under the **National Building Regulations** require energy efficiency in buildings as mandatory in the planning and design of buildings.

7.5.2.2 Safety

Design for safety is also a significant issue. It aims to minimise the opportunity for crime and reduce the fear of crime for people using private and public space. The guidelines are based on the following set of principles:

- ✓ maximise visibility and surveillance of the public environment
- ✓ reduce the isolation of people, houses and areas that make them vulnerable to crime
- ✓ clearly define public and private space with active building fronts facing public space
- ✓ manage public space to ensure that it is attractive and well used.

7.5.2.3 Activity Centres

Activity Centres provide a focus for retail services, employment and social interaction in cities and towns.

It is important that detail Urban Design guidelines be developed for Activity Centres that set out objectives and suggestions for buildings and public places based on the following principles.

- ✓ develop a good-quality public domain
- ✓ promote street based patterns of connection
- ✓ improve community safety
- ✓ encourage a mix of uses
- ✓ improve pedestrian and cycling amenity
- ✓ promote a public transport focus
- ✓ increase accessibility and integration
- ✓ encourage environmental sustainability

Because higher density residential development is proposed in Activity Centres, consideration will need to be given to urban design guidelines.

8 IMPLEMENTATION OF DENSIFICATION FRAMEWORK

The Densification Policy provides the framework for promoting densification. It proposes a set of density guidelines and principles to assist in decision making in regard to appropriate location and scale of densification. Because the urban development in Polokwane is dynamic, the densification framework should be reviewed at least every 5 or 10 years, if circumstances require it.

The following key tasks to support the implementation and monitoring and evaluation of the Densification Policy have been identified:

A. Organise information-sharing sessions for staff, councillors and built-environment professionals.

B. Existing and future spatial / precinct plans must align with the Densification Policy in order to ensure consistency.

C. The Land Use Management Scheme should provide for appropriate land use categories and policy procedures to accommodate the densification policy.

D. Proactively promote densification in the identified Densification Priority Zones and urban upgrade/regeneration areas.

E. Ensure quality built environments by applying appropriate urban and architectural design principles.

F. Investigate densification support mechanisms e.g. financial and institutional, appropriate to subsidised housing to facilitate the development of affordable multi-storey housing in suitable locations.

G. Set up a monitoring and evaluation system to assess progress with regard to densification and identify infrastructure challenges.

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Annexure A : Definitions and Scheme Clauses

1. Definitions:

The following definitions are of relevance to the density policy and are herewith highlighted:

Additional Dwelling Unit - means a dwelling unit or building that abuts or shares two side walls with other buildings on adjoining erven on two boundaries on the sides, other than the boundary with the street.

Bedroom or Bedroom Suite - means a room or space within a dwelling unit, residential building, hotel or any other building mainly used for sleeping purposes for not more than three (3) persons or such number of persons the municipality may deem desirable to fit the room and include the necessary cupboards for storage or personal clothing, but excludes a living room, dining room / area or kitchen.

Dwelling Unit - means an interconnected suite of rooms which may not include more than one kitchen, designed for occupation and use by a single household or single person or couple, including the usual ancillary outbuildings and which, when connected with another dwelling unit or dwelling units, constitute and apartment building (flats).

Household - means a person or a group of persons regarded as a domestic unit in terms of legislation or common law.

Kitchen - means a room or an area within a dwelling unit or any other building or place designed or used and equipped for preparing and cooking food or meals.

Panhandle Subdivision - means a subdivision, which results in one or more of the portions created by such subdivision, gaining access by means of a panhandle or panhandles, the thin end of which abuts on a public street and where the panhandle area of the property shall not form part of the area when the calculations in respect of the density of the number of dwelling units area made.

Residential Building - means a building or part of a building containing dwelling units or bedrooms or bedroom suites, overnight accommodation a boarding house, a residential club, hostel, apartment building or tenements, other than a “dwelling units designed for use of “Single Family Residences” or “Two Family Residences”, but excluding any use mentioned, whether by way of inclusion or exclusion, in the definitions of “Place of Instruction” or “Institution”.

Retirement Village - means and includes dwelling units and community facilities including a dining hall, sickbay, sport and recreational facilities or such other facilities as approved by the local municipality for occupation and use by elderly persons.

Semi Detached Dwelling unit or Semi Detached building - means a dwelling unit or building on an erf that abuts or shares one side wall with another building on an adjoining erf, where the remaining sides of the building are surrounded by open areas or a street/s.

Single Family Residence - means a building containing one (1) dwelling unit occupied by a single family or household.

Two Family Residences - means a building containing two (2) dwelling units occupied by two families or two households.

2. Relevant Scheme Clauses:

Regulatory clauses in respect of densities and occupation of dwelling unit and/or rooms are contained under Clause 13 of the Town Planning Scheme. Table “C” Columns 8, 9 and 10 stipulates the maximum density of dwelling units per net hectare or per erf or land portion, attached to the erf or land as a primary right, as well as the extent to which it may be relaxed by Special Consent in terms of Clause 21, or Written Consent in terms of Clause 22 by the local municipality, as the case may be.

Clauses 13, 21 and 22 of the Town Planning Scheme provides sufficient conditions and requirements under which the municipality may consider densities and occupation of buildings by means of consent uses as provided for in terms of Section 20 of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986).

Annexure B: Guidelines for Higher Density Residential Development

Element 1 - Urban Context			
Element	**Why Important**	**General Design Objectives**	**Design Suggestions**
Neighbourhood Character And Strategic Context	It is the starting point for any design. An understanding of a proposed development and its relationships to the surrounding public setting, neighbouring properties, and any identified strategic issues relating to the site, is required.	To ensure buildings respond creatively to their existing context and to agreed aspirations for the future development of the area. This should take the form of an urban context report.	Prepare an urban context report that documents the character of the area and identifies opportunities and constraints of the site.
			Identify and document existing planning scheme objectives and requirements applicable to the specific site. Include these in the urban context report.
			Ensure a development is consistent with the strategic location of the site. Address this in the urban context report.
			Consider the likely location, size and expected impact of future developments and possible uses nearby when designing new developments. Address this in the urban context report.
			Use an urban context report as the basis for pre-application discussions to generate and test options about the site and the building design.
Design Response	A design response provides a written and graphic explanation of the logic behind the preferred design.	To provide a creative design response that is based on a clear understanding of the urban context and neighbourhood character.	Structure the design response to explain how it responds to relevant planning provisions that apply to the land, any relevant housing, neighbourhood character, urban design and landscape plan, strategy or policy set out in the relevant planning scheme and the urban context report including: - why the massing and overall height is appropriate to the context - how the development contributes to the quality of adjoining streets and other public spaces - how the internal layout makes safe and efficient provision for residents - why particular design treatments have been chosen.
			Provide illustrations of the project in its context.
Element 2 - Building Envelope - Layout And Design			
Element	**Why Important**	**General Design Objectives**	**Design Suggestions**
Height And Massing	Building height can reinforce an area's	To ensure that the height of new development responds	Arrange building height, massing and forms to reinforce the structure and character of the area.

	character or relate to community aspirations for an area's future character.	to existing urban context and neighbourhood character objectives of the area.	Mass new buildings in response to the scale of surrounding buildings unless doing otherwise helps to achieve neighbourhood character objectives.
		To ensure new development is appropriate to the scale of nearby streets, other public spaces, and buildings.	Relate building height to street width and intended character.
			Set back upper levels of tall buildings or use a podium and tower form to help create a pedestrian scale at street level.
			Respect nearby heritage buildings and places.
			Reduce heights, increase setbacks or step the mass of the building to create sensitive interfaces with adjoining buildings.
		To protect sunlight access to public spaces.	Avoid reducing sunlight to important public spaces.
Street Setbacks	The setback of buildings from a street edge affects how uses relate to the public space of the street.	To respond to existing or preferred street character.	Don't set buildings back from the street in retail areas or where a consistent street edge needs to be reinforced, except where creating a new public space is an integral part of the proposal.
			Match existing setbacks where an established landscape setting contributes to the proportions of the street and to the street's character.
			Respond to the local physical context in a way that makes a positive contribution to the pedestrian environment at street level.
Relationships To Adjoining Buildings	The proximity of buildings to each other affects the amenity of spaces inside the building, the quality of space between buildings, visual and acoustic privacy and solar access to private and shared open spaces.	To ensure building separation supports private amenity and reinforces neighbourhood character.	Don't separate buildings with side setbacks in streets that have connected buildings with party walls, e.g. terrace housing.
			Where side setbacks are an important part of the local streetscape character but do not contribute to private amenity, build with party walls and use recesses at the street front to create the appearance of separated buildings.
			Use side setbacks where they are important for private amenity, e.g. for solar access, access to the rear of the lot, or to avoid unreasonable impacts on neighbouring properties and public spaces.
		To ensure areas can develop with an equitable access to outlook and sunlight.	Consider the possible future development of adjoining sites and allow, as best as possible, or an equitable spread of development potential throughout the area.
			Maintain sunlight and daylight access to adjoining private open spaces of dwellings in accordance with clause 55 of planning schemes.

			Provide spacing between taller buildings to provide outlook, daylight access and privacy for residents.
			Orient new buildings to optimise sunlight and amenity for dwellings, private open spaces and adjoining public spaces.
		To ensure visual impacts to dwellings at the rear are appropriate to the context.	Consider views from dwellings at the rear or sides of the development.
Views To And From Residential Units	Views from residential units are desirable for the amenity of their occupants and are of value to the broader public in providing passive surveillance of public spaces. However, views to dwellings can also be a potential threat to their privacy.	To maximise informal or passive surveillance of streets and other public open spaces.	Provide windows overlooking streets and other public spaces.
			Locate living areas towards adjoining streets and other public spaces.
		To maximise residential amenity through the provision of views and protection of privacy within the subject site and on neighbouring properties.	Locate living areas, windows and private open spaces to minimise the potential for overlooking.
Wind Protection	Areas with taller buildings can produce a range of unwanted wind effects. These need to be considered and carefully managed.	To ensure new tall buildings do not create adverse wind effects.	Use stepped building forms and articulation of the building mass to reduce wind turbulence at ground level.
			Provide protection for pedestrians in public and private spaces from wind down drafts where a building is taller than the surrounding development.
Roof Forms	The design of the roof of a building has a significant impact on its appearance and its integration with its surroundings.	To treat roof spaces and forms as a considered aspect of the overall building design.	Incorporate plant and lift overruns as an integral part of roof design.
			Design the roof to be used.
Element 3 - Street Pattern And Street-Edge Quality			
Element	**Why Important**	**General Design Objectives**	**Design Suggestions**

Street Pattern And Street-Edge Quality	Local street patterns and the size of the building blocks are important to the liveability of a local area. A building's frontage to a street creates a transition between public and private space. The careful design of this street edge zone will contribute to the liveliness, interest, comfort and safety of the street for those who use it.	To create walkable areas within a safe and interesting public setting.	Maintain and extend street networks to create a closely spaced and interconnected street system in areas where higher density buildings are proposed.
			Create new cross-site pedestrian links where the walkable perimeter of a block is greater than 400 metres. Position these links to take advantage of obvious desire lines for local pedestrian movement.
		To closely integrate the layout and occupation patterns of new development with the street.	Locate active ground floor uses along the street perimeter of new development to increase the safety, use and interest of the street.
		To ensure car parking does not dominate the street frontage.	Maximise ground level windows and entrances to promote active frontages.
			Avoid creating blank walls, large service areas, car parking, co-located or continuous garage doors or dense planting to ground level street frontages of new developments.
			Avoid recesses to ground level street frontages that could allow concealment.
			Screen or disguise above-ground parking areas in new development from the street.
			Screen half basement car parking.
Building Entries	Building entries are important points of activity in the street. They support the identity of buildings as well as providing access.	To create street entrances with a strong identity that provide a transition from the street to residential interiors.	Accentuate and identify building entrances.
		To ensure car park entries do not detract from the street.	Avoid car park entrances on shopping streets.
			Incorporate pedestrian access with car park entrances, or provide discrete car entrances.
Front Fences	The character of street frontages in residential developments is often	To avoid creating inactive frontages as a result of fencing private open spaces.	Use low height, transparent or partially open fences to create an impression of openness and permeability.

	significantly affected by front fences. Aspects such as height, materials and transparency of fences determine the level of visibility and outlook, informal surveillance, privacy, security and frontage activity.	To ensure that front fences respect and contribute to the neighbourhood character.	Front fences should respect the existing character or contribute to establishing a new neighbourhood character.
Element 4 : Circulation And Services			
Element	**Why Important**	**General Design Objectives**	**Design Suggestions**
Parking Layout	Despite its preferred location near public transport facilities, higher density residential development will still require car parking. The space required for car parks is significant and represents a substantial proportion of new buildings' overall space allocation.	To provide adequate, safe and efficiently designed parking layouts.	Clearly mark access into, and movement through car parks with clear signage, floor markings and lighting.
			Clearly identify parking spaces allocated to specific dwellings.
			Make provision for loading and unloading of goods and services.
			Make provision for bicycle parking.
		To provide safe and convenient access between car parking and bicycle areas and the pedestrian entry to buildings.	Provide well considered entrances from the car park to residential lobbies, foyers and individual apartment entrances.
			Design car parks to assist orientation and way-finding.
			Provide adequate parking facilities for visitors.
Circulation Spaces	Higher density living, often relies on shared landscape and recreation areas, car parks and lobbies to provide for recreation purposes, internal orientation and circulation of residents and other building users.	To create shared internal spaces that contribute positively to the experience of living in higher density development.	Ensure that the main entry and individual dwelling entries allow for the delivery or removal of large furniture items.
			Ensure service lifts can accommodate large furniture items to the upper levels.
			Design quality internal spaces.

Site Services	Site services are necessary elements in any development. It is important that these elements are assimilated in a subdued way into the design while still meeting the size and location requirements of service authorities.	To minimise running and maintenance costs.	Consider the total 'lifecycle' cost of the building.
			Design mechanical and electrical systems to minimise energy consumption.
		To minimise water use.	Collect and re-use stormwater where practical.
			Use natural irrigation in landscape areas.
		To incorporate provision for site services in the building design to ensure good function and ease of service and maintenance.	Provide a clear method for refuse disposal
			Provide facilities for mail deliveries and parcel drop off.
			Ensure that all utility meters are easily accessible.
			Provide space for cleaning and servicing equipment.
			Ensure emergency services have easy access.
Element 5 : Building Layout And Design			
Element	**Why Important**	**General Design Objectives**	**Design Suggestions**
Dwelling Diversity	Higher density residential development is expected to cater for a diverse range of household types in the future, particularly smaller households.	To provide a range of dwelling sizes and types in higher density residential developments.	Design for a mix of dwelling types, particularly in larger residential developments (e.g. to suit single people, family groups of varying sizes, students, the elderly, people of limited mobility, and people on low to moderate incomes).
Building Layout	The arrangement and configuration of different internal spaces and uses has a significant impact on their amenity, function and accessibility. Apartments and flats are normally smaller than other forms of housing. The careful use of space is critical to creating well laid out, efficient and comfortable apartments.	To optimise the layout of buildings in response to occupants' needs as well as identified external influences and characteristics of a site.	Design the internal layout of new higher density residential buildings to suit the site and surroundings as well as the needs of its occupants.
			Consider multiple lifts and stair cores rather than a single central core in buildings with a larger footprint or floor plate.
		To create functional, flexible, efficient and comfortable residential apartments.	Check layouts for practicality.
			Where possible, build in some flexibility in the uses of rooms.
		To ensure that a good standard of natural lighting and ventilation is provided to internal building spaces.	Provide direct light and air to all rooms wherever possible.
			Design light-wells that are adequately sized for their intended purpose.
			Take measures to reduce the reverberation of noise in light wells.
		To provide adequate storage space for household items.	Provide adequate storage space.

Design Detail	The detailed aspects of a design are the most tangible evidence of care and quality in the making of a building.	To promote buildings of high architectural quality and visual interest.	Design various building elements to suit the different ways they are viewed.
			Consider materials as an integral part of the design response.
			Avoid an unconsidered repetition of elements
			Use external lighting to enhance the design.
			Integrate signage and graphics with the building design.
			Provide a discrete location for air conditioner units.
Element 6 : Open Space And Landscape Design			
Element	**Why Important**	**General Design Objectives**	**Design Suggestions**
Private And Communal Open Space	Access to open space is an important component of higher density residential developments. Open space can be provided as: - private open space including balconies, terraces or courtyards - communal open space shared between dwellings - public open space accessible to residents and visitors.	To ensure access to adequate open space for all residents.	Ensure private open spaces are useable and provide reasonable levels of amenity.
			Clearly distinguish between private and public spaces.
		To ensure common or shared spaces are functional and attractive for their intended users.	Consider the availability of recreational spaces and facilities in the area, potential demands for them, and provide facilities that are absent or undersupplied.
			Consider providing high-quality specialised facilities that will be shared by other local developments, rather than treating each development as a stand-alone entity.
			Design open spaces that can be well maintained.
			Design spaces that are usable in a range of weather conditions at various times of the year.
			Open space should: - provide a clear delineation between public, communal and private space - be substantially fronted by active ground floors including building entries - provide an outlook for as many dwellings as possible - provide opportunity for mature planting to provide shade, shelter or screening - be designed to protect any natural features on the site or immediately adjacent to the site - be accessible and useable.
		To allow solar access to the private and shared open	Orient balconies, terraces and communal open space to optimise access to sunlight.

		spaces of new high density residential units.	Use the open spaces on balconies, podiums and roof terraces to provide open spaces with maximum access to sunlight.
		To integrate the design of shared and private open space into the overall building design and façade composition.	Integrate balconies, terraces and roof gardens with the overall building form and facade composition.
		To provide for greenery within open spaces.	Include substantial areas for landscaping To provide sufficient growing room for trees between buildings and property boundaries
			Design to enable high quality, sustainable landscaping over structures.
			Minimise the visual effects of water run-off from open space areas.
			Provide Permeable Ground Surfaces.
Public Open Space	In areas of higher density residential development, residents and visitors will rely in part on public open space for relaxation, recreation and meeting places. Access to adequate and safe public open spaces is essential for the well being of the whole community.	To create public open space appropriate to its context.	ENSURE NEW PUBLIC OPEN SPACES CONTRIBUTE TO A SAFE, ATTRACTIVE AND WELL USED PUBLIC ENVIRONMENT.

Source: (Department of Sustainability and Environment)