THE IMPACT OF THE COMPACT CITY APPROACH ON MEDIUM AND HIGH-INCOME RESIDENTIAL AREAS: CASE STUDY OF THE WILGESPRUIT AREA, JOHANNESBURG

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[1] Note: The Wilgespruit Case Study Area is referred to by Plan Associates as Ruimsig / Poortview.

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EXECUTIVE SUMMARY

The compact city ideology represents the spatial implication of the sustainable development imperative.

The study is compiled as follows:

Chapter 1 deals with the problem statement and research objectives. The central theoretical statement is introduced. The method of investigation and structure of the study is explained.

Chapter 2 introduces the compact city theory. Claims of the compact city and instruments to realise same are introduced. Incentives that culminated in the compact city are mentioned. Concepts of the compact city are defined and explained.

Chapter 3 investigates the environmental aspects of the compact city, namely the transport dimension, health issues, private open space, renewable energy sources, the conservation of agricultural land and the vulnerability to natural hazards.

Chapter 4 addresses the social aspects of the compact city. The claims and counter-claims of the compact city ideology are investigated, namely whether it improves vitality, urbanism, a sense of community and quality of life. Other claims assessed are reduced crime, revitalisation of inner areas, improved equity and lower levels of segregation. The density preferences of residents are discussed.

Chapter 5 focuses on the economical aspects of the compact city. Development on greenfield vs. brownfield sites is compared. The cost of services is evaluated by means of a model. Increased land prices and affordability of houses and the effect thereof on densities is addressed. The role of government and private developers is discussed. Finally, the efficiency of cities and competition between cities is addressed.

Chapter 6. The implementation and management of the compact city is researched by evaluating different policies in their historical context. Unique elements of each policy are highlighted. Finally the current policy of the City of Johannesburg Metropolitan Municipality and its implication for the compact city is introduced.

Chapter 7 deals with the case study: The Wilgespruit area is placed in geographical and historical perspective. The impact of the Urban Development Boundary is highlighted. The claims of the compact city ideology and whether they have materialised in the Wilgespruit area are addressed.

Chapter 8 provides a conclusion of the study as well as further recommendations.

OPSOMMING

Die kompakte stad ideologie verteenwoordig die ruimtelike implikasie van volhoubare ontwikkeling.

Die studie is as volg saamgestel:

Hoofstuk 1 handel met die probleemstelling en navorsingsdoelwitte. Die sentrale teoretiese stelling word toegelig. Die metode van navorsing en struktuur van die studie word uiteengesit.

Hoofstuk 2 stel die teorie van die kompakte stad bekend. Aansprake van die kompakte stad en instrumente om dit te verwesenlik word bekend gestel. Insidente wat aanleiding gegee het tot die kompakte stad word vermeld.

Hoofstuk 3 ondersoek die omgewingsaspekte van die kompakte stad. Die vervoer dimensie word indringend bespreek. Ander aspekte waaraan aandag gegee word is die invloed van die kompakte stad op gesondheid, privaat oop ruimtes, hernubare energie-bronne, die beskerming van landbougrond en die kwesbaarheid vir natuurrampe.

Hoofstuk 4 handel met die sosiale aspekte van die kompakte stad. Die aansprake dat die kompakte stad lei tot groter vitaliteit in die stad, 'n hoër lewenskwaliteit, verminderde misdaad en vernuwing van die stad, word beoordeel. So ook of die kompakte stad lei tot groter regverdigheid en of dit sosiale skeiding verminder. Die digtheidsvoorkeure van inwoners word aangespreek.

Hoofstuk 5 fokus op die ekonomiese aspekte van die kompakte stad. Ontwikkeling op vakante persele buite die stad en ontwikkelde persele binne die stad word teen mekaar opgeweeg. Verhoogde eiendomspryse, die bekostigbaarheid van huise en die effek daarvan op verdigting word aangetoon. Die koste van dienste word deur middel van 'n model ondersoek. Die rol van die owerheid en privaat ontwikkelaars word uitgespel. Laastens word aandag gegee aan die effektiwiteit van stede en die kompetisie tussen stede.

Hoofstuk 6. Die implementasie en bestuur van die kompakte stad word aangespreek deur eerstens verskillende beleide wat aanleiding gegee het tot die kompakte stad in historiese perspektief te stel. Unieke elemente in elke beleid word uitgelig. Ten slotte word die ondersteunende elemente van die huidige beleid van Johannesburg Stadsraad en hul implikasie vir die kompakte stad bekend gestel.

Hoofstuk 7 handel met die gevallestudie. Die Wilgespruit area word geografies en histories bekend gestel. Die impak van die verstedelikingsgrens word uitgelig. Die aansprake van die kompakte stad ideologie en die verwesenliking daarvan in die Wilgespruit area word afsonderlik nagegaan.

Hoofstuk 8 handel met die gevolgtrekkings wat voortvloei uit die studie, asook met verdere aanbevelings.

Chapter 1

Introduction

1.1 INTRODUCTION

The Centrist/Decentrist debate in Townplanning has a long-standing history. In the context of sustainable development, urban form has recently been highlighted as a key variable in the search for equity, energy efficiency, environmental conservation, the more efficient use of infrastructure and the quality of urban life.

Pertaining to the Sustainable Development imperative, Breheny (1996:13) states that: "Viewed as a narrow environmental debate, the issue is profoundly important. But when the broader economic, social and cultural repercussions are taken into account, it soon becomes apparent that nothing less than the future of western lifestyles is at stake."

Concern is raised that the consensus reached on the advantages of urban densification, is based on limited empirically produced evidence and without an understanding of the real world.

Aspects of the Compact City that need further research include *inter alia* the following: Private Open Space vs. Public Open Space; quality of life for families and individuals; increased cost of land and therefore the end-product; the feasibility of public transportation; assessment of whether policies are fair and equitable; and the claim that prime agricultural land is lost by urban encroachment. Gordon and Richardson (1997) add to this list of aspects that need to be addressed, namely density preferences; perceived energy savings; the efficiency of compactness; technology and agglomeration – congestion trade-offs; and competition among cities.

"Breheny suggests that many of the benefits of centralisation may not stand up to scrutiny, and he questions whether the local 'pain' suffered by urban dwellers will be worth the 'gain' to sustainability; especially as some of the gains are questionable." (Jenks *et al*, 1996:11.)

It is a small irony that one of the first townhouse developments in South Africa, "Meerendal" located in Pinelands and consisting of 400m² sites, was at a certain stage ordered by the Provincial Administration to be immediately demolished (Meyers in PHSG, 1993:138-139). Yet at present densification is promoted by legislation and local municipalities.

In the South African context the sustainable development ideology is furthermore viewed as a tool to restructure the typical South African city form, which resulted from the Apartheid era.

South African literature dealing with the Compact City approach to townplanning and management places an exaggerated accent on the impact of this approach on low-cost housing. The reason for this intense attention to low-cost housing can, according to Irurah & Boshoff (2003:251), be found in the fact that "homelessness and poverty are the most glaring sustainability issues in South Africa". Assessment of the impact of the Compact City approach on medium and high-income residential areas is however neglected.

1.2 PROBLEM STATEMENT

Proactive planning for densification in the Wilgespruit area was done in terms of the Wilgespruit Structure Plan 1994 and the Roodepoort Residential Density Policy of 1994.

Although the Compact City ideology has been incorporated into legislation (the Development Facilitation Act) since 1996, it has only been explicitly implemented in Johannesburg through the Local Integrated Development Plan (LIDP) process since 2001.

Due to the concentration of high densities in some areas of the case study area, the visual character has been altered in a dramatic way. Congestion has become a part of daily life. Public awareness and concern by townplanners have now intensified. This concern is amplified as the Wilgespruit area should not be evaluated in isolation, but reflects densification trends visible all over Johannesburg and surrounding areas. The question is raised whether this reflect sustainable development.

The Wilgespruit area (now incorporated into the Johannesburg Metropolitan Municipality) provides an ideal case study to assess the impact of the compact city approach on medium and high-income residential areas. Development in this area will be evaluated by utilising the checklists provided by Breheny and Gordon & Richardson.

In the Wilgespruit area the delineation of an Urban Development Boundary was furthermore done in an arbitrary manner and this has been a contentious issue since its inception.

> Certain areas have been excluded from development while other areas have been earmarked and developed at high densities.
>
> Great discrepancies are furthermore found between development policies and allowable densities for areas situated directly adjacent to each other, but falling under the jurisdiction of different municipalities, e.g. the Mogale City and Johannesburg Municipal areas.

To further exacerbate the lack of rationality pertaining to the phenomenon, these municipalities share the same infrastructure: engineering facilities such as water, sewer, roads and stormwater facilities, as well as socio-economic infrastructure: a university, schools, shopping centres, recreational facilities and job opportunities.

Residents in the Wilgespruit area experience and are divided by *inter alia* the following frustrations:

Property owners who have invested in this area based on an approved Council policy – the Wilgespruit Structure Plan, 1994 – feel that they have been treated unfairly and that their legitimate expectations have been thwarted.

Residents in the Johannesburg area are concerned that the Johannesburg City Council now looses considerable amounts of money in rates and taxes as developers have moved to the adjacent municipality of Mogale City, where they are welcomed.

High land values have resulted in densities formerly unknown in this area. A percentage of residents are not in favour of densification – the aesthetic quality of the so-called "Milky Lane" (an area of high-density residential development) is criticised.

The market is severely distorted: land values of the area situated within the Urban Boundary have soared while land located outside the Urban Boundary remains sterilised.

The rationality of policies is furthermore questioned due to the fact that certain areas located outside the Urban Boundary e.g. the Ruimsig Farm Portions Area, enjoys comprehensive engineering infrastructure while areas located inside the Urban Boundary have not been serviced. The precedent of a significant number of approved townships outside the Urban Boundary can not be overlooked.

The concern raised by Harrison and Oranje (2002:11) pertaining to an interventionist approach to urban development seems to aptly describe the frustrations in the Wilgespruit area: "Most of the spatial plans/ frameworks that have been produced over the past decade have been poorly grounded in a real understanding of development processes and imperatives. It is not surprising that there is a growing disjuncture between the spatial visions of planners as captured in these frameworks and patterns of investment in the urban environment. In some cases this disjuncture is becoming so great that the credibility of planning is at stake."

What is more alarming is the concern about the long-term social implications of such densities. Small residential units (± 80m²) provide a minimum or no private open space or communal areas for play and recreation.

Questions that need to be addressed are *inter alia*:

1. Will the phenomenon of densification result in sustainable development as defined in the Bruntland Report (WCED, 1987)?

2. Can this trend of densification be reversed? Or stated differently: What is the possibility that new traditional neighbourhoods at lower densities, incorporating single residential dwellings situated in garden areas, will be developed for the medium and high-income market?

3. Has the final blow to the Garden City idea of Ebenezer Howard been struck as a direct result of the compact city approach to townplanning?

1.3 RESEARCH AIMS AND OBJECTIVES

1.3.1 General Aims:

The goal of this study is to evaluate the compact city approach to town-planning and management by focusing on the following key aspects: Compact City theory; environmental aspects of the Compact City; sociological aspects of the Compact City; economic aspects of the Compact City; and implementation of the Compact City ideology – institutional arrangements.

1.3.2 Specific objectives:

A specific objective of the study is the assessment of the implementation of the compact city approach on medium and higher income residential areas. The case study area (Wilgespruit) provides an ideal opportunity to assess the relevant issues.

The area comprises an area of similar extent as usually required for new cities. It reflects an area very similar as what Ebenezer Howard envisaged for the Garden City. The opportunity arises to contrast development in Wilgespruit with what could have been accomplished if the Garden City approach was adopted.

A recent study commissioned by the City of Johannesburg for this area provided the opportunity to utilise the applicable base information of the said study.

1.4 BASIC HYPOTHESIS/CENTRAL THEORETICAL STATEMENT

The compact city approach to townplanning and management will fundamentally change the way we live. Consensus on this methodology might have been reached without taking precautionary principles into consideration and merits further investigation.

Current approaches to townplanning are too bureaucratic, yet at the same time it does not take cognisance of the bigger picture and it neglects certain aspects which will have dire consequences for the present and for future generations.

1.5 METHOD OF INVESTIGATION

1.5.1 Analysis of literature:

Sources to be analyzed comprise the following:

Pertaining to the general aspects of the Compact City Ideology:
The debate as presented in literature will be reviewed.

Pertaining to the South African context:
National policies and legislation will be referred to.

Pertaining to local areas, e.g. the area of the case study (Wilgespruit area): Relevant Council policies, structure plans, LDO's, IDP's and RSDF's will be evaluated.

1.5.2 Assessment of the implementation of the compact city approach in the case study area:

The practical implementation and outcome of the said policies and structure plans in the case study area will be evaluated.

1.6 STRUCTURE OF THE STUDY

Chapter 2 will address the central Compact City debate based on the interpretation of aspects such as sustainability and sprawl. The tools of the Compact City, which are utilised to bring about densification, will be introduced. The Compact City debate is furthermore placed within the historical context of centrists vs. decentrists.

Chapter 3 evaluates the environmental aspects of the Compact City. Claims and counter-claims of the compact city are investigated, e.g. energy efficiency, improved quality of life and the preservation of agricultural land.

Chapter 4 explores the social claims and counter-claims of the compact city. It addresses issues such as equity, segregation, vitality, revitalisation and regeneration of inner areas, reduced crime and density preferences.

Chapter 5 highlights economical aspects of the Compact City: the feasibility of brownfield vs. greenfield development, the cost of services, the role of government and private developers, the efficiency of compact cities and the competition between cities are debated.

Chapter 6 introduces the policies which impacted on densification in the study area.

Chapter 7 evaluates the case study area against all the issues raised in the former chapters.

Chapter 8 provides the final conclusion to the study and poses possible recommendations for townplanning.

Chapter 2

The Compact City Theory

2.1 INTRODUCTION

According to Jenks *et* al (1996:11): "The relationship between urban form and sustainability is currently one of the most hotly debated issues on the international environmental agenda. The way that cities should be developed in the future, and the effect that their form can have on resource depletion and social and economic sustainability, are central to this debate."

Breheny (1996:14-15) indicates that, although the compact city ideology is the preferred option at present, the two viewpoints of urban form (namely the centrists vs. decentrists) can be traced back for a considerable time in history. He provides a summary of the different motives held by the different protagonists, and concedes that: " The mainstream concern has been with the quality of urban and rural life and, to a lesser extent, the aesthetics of urbanity. In the post-1945 period, with the cities appearing to be rather less evil and the problems being increasingly of 20th century origin, planning motives became more diverse, more specific and less visionary. The common denominator of all of these initiatives was a desire to plan for communities in healthy and efficient surroundings, away from the disease and congestion of the industrial towns."

The following table reflects the debate:

Table 1. A selection of historical Centrist and Decentrist proposals

	Centrists		Decentrists	
	Solution	**Protagonist**	**Solution**	**Protagonist**
1800			New Lanark	Robert Owen
1850			Saltaire	Titus Salt
			Bournville	George Cadbury
			Port Sunlight	William Lever
1900			Garden Cities movement	Ebenezer Howard
1935	La Villa Radieuse	Le Corbusier	Broadacres City: a new Community Plan	Frank Lloyd Wright
1955	Counter-attack against 'Subtopia'	Nairn	New Towns movement	Mumford, Osborn TCPA
1960	Urban Diversity	Jacobs, Sennett		
1970	Civilia	De Wofle		
1975	Compact city	Dantzig & Saaty		
1990	Compact city	National government	Market solutions	Gordon & Richardson Evans, Cheshire, Simmie
		Newman & Kenworthy ECOTEC, CPRE, FOE	'Good life'	Robertson, Green & Holliday

Source: Breheny (1996:30)

2.2 CLAIMS OF THE COMPACT CITY IDEOLOGY

In the present debate the claims of the centrists are: greater energy efficiency to be accomplished by public transportation; revitalised urban cores and vitality in urban areas; more equity in urban areas; an improved quality of life; and shorter commuter distances.

The counter-claims submitted by the decentrists are: a dispute over the environmental benefits claimed – decentrists hold the opinion that the quality of life will deteriorate due to increased congestion; concern over the lack of open space and town cramming; the probable impossibility of halting urban decentralisation; the unlikelihood of reviving the inner areas; the assertion that technology has reduced the need for a compact urban form as benefits of agglomeration is spread through the Infobahn.

2.3 INSTRUMENTS OF THE COMPACT CITY APPROACH TO TOWN-PLANNING AND MANAGEMENT

Pertaining to the City of Johannesburg several strategies / town-planning tools are incorporated in order to realise a preferred urban form, for example:

i) *The Urban Edge*
The Urban Edge is utilised as a growth management tool. Urban containment is accomplished by restructuring development to predetermined areas. This instrument of the compact city is viewed by many people as the most controversial aspect of the compact city.

ii) *Corridor development*
In order to integrate former segregated areas, development along corridors is promoted.

iii) *Nodal policy*
Public transportation is promoted by concentrating activities into nodes.

iv) *Residential policies* are applied in order to accomplish strategic residential densification.

v) *Mobility policies,* related to the residential and nodal policies, promote public transportation.

The aspect of sustainable development runs through all Council policies. The context of sustainability will be explored next.

2.4 INCENTIVES THAT PROMOTED SUSTAINABILITY

2.4.1 Incidents and political responses:

Awareness for the environment was raised by many different incentives. The following list provided by the Green Belt Action Group from Britain reflects both incidents that triggered awareness as well as political responses thereto:

- The Club of Rome's reports *The limits to growth* (1972) and *Blueprint for survival* (1972).
- In 1977 President Carter commissioned *The global 2000 report: Entering the Twenty-first century.*
- In 1981 the forests were found to be dying in Germany, acid rain became politically real and politics itself was irreversibly changed with the rise of the German Green Party.
- In 1985 the ozone hole was announced by science with a NASA image of a hole at the end of the world.
- In 1988 alternatives was drawn to global warming.
- Chernobyl blew up in 1986.
- The 'green wave' hit Britain in the late 1980's.
- Seals died in the North Sea in 1988.
- The Greens won 15% at the 1989 European elections.
- The British government published its White Paper *This common inheritance* in 1990.
- At the 1992 Earth Summit disappointment was however felt, as aspirations of the Rio Proclamation was not met.

(Rose, 1993:288-289)

The one incentive whose influence is still dictating town-planning and environmental policies today is the report by the World Commission on Environment and Development (WCED, 1987) commonly known as the Bruntlandt Report.

2.4.2 The Bruntlandt Report:

Aptly named *Our Common Future*, the Bruntlandt Report by the WCED was a powerful document which influenced the Compact City ideology and subsequent approach to town-planning and management. Many of the objectives and rationale pertaining to urban problems are found in embryonic form in this report.

In the foreword to the report Mrs. Gro Bruntlandt, as chairman of the study group, provides *inter alia* the following insight: The World Commission on Environment and Development was asked by the General Assembly of the United Nations to formulate 'a global agenda for change'. It was an urgent call to propose long-term environment strategies for achieving sustainable development by the year 2000 and beyond; and to recommend ways on how concern for the environment may be translated into greater co-operation among developing countries and between

countries at different stages of economic and social development (this could lead to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment and development). The idea was to set "a long-term agenda for action during the coming decades, and aspirational goals for the world community" (WCED, 1987:ix).

The terms of reference of the Commission were seen by some to be limited to 'environmental issues' only. Bruntlandt reacts that "this would have been a grave mistake. The environment does not exist as a sphere separate from human actions, ambitions, and needs, and attempts to defend it in isolation from human concerns have given the very word 'environment' a connotation of naivety in some political circles . . . the 'environment' is where we all live and 'development' is what we all do in attempting to improve our lot within that abode. The two are inseparable" (WCED, 1987:xi).

The Commission realised that they had to obtain commitment from civil society to succeed. Bruntlandt continues: "If we do not succeed in putting our message of urgency through to today's parents and decision makers, we risk undermining our children's fundamental right to a healthy, life-enhancing environment. Unless we are able to translate our words into a language that can reach the minds and hearts of people young and old, we shall not be able to undertake the extensive social changes needed to correct the course of development." (WCED, 1987:xiv.)

Our historical perspective of the earth is highlighted. Reference is made to the fact that in the middle of the 20th century, we saw our planet from space for the first time. The Commission speculates that "historians may eventually find that this vision had a greater impact on thought than did the Copernican revolution of the 16th century, which upset the human self-image by revealing that the earth is not the centre of the universe" (WCED, 1987:1).

> "From space our planet was seen as a small and fragile ball dominated not by human activity and edifice but by a pattern of clouds, oceans, greenery, and soils. From space, the earth was seen as an organism whose health depends on the health of all parts." (WCED, 1987:1.)

The Commission states that we have the power to reconcile human affairs with natural laws and to thrive in the process. The believes of the Commission (WCED, 1987:ix) are formulated namely that:

> "People can build a future that is more prosperous, more just, and more secure."
>
> The Commission saw the possibility for "a new era of economic growth, one that must be based on policies that sustain and expand the environmental resource base."

> The Commission believes that "such growth is absolutely essential to relieve the great poverty that is deepening in much of the developing world." The hope for the future is however "conditional on decisive political action to begin managing environmental resources to ensure both sustainable human progress and human survival."

The aim of the report is indicated as follows: **"We are not forecasting a future; we are serving a notice – an urgent notice based on the latest and best scientific evidence – that the time has come to take decisions needed to secure the resources to sustain this and coming generations. We do not offer a detailed blueprint for action, but instead a pathway by which the peoples of the world may enlarge their spheres of co-operation."** (WCED, 1987:2.)

In an attempt to explain the concept of sustainable development, the Commission *inter alia* states that sustainable global development requires that those who are more affluent adopt life-styles within the planet's ecological means – in their use of energy, for example. Taking projections of population growth and increased urbanisation into account, the Commission specifically recognises the importance of the urban challenge within the context of the sustainable development imperative.

The Commission asserts that few city governments in the developing world have the power, resources and trained personnel to provide their rapidly growing populations with the land, services and facilities needed for an adequate human life; clean water, sanitation, schools and transport. The result is mushrooming illegal settlements with primitive facilities, increased overcrowding, and rampant disease linked to an unhealthy environment. Cities in industrial countries also face problems such as deteriorating infrastructure, environmental degradation, inner-city decay and neighbourhood collapse. Although these cities have the means and resources to tackle this decline, the issue is ultimately one of political and social choice.

The Commission suggests that we would have to develop explicit settlement strategies to guide the process of urbanisation. Interestingly, the Commission suggests that this be done by "taking the pressure off the largest urban centres and building up smaller towns and cities, more closely integrating them with their rural hinterlands" (WCED, 1987:17). It proposes that, in order to realise the above-mentioned objectives, policies on taxation, food pricing, transportation, health and industrialisation, that might work against the goals of settlement strategies, should be examined and changed.

The statement is made that: "good city management requires decentralization of funds, political power and personnel to local authorities, which are best placed to appreciate and manage local needs" (WCED, 1987:17). The Commission however concedes that available evidence suggests that most attempts by central governments to balance spatial development have been both expensive and

ineffective. This can be ascribed to the fact that the push factors working in rural areas and the pull factors of urban areas encourage urbanisation.

The Commission is adamant that urban development cannot be based on standardised models, imported or indigenous. It stresses that development possibilities are particular to each city and must be assessed within the context of its own region. It therefore distinguishes between the urban crises of third world cities and industrial world cities. It is indicated that such development makes the provision of housing, roads, water supply, sewers, and public services prohibitively expensive and that the settlements encroach on productive agricultural land, thus resulting in the loss of this land. (It is significant to note that the uncontrolled physical expansion of cities and the serious implications that it have on the urban environment and the economy is addressed as an aspect of third world cities.)

The plight of the poor is specifically addressed by the Commission. The following extract from a public hearing by the WCED (1987:254) illustrates the awareness towards marginalised societies:

"I'm an expert in slum dwelling. We're establishing a small, tiny organization trying to organize slum dwellers, because we see so many slums. Slums in the city, slums in the villages, slums in the forests . . . . When I go back to my people, the slum dwellers, tonight they will ask me what I have got from this meeting in the big hotel. They won't ask for information, just 'have you brought some money for us to build new houses?'"

Syamsuddin Nainggolan
Founder, Yayasan Panca Bakti
WCED Public Hearing, Jakarta, 26 March 1985

The relevance of the Bruntlandt Report for this study is that the aim of this study is to evaluate from a town planning perspective, the outcome and implementation of the sustainable development imperative and send a notice that perhaps the compact city approach to town-planning and management is not enforcing sustainable development.

The call for energy efficiency and how it impacts on urban form will be highlighted in this report, e.g. policy-makers adopted the ideology that, in order to save energy, we should reduce the consumption of petroleum by reducing vehicle miles travelled. This can be done (in the opinion of the policy-makers) by influencing city form to be more compact, thus people will travel to their destinations over shorter distances. The feasibility of public transportation and mass transit thus also become greater due to higher population densities. The critique on this assumption will be explored. The debate by Newman and Kenworthy (1989a, 1989b), Breheny (1996), and Gordon and Richardson (1997) in this regard will be evaluated.

In the Bruntlandt Report, government intervention is only mentioned in a spatial context when the aspects of housing and services for the poor are addressed, e.g. to plan and guide the city's physical expansion to anticipate and encompass needed land for new housing, agricultural land, parks, and children's play areas. The relevance of the above-mentioned information for this report is that the compact city approach in medium- and high-income areas is influenced by the City of Johannesburg's commitment to provide services to areas where a backlog is experienced. The Council's current urban containment policy in areas for medium- and high-income areas is based on the assumption that urban growth on the periphery will tap into financial resources required for the upliftment of poorer areas. This report will comment on whether the urban growth policies of the City of Johannesburg Metropolitan Municipality are in accordance with the proposals of sustainable development.

2.5 CLARIFYING CONCEPTS

2.5.1 Sustainable development:

According to the WCED (1987:43), "sustainable development is development that meets the needs of the present without compromising the ability of the future generations to meet their own needs".

According to Hardoy *et al* (2001:344), the term 'sustainable development' came to be increasingly used, without specifying what was meant by it. He states that: "There is also the ambiguity in both the words that make up the term, and there is no consensus as to what is meant by 'development' or what is meant by 'sustainable' (or what it is that sustainable development is meant to sustain). The term sustainable development also came to be used to describe (or legitimise) goals and activities that bear little relation to its original meaning. Vested interests always seek fashionable or popular words or phrases to help to justify or legitimise their interests or obscure their real intent. Even when the term 'sustainable development' is used with reference to the Bruntlandt Commission definition, it is still possible to have very different emphases – for instance stressing conservation to avoid 'compromising the ability of future generations to meet their own needs' rather than meeting 'the needs of the present generation'".

2.5.1.1 *Emphasising sustainability, forgetting development*

Hardoy *et al* (2001:345) furthermore observes that: "perhaps the most common distortion of the concept of sustainable development is to ignore the 'development' aspects altogether. Much of the discussions on sustainable development (and most of the literature on the subject) concentrate on ecological sustainability. Many authors who discuss what they term 'sustainable development' do not include a discussion of 'development goals' at all. Their concerns are with sustainability, not sustainable development. In such literature, it is common to find the terms

'sustainable development' and 'sustainability' used inter-changeably with no recognition that the two mean or imply different things."

The relative priority given to ecological sustainability or to human needs within a commitment to sustainable development has major implications for any urban policy. For cities, a stress only on ecological sustainability would imply large investments in reducing the use of fossil fuels (especially coal and, for wealthier cities, private car use).

2.5.1.2 *The ambiguities in what is to be sustained*

"One of the main ambiguities in the term 'sustainable development' or 'sustainability' is what is to be sustained. For instance, is it particular natural resources, particular areas (or ecosystems) or particular human activities or institutions that are to be sustained. The term sustainable development has even been used to refer to the need to sustain profits/ returns to capital investment." (Hardoy *et al*, 2001.)

2.5.1.3 *Dynamic sustainability*

Castells (s.a, 119) argues that sustainability should not be static or conservative in the sense that some things that happen in cities should be conserved. He promotes a concept of "dynamic sustainability which is both conservation and improvement leading to an enhanced quality of life including social justice".

2.5.1.4 *Key principles of sustainable development*

Dalal-Clayton and Bass (2002:33-34) in reference to the Development Assistance Committee of the Organisation for Economic Co-operation and Development, Paris (DAC OECD), identified the following key principles for sustainable development strategies:

1. People-centred
2. Consensus on long-term vision
3. Comprehensive and integrated
4. Targeted with clear budgetary priorities
5. Based on comprehensive and reliable analysis
6. Incorporate monitoring, learning and improvement
7. Country-led and nationally-owned
8. High-level government commitment and influential lead institutions
9. Building on existing mechanism and strategies
10. Effective participation
11. Link national and local levels
12. Develop and build on existing capacity.

2.5.2 Environment

The preamble to the National Environmental Management Act, 1998 (Act 107 of 1998) *inter alia* states that: "the State must respect, protect, promote and fulfil the social, economic and environmental rights of everyone".

Van Wyk's (1997:237) definition of 'environment' substantiates a holistic approach to sustainability. She states as follows: "The term previously referred to traditional aspects of 'conservation' and 'pollution'. The more recent approach of 'sustainable development', which emphasizes social and economic factors, encompasses an even wider range of issues."

The most recent definition is the following:
"Environment" means the surroundings within which humans exist and that are made up of -

i) the land, water and atmosphere of the earth;
ii) micro-organisms, plant and animal life;
iii) any part or combination of i) and ii) and the interrelationships among and between them; and
iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

2.5.3 City

Inherent to the concept of 'compact city' is of course first the concept of 'city' itself.

Healey (2002:1778-1779) criticises the 'narrowness' of conception of the city. She refers to the current concepts of the city namely the 'competitive city', the 'European city', and the 'compact city' as "little more than marketing bylines, which merely emphasize one dimension of urban life". She argues for multidimensional conceptions of 'city' which would "both reflect and inter-relate the rich diversity and complexity of contemporary urban life, and generate a discursive public realm within which people participate on the outcome of the city". The result of such discourse would be ". . . responsive, interactive, contingent, context-dependent and supportive of innovation, rather than rule-bound, imposed from above, dominated by professions and parties, based on generalised norms and oppressive to adaptation and creativity".

2.5.3.1 *Compact City*

Burton (2000:1) defines the compact city as "a relatively high density, mixed-use city, based on an efficient public transport system and dimensions that encourage walking and cycling. It contrasts with the car-orientated 'urban sprawl' of many modern towns and cities".

What is interesting is that with the definition, a methodology or process is offered to achieve urban compactness. According to Burton (2000:1) this is accomplished through intensification, consolidation or densification, and involves the re-use of brownfield land, more intensive use of urban buildings, subdivisions and conversions of existing development and increase in the density of population in urban areas.

2.5.3.2 *Ecological City*

Referring to the concept of the ecological footprint of cities, Wackernagel and Rees (1999:29) state that the ecological locations of human settlements no longer coincide with their geographical locations. The impact of a compact city versus a more dispersed city is thus not solely dependent on the physical area of the development. City dwellers are mainly consumers of products which are imported from global production sites and markets, from agricultural products to sophisticated electronic equipment.

2.5.3.3 *Garden City*

Ebenezer Howard (1946) developed the Garden City Concept due to his concern with the urban squalor created by rapid industrialisation. To him the cities were "ulcers on the very face of our beautiful island".

The Garden City idea incorporates the following aspects: The view that a co-operative civilisation could be fulfilled only in small communities embedded in a decentralised society; and the acknowledgement that cities did have some attractive characteristics. Howard was therefore looking for a marriage of the best of town and country. The famous three diagrams asked the question: 'the people: where will they go?' The answer was to 'town-country', or the 'garden city'.

The 1898 version of Howard's book showed groups of garden cities, linked by railways, all forming a poly-centric Social City. Residential areas, each built around a school, would be separated from industrial areas. The central area would have civic buildings, a park and an arcade containing shops. The town would occupy 1,000 acres, surrounded by a 5,000 acre belt of agricultural land. This belt would provide the town with produce, but would also act as a green belt, preventing the town from spilling into adjacent country-side. Howard's garden cities would accommodate 32,000 people, at a density of approximately 25-30 people per acre.

Hall (1988:89-93) in his appraisal of the Garden City idea, criticises Howard on the grounds that "it misrepresents the fact that the countryside of the Victorian and late-Victorian area was in fact equally unprepossessing. Although it promised fresh air and nature, it was also racked by

agricultural depression and offered neither sufficient work and wages, nor adequate social life".

2.5.4 Sprawl

According to Duany *et al* (2000:3-4), there are two different models of urban growth, namely the traditional neighbourhood and suburban sprawl. The two models are seen as "polar opposites in appearance, function, and character; they look different, act different and affect us in different ways." It is stated that:

> The traditional neighbourhood was the fundamental form of European settlement in North America through the Second World War, and also continues to be the dominant pattern of habitation outside the United States. "The traditional neighbourhood – represented by mixed-use, pedestrian-friendly communities of varied population, either standing free as villages or grouped into towns and cities – has proved to be a sustainable form of growth." It is observed that it allowed settlement "without bankrupting the country or destroying the countryside in the process".
>
> Suburban sprawl, which is perceived to be "the standard North American pattern of growth, ignores historical precedent and human experience". It is postulated that "it is an invention, conceived by architects, engineers and planners, and promoted by developers in the great (sweeping aside of the old) that occurred after the Second World War. Unlike the traditional neighbourhood model, which evolved organically as a response to human needs, suburban sprawl is an idealised artificial system. Unfortunately this system is already showing itself to be unsustainable. Unlike the traditional neighbourhood, sprawl is not healthy growth, it is essentially self-destructive. Even at relatively low population densities, sprawl tends not to pay for itself financially and consumes land at an alarming rate, while producing insurmountable traffic problems and exacerbating social inequity and isolation."

Duany *et al* (2000:4-5) are furthermore concerned that these particular outcomes and others were not predicted. They state that: "As the ring of suburbia grows around most cities, so grows the void at the centre. Even while the struggle to revitalise deteriorated downtown neighbourhoods and business districts continues, the inner ring of suburbs is already at risk, losing residents and businesses to fresher locations on a new suburban edge."

2.5.4.1 *The components of sprawl:*

Duany *et al* (2000:5-7) identify five components of sprawl and state that, although one component may be adjacent to another, the dominant characteristic of sprawl is that components are strictly segregated from one another. The following descriptions are provided:

1. *"Housing subdivisions*, also called *clusters*. These places consist only of residences. They are sometimes called *villages, towns,* and *neighbourhoods* by their developers, which is misleading, since those terms denote places which are not exclusively residential and which provide en experiential richness not available in a housing tract. Subdivisions can be identified as such by their contrived names, which tend toward the romantic . . . and often pay tribute to the natural or historic resource they have displaced." (See photograph of Ruimsig Country Estate: Annexure 4.)

2. *"Shopping centers,* also called *strip centers, shopping malls* and *big-box retail.*" These are places exclusively for shopping and come in every size. They are all places to which one is unlikely to walk. "The conventional shopping center can be easily distinguished from its traditional main-street counterpart by its lack of housing or offices, its single-storey height, and its parking lot between the building and the roadway."

3. *Office parks* and business parks. "These are places only for work. Derived from the modernist architectural vision of the building standing free in the park, the contemporary office park is usually made of boxes in parking lots. Still imagined as a pastoral workplace isolated in nature, it has kept its idealistic name and also its quality of isolation, but in practice it is more likely to be surrounded by highways than by countryside."

4. *Civic institutions.* "The fourth component of suburbia is public buildings: the town halls, churches, schools, and other places where people gather for communication and culture. In traditional neighbourhoods, these buildings often serve as neighbourhood focal points, but in suburbia they take an altered from: large and infrequent, generally unadorned owing to limited funding, surrounded by parking, and located nowhere in particular."

5. *Roadways.* "The fifth component of sprawl consists of the miles of pavement that are necessary to connect the other four disassociated components. Since each piece of suburbia serves only one type of activity, and since daily life involves a wide variety of activities, the residents of suburbia spend an unprecedented amount of time and money moving from one place to the next. Since most of this motion takes place in singly occupied automobiles, even a sparsely populated area can generate the traffic of a much larger traditional town."

2.5.4.2 *A brief history of sprawl:*

In answering the question how sprawl came about, Duany *et al* (2000:7-12) observes that: "Far from being an inevitable evolution or a historical accident, suburban sprawl is the direct result of a number of policies that conspired powerfully to encourage urban dispersal." The sequence of events is as follows:

After the Second World War available mortgages prompted single family suburban houses to be constructed. Simultaneously, highways were constructed and roads subsidised while mass transit was neglected. Private transport became affordable and convenient for the average citizen.

"The shops stayed in the city, but only for a while. It did not take long for merchants to realise that their customers had relocated and to follow them out." They were placed "along the wide high-speed collector roads between housing clusters" and "responded to their environment by pulling back from the street, resulting in large freestanding developments."

"For a time, most jobs stayed downtown. Workers travelled from the suburbs into the centre, and the downtown business districts remained viable. But, as with the shops, this situation could not last; by the 1970s, many corporations were moving their offices closer to the workforce." The "desire for a shorter commute, coupled with suburbia's lower tax burden, led to the development of the business park, completing the migration of each of life's components into the suburbs. As commuting patterns became predominantly suburb to suburb, many centre cities became expendable."

Duany *et al* (2000:9-10) provide the following striking narrative and comments on sprawl: "While government programs for housing and highways promoted sprawl, the planning profession, worshipping at the altar of zoning, worked to make it the law. Why the country's planners were so uniformly convinced of the efficacy of zoning – the segregation of the different aspects of daily life – is a story that dates back to the previous century and the first victory of the planning profession. At that time, Europe's industrialized cities were shrouded in the smoke of Blake's 'dark, satanic mills.' City planners wisely advocated the separation of such factories from residential areas, with dramatic results. Cites such as London, Paris, and Barcelona, which in the mid-nineteenth century had been virtually unfit for human habitation, were transformed within decades into national treasures. Life expectancies rose significantly, and the planners, fairly enough, were hailed as heroes."

"The success of turn-of-the-century planning . . . became the foundation of a new profession, and ever since, planners have repeatedly attempted to relive that moment of glory by separating everything from everything else.

This segregation, once applied only to incompatible uses, is now applied to every use. A typical contemporary zoning code has several dozen land-use designations; not only is housing separated from industry but low-density housing is separated from medium-density housing, which is separated from high-density housing. Medical offices are separated from general offices, which are in turn separated from restaurants and shopping. As a result, the new American city has been likened to an unmade omelette: eggs, cheese, vegetables, a pinch of salt, but each consumed in turn, raw. Perhaps the greatest irony is that even industry need not be isolated anymore. Many modern production facilities are perfectly safe neighbors, thanks to evolved manufacturing processes and improved pollution control. A comprehensive mix of diverse landuses is once again as reasonable as it was in the preindustrial age." (Duany *et al*, 2000:10-11.)

Duany *et al* (2000:12) hold the opinion that "sprawl is a result that continues largely unchecked. Each year, we construct the equivalent of many cities, but the pieces don't add up to anything memorable or of lasting value. The result doesn't look like a place, it doesn't act like a place, and, perhaps most significant, it doesn't feel like a place. Rather, it feels like what it is: an uncoordinated agglomeration of standardized single-use zones with little pedestrian life and even less civic identification, connected only by an overtaxed network of roadways. Perhaps the most regrettable fact of all is that exactly the same ingredients – the houses, shops, offices, civic buildings, and roads – could instead have been assembled as new neighbourhoods and cities. Countless residents of unincorporated counties could instead be citizens of real towns, enjoying the quality of life and civic involvement that such places provide."

The narrative as provided by Duany *et al* evokes a powerful sense of *déjà vu*, but surprisingly the description of sprawl leads us to the very scene of high density developments located inside the Urban Development Boundary of the Wilgespruit area (high-density developments which are not integrated). The description of sprawl as provided by Duany *et al* then stands in sharp contrast to the usual interpretation thereof, namely dispersed urban development in a rural area.

2.5.5 Densities:

Density refers to the number of units per hectare. A distinction is made between 'gross density' and 'net density':

Gross residential density is the overall number of dwelling units divided by the total size of the area.

Net residential density expresses the number of dwelling units divided by the size of the area that is taken up by residential use only.

The aspect of densities namely the rationale behind policies and the strategies for the implementation thereof, will be explored extensively in Chapter 6.

2.6 CONCLUSION

Awareness for the environment was triggered by worldwide incidents. The Bruntland Report is of specific relevance as it has a direct implication for cities.

The compact city debate historically revolves around centrist's / decentrist's viewpoints as to how efficiency, quality of life and sustainability can be realised in cities.

Inherent to the above is the interpretation of key aspects such as sustainable development, environment, city, density and sprawl. The definitions of these elements are not value-free, nor is there consensus on what constitutes their core meaning. It is the responsibility of town-planners to further investigate how quality of life in cities can be realised.

Chapter 3

The Environmental Aspects of the Compact City

3.1 INTRODUCTION

"The compact city debate has been driven largely by environmental arguments; for example, that it is the most energy efficient urban form, it reduces the need to travel and hence transport emissions; and that is conserves the countryside." (Jenks *et al*, 1996:169.)

This claim of the compact city ideology namely that higher densities will propel people to use public transportation instead of private transportation resulted in an academic debate between Newman and Kenworthy (1989a, 1989b) and Gordon and Richardson (1989, 1991, 1996, 1997), reminiscent almost of the Susskind/ Hawkin debate pertaining to the information paradox. In this case the apparent commuting paradox was in the forefront.

Breheny (1992, 1995a, 1995b, 1996) features as another important role player in this debate and points to the possible contradictions of the Compact City, namely the compact city versus energy efficiency; the compact city versus suburban quality of life; the compact city versus the green city; the compact city versus telecommunication-rich dispersal; the compact city versus renewable energy sources; and the compact city versus rural economic development. (Breheny, 1992:143).

3.2 CLAIMS AND COUNTER-CLAIMS OF THE COMPACT CITY

3.2.1 The transport dimension: will energy be saved?

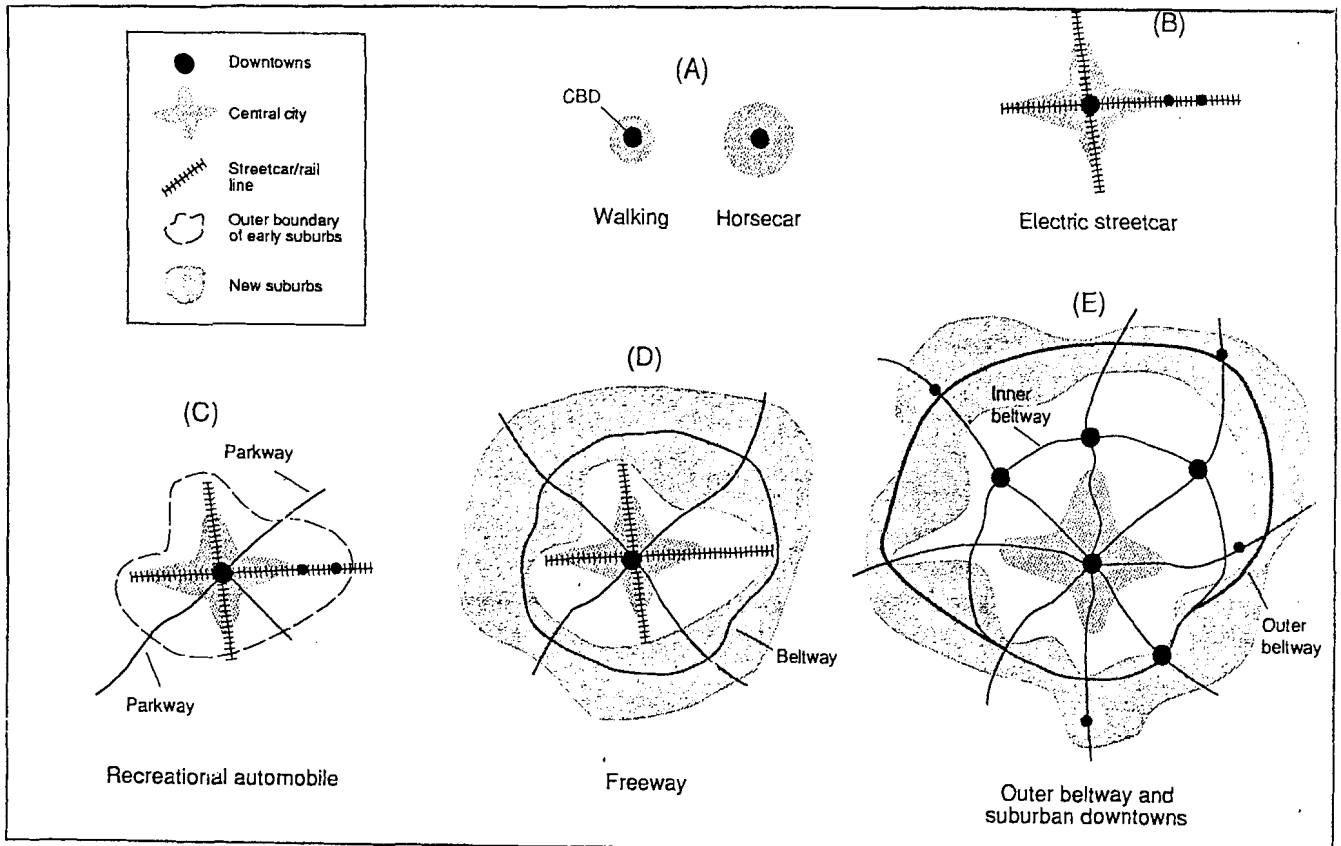
The sustainable development theory has culminated in the view that, in order for cities to be sustainable, energy should be saved by the substitution of private transport with public transport.

Increased concern about the environmental implications of increased car usage has generated particular interest in how planning policies might utilize the apparent greater transport efficiency of traditional urban forms.

3.2.1.1 *Technology and Urban Form:*

As is clear from the following diagram, the form of cities, to a large extend, reflects the transport technologies which were dominant at different stages of their development (Barrett, 1996:171; Hartshorn, 1980:160).

Figure 1. Transport and Urban Form



Transportation and Urban Form. Before the advent of mechanized transportation, the city exhibited a compact form (A). The streetcar technology of the late nineteenth century created a star-shaped form with development following route alignments (B). The automobile opened up interstitial areas between rail corridors for development in the 1920s and 1930s (C). Freeways and beltways in the post-World War II city led to new waves of development (D), which led to the development of suburban downtowns and outer beltways (E).

Source: Hartshorn (1980:160)

3.2.1.2 *Urban Densities:*

The interest in the relationship between urban form (inherently reflecting residential densities) and transport efficiency was given particular impetus by the work of Newman and Kenworthy (1989a, 1989b).

They studied a number of large cities worldwide and found that petroleum consumption relates to population density. A consistent pattern of higher densities being associated with lower fuel consumption was found: Cities in the United Nations, with the lowest densities, had the highest consumption rates. European cities were relatively fuel efficient. Hong Kong, with very high densities and a large mass transit system, was by far the most efficient. (Breheny, 1996:23)

They argue that the difference mainly reflects land use patterns and the transportation system.

Breheny (1996:23) states that: "The conclusion from the exercise was that, if fuel consumption and emissions are to be reduced, there is a need for policies to promote urban compaction and public transport."

Breheny (1996:23) confirms that the ECOTEC (1993) study for the UK Government also produced evidence that higher densities are associated with less travel (see Table 2). It was deducted that an inverse correlation between total distances travelled per week and population density can largely be attributed to car travel accounts. People living at the lowest density (under 1 person per hectare) show significantly more vehicle miles travelled than people living at higher densities (50+ persons per hectare).

Table 2: Density and distance travelled per person per week by mode (km): UK 1985/1986

Density (person/ha)	All modes	Car	Local bus	Rail	Walk	Other
Under 1	**206.3**	**159.3**	**5.2**	**8.9**	**4.0**	**28.8**
1 – 4.99	**190.5**	**146.7**	**7.7**	**9.1**	**1.9**	**21.9**
5 – 14.99	**176.2**	**131.7**	**8.6**	**12.3**	**4.3**	**18.2**
15 – 29.99	**152.6**	**105.4**	**9.6**	**10.2**	**6.6**	**20.6**
30 – 49-99	**143.2**	**100.4**	**9.9**	**10.8**	**6.4**	**15.5**
50 and +	**129.2**	**79.9**	**11.9**	**15.2**	**6.7**	**15.4**
All areas	**159.6**	**113.8**	**9.3**	**11.3**	**5.9**	**19.1**

Data exclude trips less than 1.6km and only refer to the main mode used for a trip.

Source: Breheny, 1996:23

Breheny (1996:23) remarks that, due to the high political priority ascribed to global warming and its significance in the sustainability debate, as well as the knowledge that transport is the fastest growing contributor to CO2 emissions, the Newman and Kenworthy and ECOTEC message has been accepted readily. Breheny however cautions that although the message was accepted politically, it remains controversial in the academic world.

The findings and recommendations of Newman and Kenworthy evoked a fierce debate. Gordon and Richardson subsequently wrote an article *Gasoline Consumption and Cities: A Reply* (1989) and objected to the observations by Newman and Kenworthy. They issue a warning against the utilisation of the observations to form a basis for policy objectives to minimize gasoline consumption and recommendations of a twin strategy of re-urbanisation (i.e. a return to more compact and more mono-centric urban land-use patterns), and investment in urban rail transit.

A rationale for promoting urban densification was that this will result in shorter journeys. Gordon *et al* (1991:418-419) however investigated the relation between population growth and commuting times, and found that: "There is a striking difference in auto commuting times between dense

and dispersed cities. The times are 25 to 30 percent higher for central city residents. They imply more congestion, whereas dispersion offers more diverse opportunities for faster commutes through changes of residence or jobs, the relocation of firms, or the choice of uncongested routes."

Interestingly they conclude that: "Also, commuting times tend to be shorter in rapidly growing cities, evidence that growth *per se* does not lead to ubiquitous congestion, provided that the spatial distribution of growth is conducive to work trip-economizing behavior by both firms and households."

Table 3: Population growth and commuting times in 20 largest U.S. metropolitan areas

	Annual population growth rate (%) 1980-85	Suburban/central city auto time 1985	Automobile commuting time (min)[a]		Significance of Difference (t-value)
			1980	1985	
New York	0.4	2.86	28.1	26.3	-1.97[c]
Los Angeles	2.0	1.07	23.7	22.1	-4.03[b]
Chicago	0.4	1.07	25.4	23.9	-2.44[b]
San Francisco	1.5	0.96	23.1	21.3	-2.14[c]
Philadelphia	0.3	0.90	23.7	21.9	-3.15[b]
Detroit	-0.7	1.16	23.1	19.9	-6.11[b]
Boston	0.3	0.98	22.0	20.4	-2.20[c]
Dallas	3.4	1.03	22.6	22.7	0.10
Washington, DC	1.3	1.26	26.9	25.0	-3.21[b]
Houston	3.0	1.19	26.5	24.0	-2.48[b]
Miami	1.6	1.19	22.9	20.6	-3.10[b]
Cleveland	-0.4	0.97	22.1	19.5	-3.68[b]
Atlanta	2.8	1.15	24.7	23.3	-1.87[c]
St. Louis	0.3	1.11	22.6	20.9	-2.21[c]
Seattle	1.4	1.11	22.0	20.5	-1.70[c]
Minneapolis	1.1	1.20	19.6	17.6	-3.79[b]
San Diego	2.6	1.26	20.3	19.5	-0.85
Baltimore	0.5	1.15	25.7	24.7	-0.78
Pittsburgh	-0.7	1.49	22.2	21.5	-0.52
Phoenix	3.8	1.06	21.8	22.4	0.73

a. Includes commuting by car, truck, or van in both years.
b. Significant at 0.01 level.
c. Significant at 0.05 level.

Source: Gordon *et al* (1991:418)

Gordon *et al* (1991:419) anticipates the logical next question of whether in future, the pressures of growth and deteriorating congestion will become overwhelming. They remark that "projections of doomsday scenarios have resulted in proposed remedies such as ambitious growth management plans to eliminate imbalances within communities by changing the geographic distribution of housing and employment in the region".

They respond to such growth management strategies by referring to the role of market driven development. They reiterate that: "What these proposals ignore is that spontaneous relocation decisions by firms and households do a very nice job of achieving balance, and of keeping

commuting times within tolerable limits without costly planning interventions. The appropriate role for planning agencies and local jurisdictions should be to facilitate the decentralization of jobs by relaxing zoning restrictions that limit commercial land uses in residential communities, to help in land assembly, to provide economic control initiatives – in other words, help the market to work rather than attempt to strangle it. With such an approach, economic agents (both firms and households) will be able to continue to make rational decisions, hold commuting times in check, and mitigate congestion." (Gordon *et al*, 1991:419.)

Pertaining to the aspect of anticipated future population growth and the effect thereof, Gordon *et al* (1991:419) foresee that "in most urban areas, with the possible exception of those experiencing rapid net inmigration, particularly from abroad, congestion is unlikely to get much worse." In reference to Lave they state that: "Recent demographics show an end to the baby-boom-propelled growth in the driving age population, the peaking of female labor force participation, and a saturation in the ratio of vehicles to the driving-age population."

Breheny (1996:24) remarks that: "Newman and Kenworthy have been criticised for emphasizing the single variable of density while other factors, which are intertwined with density and which are also important in explaining travel behaviour, should also be regarded."

Breheny (1996:24-25) summarises further criticism against/support for Newman and Kenworthy. He refers to:

- Gomez-Ibanez who indicates that the "costs of radical containment policies namely economic losses, reduced quality of life, etc, have not been weighed against the supposed environmental gains".

- Hall who criticises Newman and Kenworthy on the grounds of their "naïve review of density issues, and argues that travel distances and modal splits have as much to do with urban structures as urban densities". He regards their criticism of the "anti-urban tradition as being simplistic" and says that "they fail to justify the claim that low-density living dampens the 'higher aspects' of human communities." He stresses that a "substantial proportion of future housing development will have to take place outside urban boundaries".

- Herskowitz supports Newman and Kenworthy and holds the opinion that urban sprawl aggravates transport problems.

- Bourne rejects the idea that market planning should determine the future form and health of cities. He holds the opinion that urban dispersal will contribute to "the evolution of future urban forms that are increasingly inefficient and socially inequitable".

Barrett (1996:172) points out that other factors might influence the phenomena of higher petrol consumption as densities fall, namely the fact that the highest density neighbourhoods are typically located near to the city centre facilities, and are frequently "disproportionally occupied by households with below average incomes and relatively low rates of car ownership". He however concedes that "studies which have attempted to control such influences (e.g. ECOTEC, 1992) suggest that density still exerts a significant effect on travel behaviour, independent of these factors".

According to Barrett (1996:173) the correlation between higher densities and suppressed travel is important from a policy perspective, and are likely to include effects associated with *inter alia* increases in opportunities which are accessible on foot; the creation of densities of 'trip ends' that are high enough to support public transport; and the imposition of constraints on the ownership and use of private vehicles.

3.2.1.3 *The efficiency of fuel use minimisation:*

Gordon and Richardson (1989:342) argue that:

- The pursuit of a single objective, such as minimising gasoline consumption, makes no sense. They quote Lowry who states that: "Efficiency does not imply rearranging our lives to minimise transport costs. Rather it implies a search for a suitable balance between transport costs (including the travelers' time) and the cost of compatibly configured landuses."

- They furthermore remark that "generally, all resources are scarce, and efficiency requires that resources be allocated among competing uses, according to the criterion of maximising social welfare".

- They suggest that a price system be adopted and argue that a fuel tax would be "much simpler, faster and more effective, and cheaper than rearranging metropolitan areas, and/or major investments in transit". They conclude that "the idea of planners turning our lives upside down in pursuit of a single-minded goal is as horrible as it is alien".

- They object against Newman and Kenworthy's reliance on intervention to resolve urban problems, as they prefer to leave the market to determine optimum solutions. They argue that market

mechanisms will produce polycentric cities, with relatively low energy consumption and congestion.

- They remark that Newman and Kenworthy's world "is the Kafkaesque nightmare that Hayek always dreaded, a world in which consumers have no voice, relative prices have no role, and planners are tyrants".

- Gordon and Richardson (1989:342-343) dispute the value of using international comparisons of gasoline consumption per capita as a rationale for policy intervention and state that "the case for converting an existing dispersed metropolitan settlement pattern and building a new rail system cannot be based on the prior existence of a compact city with a sunk-cost transit system long in place somewhere else in the world. Cities are not made of Lego, and 1990's transit capital costs are not those of the 1890's".

3.2.1.4 *The impact of urban structure on travel:*

The locality of land-uses influences travel behaviour. Gordon and Richardson (1989:343) state that "changes in the spatial structure of cities reflect the interaction of transportation, labor, land and housing markets". According to them "the suburbanization of the labor force was stimulated by lifestyle choices and the increased range of mobility offered by automobiles and highways". Economic activity was attracted by the labour supply and resulted in jobs being pulled to the suburbs.

Gordon and Richardson (1989:343) argue that "the co-location of firms and households at decentralized locations has reduced, not lengthened, commuting times and distances. Decentralization reduces pressures on the CBD, relieves congestion, and avoids 'gridlock'".

They furthermore criticise Newman and Kenworthy as being preoccupied with work trips, whereas the most striking change in U.S. travel behaviour is according to them "the boom in non-work trips associated with social phenomena, such as an aging population, smaller households, and higher levels of service consumption". They perceive that "the growth in non-work trips was primarily for 'family and personal' and 'social and recreational' purposes, which are consistent with higher levels of welfare".

"Gordon and Richardson also object to the work of Newman and Kenworthy on empirical grounds. They have found that commuting distances in the United States have tended to remain stable or fall in recent years, despite continuing decentralisation." They ascribe this phenomenon to "the co-relocation of people and jobs. Thus, most work- and non-work trips are from suburb to suburb" (Breheny, 1996:23-24).

According to Gordon *et al* (1991:416-417) in their article *The Commuting Paradox Evidence from the Top Twenty*, "casual empiricism, media attention and personal observation all suggest that traffic congestion has been getting worse in recent years". They however proceed to indicate that a decline in commuting times was actually observed and that this reflects an increase in suburb-to-suburb commuting and the general faster speeds of suburban travel.

In their paper a distinction is made between trip times, trip lengths and travel speeds. They state that work trip times did not increase significantly. Commuting times tended to be shorter in cities experiencing rapid growth and/or low-density structures. They remark that "these results suggest a commuting paradox: traffic congestion may be getting progressively worse, yet average commuting times for the overwhelmingly dominant auto commuter are either remaining constant or becoming shorter. This paradox is perhaps explained by the capacity of individuals and firms to adjust rationally to potentially adverse changes in physical and economic conditions so as to keep commuting times within tolerable limits. Moreover, further adjustments are possible so that any future deterioration in traffic congestion will induce a compensating response". They confirm that they do not "challenge the hypothesis of increasing congestion per unit of road capacity, only the assumption that this inevitably results in higher average commuting time".

In reaction to *The Commuting Paradox*, Bourne (1992) takes the authors, Gordon and Richardson, to task. He concedes that congestion is often exaggerated by commuters, either because perception overrides fact, or because of confusion about what is being measured – travel times, speed, distances or costs. Special interest groups, private firms, and public agencies lobbying for more investment in transportation facilities likewise tend to exaggerate congestion.

He however confronts the authors and respond to their assertions due to the fact that, in his opinion, they *inter alia* offer provocative and subjective statements on preferred urban forms, the role of government, recent directions in planning policy and future private investment strategies. He is also of the opinion that they base their conclusions on the simplistic assumption that growth management has not worked and that the market does.

He questions their assertions on analytical and philosophical grounds. He objects that their study does not address the full range of social, economic, and political relationships. He criticises their ignorance of the role of the state and indicates that urban development does not occur in a socio-political or institutional vacuum. He objects to the implicit assumption that an "unfettered" market will act to enhance economies in commuting. He

voices his concern that if subjective generalisations (in his opinion) are left unchallenged, particularly when presented by prominent and competent researches, it may become part of conventional wisdom and utilised as evidence to rationalise and encourage a continuation of current development trends, political philosophies and regulatory practices – which will result in more difficulties to overcome problems facing cities.

Gordon and Richardson (1996) indicate that cities have naturally evolved to spatial forms which could be labelled as "beyond polycentricity". The multi-nodal structure of cities is not conducive to public transportation. It however produces less congestion as trips are distributed.

3.2.1.5 *The potential for rail transit and modal choice:*

Newman and Kenworthy is criticised for their ignorance of 'out-of-vehicle' time. Gordon and Richardson (1989:343) refer to Webber's statement that time spent walking, waiting, and transferring is more onerous than time spent inside vehicles. "It is the door-to-door, no-wait, no-transfer features of the automobile that, by eliminating access time, make private cars so attractive to commuters – not its top speed."

They are sceptical about the feasibility of massive public investment in transit systems. They substantiated their remarks by referring to massive subsidies required around the world to support such systems.

Gordon and Richardson specifically point out that the case for rail is very weak. Their statement is based on assumptions that capital costs would result in additional tax burdens. Furthermore, in order for rail to be viable and to compete with other modes, it requires 20 000 passengers per hour – this implies high residential and workplace densities.

Gordon and Richardson indicate that densities in central cities declined and ask "whether this decline suggest that 'reurbanization' would work". They conclude that "there is no case for reinforcing weak-headed analysis with heavy-handed implementation" (Gordon & Richardson, 1989:343).

According to Gordon and Richardson (1989:344), Newman and Kenworthy's plea for "the cheapest and most fuel-efficient transportation modes, walking and biking and the claim that pain and loss of rights will be offset by more equity, a stronger sense of community and real gains in access through new transit systems and new, more centrally located housing" should be evaluated against the fact that "in the United States most poor households need cars, walkers in many locations are more concerned with safety than a sense of community, new transit systems are too expensive and too inconvenient, and developers exploit the availability of central city housing subsidies to build high-income housing".

3.2.1.6 *Land value impacts on transit development:*

Gordon and Richardson (1989:344-345) criticise Newman and Kenworthy for their suggestion that developments around stations would be "a mechanism to make light rail pay". They refer to Knight who states that "a casual relationship between rail transit and changes in land use and development patterns" can not be established. It is suggested that: "At best, such changes would seem to only occur in the presence of other favourable factors."

They conclude that "Newman and Kenworthy have written a very troubling paper. Their distortions are not innocent, because the uninformed may use them as ammunition to support expensive plans for central city revitalization and rail transit projects or stringent land use controls in a futile attempt to enforce urban compactness".

3.2.2 More opportunities for walking and cycling?

The compact city is perceived to reduce vehicle miles travelled and to have more scope for walking and cycling to reach destinations, as these would be located in close proximity. Also the reduction of cars and parking areas will make spaces more pedestrian friendly and will have a lesser impact on the amenity of public spaces.

According to McLaren (as quoted by Burton, 2000:1974), "High residential densities can only contribute to reducing trip length and encouraging modal shift if the trip generators are appropriately located".

It can also be deducted that walking and cycling may be less appropriate in a compact city, due to greater risks and danger associated with congested roads and emissions of more cars.

Van der Walt (1999:26) states that the distance that people are prepared to walk will depend on factors such as hilliness, the availability and condition of sidewalks, trees and street furniture, awnings for protection form sun and the rain, seatings and other amenities, other pedestrians, interesting vistas along the walk, the amount and speed of the street traffic and the ease and safety of street crossings.

3.2.3 Counter argument: health problems:

Burton (2000:1974) in reference to the work of Benzeval *et al* and Gove *et al*, raises the issue of mental health and depression. Consensus on this issue has however not been reached, as some theorists claim that lower densities may likewise affect mental health adversely.

Burton (2000:1974) points to the believe that urban decentralisation of both people and retail may cause undesirable social effects. She refers to the description of 'suburban neurosis' as identified by Taylor in 1930, which occurred after households were relocated from central areas, and were affected by higher expenses, social isolation, distance from employment and loss of familiar surroundings.

Referring to Freeman and Magaziner, Burton (2000:1974) however indicates that "density-pathology research has mostly assumed that dense living conditions have 'pathological' effects on the inhabitants of urban areas, but no consistent or linear relationship has been demonstrated between the two".

Burton (2000:1974) indicates that in the wider environment, the compact city might pose greater health risks due to the proximity to industrial areas. Increased air pollution has been linked to respiratory diseases such as asthma and lung cancer. Transport also poses health-damaging effects related to stress and congestion. Critics of the compact city argue that by the dispersal of cities, traffic could be reduced but total emissions would rise further.

3.2.4 Compact city versus green city:

There seems to be a direct contradiction between the idea of a compact city and the provision of open spaces. Increasing densities are at the expense of green spaces.

Breheny (1992:153) refers to Friends of the Earth who are keen to 'green the city'. They recognise the important issue of bringing nature "into the life of city dwellers through a diversity of open landscapes: formal parks in the Victorian tradition, playing fields, extensive informal parks, public gardens, adventure play-grounds, shared streets (such as the Dutch woonerven), walkways and cycle ways, small greens, copses and thickets, meadows and rough wild areas. In this way suburban dwellers can experience nature without always having to visit rural areas".

Breheny (1992:154) introduces another component of urban greening which does not stress the recreational value of open space, but its ecological value in towns. He refers to Lusser, who explains that "areas abutting our streets and railway lines probably contain as much greenery (biomass) as many of our parks put together. These types of areas are important not only as havens for wildlife, but also as pollution filters and CO^2 absorbers. Indeed they have an important impact on micro climate and the general wellbeing of people".

In the South African context it is conceded that the areas abutting roads are generally very well maintained and landscaped. Private homeowners usually take pride in landscaping the street reserves (sidewalks) adjacent to their properties.

Traditionally, town councils have parks departments which design and maintain areas abutting streets. In the case of provincial roads traversing through cities, agreements between provincial and local authorities pertaining to the maintenance of such areas are important. Areas abutting railway lines are characterised by indigenous vegetation.

It is still a marvel to find a great variety of birds in urban areas. Ornithologists have confirmed that birds of prey are found even in CBD's. The only non-bird friendly buildings are the 'all glass' structures. The floodline areas, which are sterilised for development, also provide habitats for wildlife. It is amazing that crickets, which keep us in touch with nature (at least on an auditive level), is found in the smallest patches of garden areas, even in high-density townhouse developments.

3.2.5 Compact city versus renewable energy sources:

There appears to be an inconsistency between the desires for the compact city and the feasibility of renewable energy sources. In reference to Steadman and Owens, Breheny (1992:155) suggests that for any large-scale development of solar heating or wind power in cities, lower density development is required.

3.2.6 Saving of agricultural land and open spaces?

Robertson (1990:131-132) states that since the city has come into existence it has been the centre and the countryside the periphery. The situation was exacerbated by the industrial revolution. The resulting discrimination against the rural economy and the displacement of population caused by it, has contributed to the existing urban crises. He predicts that ". . . we may now be coming to a historical turning point in this respect, as in others. The traditional imbalance between city and countryside may be about to be redressed. The pendulum may be beginning to swing the other way."

It is also argued that advanced telecommunication technology has reduced many of the economic, social, and cultural disadvantages formerly associated with rural areas. Although the compact city ideology might claim that compactness will result in conservation of the countryside and agricultural areas, the very nature of the compact city may trigger a flight to rural areas.

Gordon and Richardson (1997) respond to the rural land preservation argument by referring to calculations done by Fischel who indicated that "if the entire United States population lived at 'suburban sprawl' densities of one acre per household (all of them made up of four people), just three percent of the total land area . . . would be utilized." Gordon and Richardson then deduct that "America is not running out of open space, nor is it in any danger of having cities encroach on reserves of 'prime' agricultural land".

Although the above-mentioned example relates to the U.S., it can rationally be assumed that a similar result will be obtained for South Africa.

Gordon and Richardson (1997) elaborate on the issue of conservation of agricultural land and point to the fact that the preservation of agricultural land in the U.S. is sometimes extended to the global level. It is argued that land in the U.S must now be preserved because of possible food shortages in the rest of the world due to future growth in world population. They however argue that the evidence for this argument is weak. They confirm that in the past decade and a half, world food production per capita has increased modestly; in Asia food production has increased by about 25%. In the developing world, food production per capita declines only in Africa (by six percent). This can however primarily be attributed to "structural development problems rather than an intrinsic shortage of fertile land". Malnutrition of people (700 million people are undernourished) is ascribed to poverty and unequal distribution of food, not food scarcity.

Gordon and Richardson (1997) substantiate their point by referring to the words of Per Pinstrup-Andersen, Director General of the International Food Policy Research Institute: "The world is perfectly capable of feeding 12 billion people 100 years from now."

3.2.7 Counter argument: vulnerability to natural hazards:

According to Boullé *et al* (1997:179):

- The number of people affected by disasters has been growing by six percent each year since 1960. This can be ascribed to the increased concentration of people in areas exposed to natural hazards, e.g. earthquake and tropical cyclone prone areas, coastal zones and river deltas. Referring to the United Nations projections of increased future urbanisation it is then deducted that urban populations will increasingly be vulnerable to both natural and technological hazards.
- The physical characteristics of buildings and infrastructure in relation to the hazard determine the vulnerability of human settlements. It is conceded that: "Earthquakes do not kill people, collapsing buildings do". (Boullé, 1997:181)
- Rapid growth of urban areas impact on efficient preparation for and management of disasters and increase the risk of the occurrence of secondary disasters.
- The dependency on infrastructure and the result of disruption thereof in the case of hazards is more complex in high-density urban areas.
- Immediate health hazards from the failure of water and sewer systems can pose major threats in densely populated areas.
- Population density determines the severity of a disaster.
- An individual's vulnerability to disaster is related to income, with the poorest people affected the worst.

- High densities in itself may contribute to increased disaster vulnerability, e.g. the risk of flooding due to increased volume and speed of run-off water, ground subsidence, underground excavations and contamination of groundwater.
- Preventative urban planning to identify and plan for mitigation of possible hazards is advised.

It is logical to assume that less dense development will minimise the vulnerability to natural hazards.

3.3 CONCLUSION

Claims of the compact city have been presented and refuted on ideological and empirical grounds. Consensus has not been reached whether compact cities will be more energy efficient due to increased support for public transportation and shorter trips.

Increased congestion and higher pollution levels due to vehicle emissions are counter-claims of the compact city. Related to the above are concerns pertaining to health, both on a physiological and psychological level.

Pertaining to green areas, it is perceived that the preference is for private open space instead of public open space. The majority of people still prefer lower residential densities. The ecological significance of green areas is also acknowledged.

The claim that the compact city will result in the preservation of agricultural land has likewise been challenged. It has been demonstrated that cities still occupy relatively small areas compared to existing open land.

Counter-claims relating to renewable energy sources and the vulnerability of cities to natural hazards have also been submitted.

The balance seems to tip in favour of non-compact cities.

Chapter 4

Social implications of the Compact City

4.1 INTRODUCTION

According to Fulford (1996:122), "Problems of urban development have often inspired radical and even utopian solutions."

To substantiate the above statement, Fulford refers to Ebenezer Howard who, in his reaction to the congested towns of the late Nineteenth Century, developed his garden city concept. Also, the advent of mass private car ownership convinced Frank Lloyd Wright that low-density residential development was possible, as it was no longer necessary to concentrate activities in the cities.

Breheny (1996:29) states that the big problem that has now emerged namely "sustainable development", proposes a big solution namely the Compact City. This present-day visionary solution to townplanning and management has been adopted by academics, environmentalists and politicians "as an all-embracing panacea for urban ills" (Fulford, 1996:122).

The compact city approach to townplanning and management has been adopted and is implemented by national, provincial and local governments in South Africa. The City of Johannesburg explicitly state that the purpose of their Spatial Development Framework is to promote sustainable, efficient and accessible development, and to attain same by means of a more compact and concentrated urban form (City of Johannesburg SDF, 2005:i).

In terms of the compact city ideology it is claimed that the following social benefits would be attained: improved quality of life; improved community life; improved urban vitality; promotion of equity; improved urbanism; and better access to jobs and amenities.

But how valid and feasible are those claims? The debate as presented in literature and observed in everyday townplanning practice is presented hereunder:

4.2 CLAIMS AND COUNTER-CLAIMS OF THE COMPACT CITY

4.2.1 The compact city improves vitality, urbanism, a sense of community and quality of life:

It has been suggested that a sustainable city "must be of a form and scale appropriate to walking, cycling and efficient public transport, and with a compactness that encourages social interaction. The vision of the compact city has been dominated by the model of the densely developed core of many historic European cities. These are a great attraction not just to architects, planners and urban designers, but to countless tourists who flock to see them. They are seen, often by those from outside, as ideal places to live and experience the vitality and variety of urban life. The danger is that it is a romantic vision, one which assumes a golden age that can be recaptured through urban form, leading to a sustainable and benign civility" (Jenks *et al*, 1996:5.)

Breheny (1992:152), in his critique on the same principle as contained in the European Commission's Green Paper, stresses that "this impassioned defence of urban cores would seem strange to many people who would come to the exact opposite conclusions. Although a few European cities do have cores which exhibit the desired characteristics, the large majority do not. Indeed, many cities have cores which have been declining physically, economically, and socially. There is abundant evidence that people have been fleeing these cores, in favour of suburban or exurban living, because of these problems. The large majority of Europeans live happily in the very kinds of suburbs that the Commission denigrates as 'sprawl'. There seems, then, to be a direct clash between the Commission's vision, at it would affect the suburbs, and the lifestyle chosen in practice by most residents".

Hillman (1996:36-37) in his defence of the compact city, does not claim definite advantages of the compact city, but rather provide a critique on the outcome of the dispersed city. Pertaining to the rise in car ownership he *inter alia* indicates the following adverse effects which "manifest themselves in crucial areas affecting the quality of life": the difficulty that people without a car (the majority of the population) have in meeting daily needs, as they are dependent on non-motorised and public forms of transport; congestion spreading to more roads, and for longer periods of the day, with associated waste of travel time and resources; the fear and anxiety generated by the growing volume and speed of traffic; the intimidating and severance effects of traffic on community life, limiting the former range of functions of the street to only that of acting as a channel for motor vehicles; the dispersal of an increasing proportion of activity beyond the confines of the local neighbourhood; the spread of noise from all traffic sources – roads, rail and air; exposure to air pollution, contributing to ill-health, especially respiratory diseases; and disincentives to cycling and walking, which, if they form a major part of the routine of getting about in daily life, are the most effective ways for the majority of the population to keep fit.

In his search for what encourages vitality and urbanity is cities, Montgomery (1996:95) studied the design of cities. He comes to the conclusion that a holistic approach to urban planning, development and management is needed. The diverse, multi-functional city, in which the quality of life is not a luxury but an essential, is propagated. A plea is made for a move away from zoning and land use separation.

Montgomery (1996:95) in referring to Benjamin, says that: "good urban places have a structure and an underlying dynamic of activities." Unless this is understood newly designed cities will be produced as an "artefact, the ersatz city" which 'even though it may appear exotic and picturesque, is superficial and has an effect only on the first-time visitor'. In his prescriptions of the physical conditions for making a city he lists the following:

- Development intensity should be achieved by diversity, *id. est.* the mixture of uses and activities and high densities.

- High pedestrian footfalls are more likely to be successful where residential densities are over 50 dwellings per acre (± 123 dwellings per hectare). This should always be accompanied by high representations of small-scale businesses and enterprises, but counter-balanced by the correct amount of open space.

- For mixed use to operate successfully, three further conditions must be met: people must use the same streets and spaces; people must use at least some of the same facilities; and activity must not be concentrated into a particular time of the day. There must be a fine economic grain of a mixture and balance of bigger and smaller firms.

- Adaptability to economic conditions, technology and culture should be possible.

- Development on a human scale *id. est.* aspects such as the ratio of building height to street width, relative distance, permeability and the sense of grandeur or intimacy of space should be realised.

- Streets must provide for contact, visibility and horizontal grain. The ingredients of city life should be combined namely public contact, public social life, people-watching, promenading, transacting, natural surveillance and culture. This is the 'eyes on the street' concept proposed by Jane Jacobs (1961).

- Elements of the public realm should be built into the city form, e.g. squares, meeting places and promenading routes. Safety of such places should be promoted by natural and organised surveillance, by proper upkeep and lighting systems.

- Movement within cities is a crucial aspect of urbanity. Both public and private transportation have merits. Movement and trip reduction by private car can furthermore be regulated by the location of employment areas next to transport nodes.

- Green space and water space are important for city life as they provide recreation, informal and formal playgrounds, passive and active pursuits, promote health, filtering of noise, light and air of the city, and provide views. They are people attractors in their own right.

- Landmarks, visual stimulation and attention to detail promotes the vitality of urban places.

Stretton (1996:49), in his reply to the objection to suburban life, poses the question: ". . . . do the private garden, the private car and the longer travel distances isolate people in an unsociable lifestyle – watching TV, motoring to visit a few friends and relations – while more civilised Europeans and Japanese commune with more acquaintances and strangers in more crowded neighbourhoods and public spaces?" Reference is made of Halkett's studies of the extent to which public space and facilities could replace private house and garden space. It was found that: ". . . in many respects the two were not alternatives but compliments: people with most resources at home went out and made most use of public and convivial resources away from home".

Stretton (1996:49) defends the suburban life and observes that: "As expected, people's experience and preferences vary with their tastes and circumstances. But a large majority of households are happy with where they live and how they live there, and specifically prefer their suburban houses and locations to denser housing forms or inner city locations. Most of them have quite a strong sense of neighbourhood and neighbourliness, and value it. Scarcely any would be helped, and a great many would lose conditions which they value highly, and use fruitfully, if they had to leave their suburban houses for inner city apartment life. Most of them could have chosen that alternative if they had wanted to."

Cadman and Payne (1990:18-19) draw attention to the concept of the 'neighbourhood' and its relationship with notions of 'community'. They observe that: "There is a question as to whether or not the words 'neighbourhood' and 'community' mean anything at all or whether they are 'so vague as to be nonsense'. Nevertheless, the debate is important, not least because much modern town planning is based upon the concept that it is possible to create 'communities' through physical design."

According to Cadman and Payne (1990:19), "the term 'neighbourhood' was first defined in 1929 by the American, Clarence Perry, as: 'that area which embraces all the public facilities and conditions required by the average family for its comfort and proper development within the vicinity of its dwelling'. Six

principles were proposed to define the size and extent of such a neighbourhood. These related to an optimal size of community, the need for defined boundaries, parks, the provision of communal services at the centre of the neighbourhood, shopping provision at the periphery, and an adequate network of streets proportionate to their traffic load".

There is however not consensus on the advantages and disadvantages of neighbourhoods. Cadman and Payne (1990:19) draw our attention to two contrasting perspectives: Lewis Mumford supported the notion of the neighbourhood unit and stated that it is a place where "it is necessary to recover the sense of intimacy and innerness that has been disrupted by the increased scale of the city and the speed of transportation." Herbert claims that there is no evidence of an optimum size of community, nor is there evidence to suggest that neighbourhoods as such create 'community'. He states that: "The neighbourhood unit concept is at best neutral and at worst antipathetic to the development of an integrated community life. . . basically because people are not contained or constrained in their behaviour by the planner's imposition of a territory based community and because the delineation in territorial terms is neither desired nor perceived."

Sharpe and Wallock (1992:392-393) in reference to Garreau, state that in the 'Edge City' "all the complexity, diversity and size of a downtown" (Central Business District) are found. These new developments consists of malls, office parks and residential developments that cluster by exit ramps of freeways outside most major cities and expresses in Garreau's view ". . . the deepest and most sacred American values." Garreau's aim is to "achieve a critical understanding of what our real values are, who we are, how we got that way and where we're headed". The essential concern is to "probe the cultural mind-set that impelled (Americans) to produce this automobile-orientated, concrete and glass terrain in the late-twentieth century". Garreau concludes that "the force that drove the creation of the Edge City was our search deep inside ourselves for a new balance of individualism and freedom".

Knight (1996:120) warns against the danger that the present approach to enhancing the general quality of life "could well do the reverse for a significant proportion of the population – just as was the case with tower blocks".

4.2.2 The compact city provides better access to services, facilities and jobs:

Low income groups would be worst affected by dispersed localities as a greater proportion of their income and time would have to be allocated to commuting. It is alleged that, in the compact city, citizens will benefit from being closer to facilities. Due to higher densities critical thresholds to make more facilities feasible could be reached (Burton, 2000:1972). It is conceded that this holds significant advantages for: low-income households, who find public

transportation too expensive and who do not own a car; the elderly who can no longer drive a car; and young children who can not yet drive a car.

In this regard Stretton (1996:63) states that, although it is not an issue of equality, all citizens would benefit from facilities located closer to them as it will result in less time and money spend travelling. Pertaining to this aspect greater leniency for mixed land-use should be encouraged. Gordon and Richardson (1991) state that, despite continuing decentralisation, commuting distances and time have tended to remained stable or fall in recent years. They claim that this can be ascribed to the fact that people make rational decisions to relocate their homes or their jobs; or commuting is from suburb to suburb – thus travelling on congested highways is eliminated. There is thus no consensus on this issue.

Proximity to jobs however does not automatically relate to equal accessibility. It is much more complicated than mere spatial aspects. Cadman and Payne (1990:1) imply that different socio-economic groups can be located close to each other but may be segregated by skills, education and aspirations. They illustrate the point by the following description:

> "On the corner of a drab street in Hackney, one of London's poorest inner-city areas, two young men lean against a police barrier left over from some disturbance or other and discuss what they will do for the rest of the day. They are unemployed. They have no work, very little money and too much time. Two or three streets away, in the City with a capital "C", two young men are facing a bank of screens and telephones. Half sitting and half standing, they are all noise, energy and 'buzz'. They are money brokers. They have too much work, a lot of money and not enough time. Worlds apart or part of the same world? That is the question."

The above-mentioned scene could have been played out in the Johannesburg Central Business District where appalling conditions were illustrated by a recent video made in Hillbrow and shown by the SABC. The plight of the poorest of the poor living in high-rise buildings with no electricity, running water or sewer facilities (and using lifts for the latter) demonstrated not only the decline in housing standards but also the moral collapse of societies that could tolerate such conditions.

Attempts by townplanners and politicians to solve socio-economic problems by the compact city approach to townplanning and management would however relate to spatial feteism. To simply assume that locating people closer to opportunities and jobs would solve the problem of poverty, is a fallacy. Berner (2001:292) warns that "relatively well-paid and secure employment in the public and formal sector is available only for a shrinking minority of the urban population".

4.2.3 Reduced crime:

Jane Jacobs (1961) states that crime can be reduced, and people will be safer in areas where there is urban vitality. The suburanisation process and flight of affluent people from the inner areas is interpreted to be related to increased crime in the left-behind areas. Cognisance taken of increased crime levels has resulted in a proliferation of security townships with controlled access and walled boundaries.

Burton (2000:1975) indicates that "such pro-compact city arguments contradict more established theories: high density urban form has often been blamed for high crime levels". She however concedes that the higher incidence of crime tends to be related to high-rise housing rather than to high-density urban form *per se*.

4.2.4 Revitalisation and regeneration of inner areas:

Commenting on the change in cities, Sudjic (1992:10) observes that the changes that have taken place are not 'simply a question of degree', but that they are "qualitative in their results as much as quantitative".

As a critique to the dispersed city, Hay in Cadman and Payne (1990:47-48), observes that: "The onset of decentralisation brings it own new set of problems. As local government invests in attempting to solve some of the problems of growth – by re-designing street layouts, providing parking facilities, improving public transport, and building schools and hospitals – then the population and some of the jobs begin to move to the suburbs and beyond, creating a further demand for services in new locations. Increasing segregation in society emerges – of rich versus poor, skilled versus unskilled, of foreign versus local, of young versus old – with each group having their own specific needs. Central city employment declines, some retailing moves to out-of-town locations, the core loses much of its residential function, and ghettos of deprivation are now the fate of those left in the inner city. Overstretching of public transport and declining user charges necessitate increasing subsidies for running and maintenance costs."

The compact city is believed to be the antidote to accomplish revitalisation and regeneration of inner areas.

4.2.5 The compact city is socially equitable:

Referring to European cities, Stretton (1996:48) remarks that most residents can readily access work and socio-economic amenities on foot, bike or public transport, should they not own their own car. Such access is cheaper than car-borne access. Poorer people's access to the city's attractions is thus both physically and financially easy. Stretton however expands his argument by indicting that access to open air recreations is more tiresome. Comparing European cities with Australian cities he remarks that: "Perhaps a heroic simplification would allow that dense cities can offer their poor better access, but

to a narrower range of facilities, while Australian cities offer a wider variety of facilities, but worse access to some of them for people without cars." A similar argument can be made for South African cities.

Stretton (1996:48-49) concedes that European cities offer their citizens a "marvellously interesting, attractive and sociable urban life" and that Australia has "a few fashionable patches of that". He however concludes that there is "overwhelming evidence that Australian majorities, through most stages of life, want public and private space more than they want that dense urbanity". He remarks that space is distributed more equally in Australia and New Zealand than in any other country, and that most households "can have the space to share the country's most preferred lifestyle" (Stretton:1996:49).

He also makes the case that: "If you are poor and car-less in an upstairs flat in a neighbourhood without much open space – and especially if you are a child, or bringing up children – you can do a good deal less for yourself than you can do with a house and garden and shed in a suburb, with the parks and playgrounds and school grounds that Australian densities allow." Concluding his remarks on equity, Stretton (1996:49) states that: "Finally, if governments do succeed in imposing some higher density on Australian cities, there is not much doubt that the rich and middle classes will hang onto their houses and gardens, and it will mostly be the poorest households who lose their private space."

Burton (2000:1969) in her paper *The Compact City: Just or just compact? A preliminary analysis*, investigates the validity of the claim that higher-density urban form promotes social equity. With reference made to Elkin, she states that social equity can be defined in many ways. It can mean intra-generational equity which focuses on providing for the needs of the least advantaged in society; or inter-generational equity which ensures a fair treatment of future generations.

For the townplanner equity must eventually relate to urban form and this is promoted by land-use planning policy, for which recently the sustainable development imperative was the driving force.

Burton (2000:1970-1971) highlights the notion of distributive justice and says that: "For a city to be deemed to be fair or unfair, it must be assumed that it delivers a range of costs and benefits to its inhabitants, and it is the manner in which these are distributed that governs whether or not it promotes equity." She continues that: "Distributional justice may be viewed in terms of both the fairness of the outcome of distribution (the end-result) and the fairness of the actions and procedures that bring this about."

Current interpretations of equity tend to focus on the satisfaction of the needs of the worst-off. The sustainable development literature advocates the elimination of poverty. (Burton, 2000:1971; WCED, 1987; Harrison, 2003.) Health aspects are equally related to equity due to the fact that poorer people are more likely to be

affected by cramped and polluted areas. The threat of fire, contagious diseases and other social evils such as abuse of women and children, are also greater to poorer people living in confined spaces.

Burton (2000:1975) quotes from Freeman who describes the demise of people left behind in inner areas as the more affluent citizens relocate to dispersed areas: ". . . one-class ghettos, including inner-city estates, often suffer from shoddy buildings, lack of social or shopping facilities and isolation from employment and civic amenities. Demoralisation, substance abuse, family breakdown, crime and alienation would not be surprising in such circumstances." It is also suggested that increased land prices might contribute to homelessness for the least-advantaged.

An extension of the term 'sustainability' has been its use in relation to social relations and customs. Cultural sustainability, according to Hardoy *el al* (2001:352), reflects on the need within human society to develop shared values, perceptions and attitudes that help to contribute to the achievement of sustainable development. It is clear that development should include as a critical component a respect for cultural patrimony. Miltin and Satterthwaite in Hardoy (2001:354) states that needs related to people's choice and control – including homes and neighbourhoods that they value and where their social and cultural priorities are met – are also important.

The opinion is held that, by denying the former Roodepoort neighbourhoods to naturally expand (as determined by very strong and obvious market forces) to preferred locations, basic needs in terms of social and cultural sustainability are not met. (Steyn, Tribunal, 2003:14-15)

Burton (2000:1969) concludes that higher urban densities may have positive impacts for some aspects of social equity (e.g. improved public transport, reduced social segregation and better access to facilities), but negative impacts for others (e.g. reduced living space and lack of affordable housing).

Brownill *et al* (1996) draw our attention to the impact of ethnic minority influence over the formulation and implementation of urban policy. In South Africa where the political agenda is dominated by the ANC a very real effort should be made to consider and protect the spatial aspirations of a white, ethnic minority. Also, densification holds the possibility for multi-dimensional conflict. Briggs (1994:59) states that: "Given the broader social and political context, such conflict would potentially be expressed in racial, class and party-political form . . . to the extent that compaction is likely to be associated with an escalation of conflict levels; normalisation of social relations is an unlikely outcome of compaction strategies."

It is clear that judgements on equity are not value-free.

4.2.6 Lower levels of social segregation:

Burton (2000:1975-1976) states that: "It is widely argued that, in the compact city, communities are likely to be more mixed and that low-income groups are less likely to suffer from the added disadvantages of being spatially segregated. This argument stems primarily not from observation of urban living but from evidence of apparently increased segregation as a result of decentralisation." She furthermore refers to Kempen who holds the opinion that: "Segregation may exacerbate the disadvantages of the least well-off due to the resulting poor environment and facilities and lack of jobs and good schools."

In South Africa segregation is associated with the former apartheid policy. Todes (2003:111-112), with reference to Dewar and Cook, points to *inter alia* the following social effects of segregation: Dormitory townships located on the urban periphery result in considerable costs in terms of transport time and costs and the marginalisation of people from wider urban opportunities. Women workers, who face long travel times daily, suffer from severe stress and sleep deprivation due to the fact that they still have to cope with household chores.

The focus is now on restructuring and integrating the city to enable low-income people to acquire housing in well-located areas and to reclaim urban opportunities that were lost under apartheid. An effort is made to counter the past tendency of distant dormitory low-income settlements on the edge of the city, or well beyond (Todes, 2003:110). Approaches to urban restructuring emphasise infill and densification within the city, in central areas, around areas of economic activity, and along major transport routes. The densification policy is furthermore linked to a nodal policy.

In South Africa support for the compact city ideology is *inter alia* enshrined in the Development Facilitation Act, 1995 (Act 67 of 1995). Todes (2003:111) however states that: "Despite the acceptance of compact city ideas within official policy, there is a growing debate over the feasibility and desirability of the concept."

Todes (2003:112) indicates that the critique on the assumption that compaction is necessarily a socially desirable alternative, is based on declining formal employment and increasing reliance by the poor on diverse survival strategies which resulted into different demands for space, e.g. a combination of urban and rural income sources, including the natural resource base.

Reference is made to Schoonraad's work in Pretoria which indicates that larger sites on the periphery provide the following benefits: flexibility to accommodate lifestyle changes, maintenance of social networks, diversified income sources through sub-letting and urban-agriculture, costs of daily living are lower than in more centrally located areas, and households manage by sending one person to work in towns, thus limiting transport costs.

Todes (2003:112) furthermore states that there is growing acceptance that many townships and informal settlements are well-established places with social networks that play important roles in survival and civic life. The focus on compaction results in a diversion of the more central question of how infrastructure, services and facilities could be improved.

Todes (2003:113) poses the question whether the above-mentioned critiques undermine the validity of arguments for urban compaction. It is however conceded that households which settle in good locations do benefit from shorter distances to work, reduced transport costs and travel times, and better access to services and facilities.

Hillman (1996:37) furthermore claims that social polarisation has tended to increase, and that the more vulnerable members of society are affected the worse. Pertaining to poorer people he states that "poorer people are less likely to be able to afford to own and run a car, and public transport fares have risen more sharply than have the costs of car use". Poorer people are furthermore likely to live in the least desirable neighbourhoods such as in outer suburbs, on heavily trafficked roads and in inner-urban areas subject to road building or road widening.

In terms of gender, women are most affected.

Polarisation by age affects the elderly, who can no longer drive a car. Children are, according to Hillman (1996:37) affected in diverse ways: Children in car-owning households benefit from increased exposure to extra-curricular and leisure activities and choice of schools. "Children's lives are however becoming increasingly conducted under adult surveillance which may have disturbing effects on their physical, social and emotional development as well as imposing a time-consuming burden on the lives of the parents, usually mothers, who see the escorting of their able-bodied children, as an unavoidable element of child-rearing for many years."

4.2.7 Density preferences:

Low-density settlement is the overwhelming choice for residential living. The compact city ideology however extol the virtues of living in a compact, culturally diverse existing urban core and denigrates dispersed settlements. Hooper (1994:239) indicates that there is still controversy as to what constitutes a sustainable pattern of urban development. He warns that more compact urban development, which involves increases in density, may encounter environmental limits and may result in town cramming.

Pertaining to household preferences of Australian society, Troy (1996:155) states that "one of the central features of the history of economic growth in the developed world is that as living standards have risen, households have wanted more space – private as well as public – in which they can pursue an increasingly

rich variety of activities. Simultaneously, we have seen households demand external space in the form of gardens, and part of the attraction of the suburb was that it offered houses in gardens. The garden space allowed households the freedom to extend their houses when they could afford to, and to improve their standard of living by their own domestic production. It gave them safe spaces in which their children could grow up and a private setting for many family activities. In short, the gardens gave them a degree of independence and freedom of expression no other form of housing could offer. It gave them a form of housing which met most of their needs for the greater period of their lives." High-density housing had low levels of privacy and supervision of children, and gave households little choice or flexibility in their home-based activities.

Troy (1996:156) furthermore indicates that: "As living standards have risen, in addition to more private outdoor space, people have also wanted greater public space in the form of parks, playing fields, golf courses, public arenas and promenades. The early town planning movements were energized by people wanting both more private and public open space and better relationships between the activities pursued in the city. The ideals which drove the reformers were built around notions of health, equity, amenity and efficiency. But the way these objectives would be realized was by developing an environment where the family could flourish: where it could retreat and find strength and solace; where children could be raised in healthy, safe environments; but where the family could also engage with the rest of the community in the pursuit of its cultural and recreational interests and in the celebration of local and national events."

Troy (1996:156) highlights the spatial context of families and communities: "The family was the linchpin of the postwar reformist agenda. Strengthening it was seen as the way to secure the future of the society, as a way of inculcating or transmitting desired social values, and as a way of ameliorating the excesses of the economic system. Enabling families to have a house and garden gave them the opportunity to improve their standard of living by their own efforts. This connection between the family and urban form has been central to the development of the Australian city. The notion of community was also a central element of postwar housing policies and planning reform as it was assumed that continuity and stability fostered civic virtues. Community was central to the planning for, and provision of, primary schools, shopping and recreational facilities."

General statements are made that people should have more choice. Troy (1996:161) however states that "the arguments surrounding it seem to reduce to five questions: issues of dwelling size, dwelling type, design, location and housing tenure". He highlights the issues as follows:

Dwelling size, type and design
Although the aesthetic quality of high-density developments is questioned, proponents of densification however campaign to lead the unwilling to high densities.

Issues of location
When deciding where to live, people choose the dwelling and its location which best meets their needs. "Much of the policy debate, however, assumes that people seek or should seek good access to the centre of the city, and that they are frustrated by the present form of the city. However, the choices people make of where to live, work, shop and pursue their cultural and recreational interests suggest that the city they experience is not highly centralized: their location choices are influenced by considerations of urban structure rather than form." (Troy, 1996:161.)

Lifestyle
Troy (1996:162) states that:

* "The comment that the traditional form of housing does not offer a sufficient variety of lifestyles is one of those curious propositions which gain currency but which are little explored. At its heart commentators seem to be saying that living at a high density is in some way more enriching; that high density living is more cultured and relaxed. The model seems to be related to an elitist urban lifestyle in which individuals eat out, engage in the pursuits of a romanticized café society, have the time to enjoy morning coffee over the news-paper, and explore the antique shops, bookshops and art galleries."

* "Enjoyable as these activities are, they are not the daily options or desires of the overwhelming majority of the population. The proliferation of coffee shops, bistros, restaurants and sidewalk cafes in most parts of most of our cities over recent years is a response to changing social behaviour, increasing affluence, the commodification of leisure, and to the needs of tourists (both domestic and international), but most of us use them only on special occasions or as part of our recreation. Whether people eat out or visit art galleries and antique shops is more closely related to their disposable income and their range of cultural interests than to the form of the city. For all the yearning by some commentators and policy advisors to return to some halcyon past, such urban lifestyles were never the daily life experience of more than a small minority."

* "None of the proponents of this imagined urban lifestyle provide an analysis of who actually lives in the manner they yearn for, or any historical explanation of the social and cultural processes which produce it. Nor is there much evidence to support the proposition that

higher density living leads to greater creativity or higher levels of cultural expression."

Troy (1995:163) reiterates that:

* "There are those who complain that the suburbs provide few opportunities for the social life of teenagers. It is undoubtedly true that some people, young and old, find that some of the suburbs are limited in their range of opportunities for the pursuit of their cultural and social interests, but the response should be to explore cultural policy and the way facilities and services are provided rather than simply assume that a change in the form of the city will rectify the perceived short-comings".

* "By and large the suburbs, especially those developed in the '50s, '60s and '70s, but not the new ones, have sufficient playing fields for a wide range of organized sports. But any parent who has heard teenagers complain that 'there is nothing to do' in their free time quickly realizes that they do not mean sport. Nor do they mean there are not enough opportunities to engage in art and craft or other hobby groups. Teenagers may simply mean that they have not enough pocket money left to attend a film, disco, band or spectator sport such as basketball, or to visit some favoured café or milk bar to 'hang out' where their parents are not in control. They may be making an observation about the alienating nature of modern society, the commodification of cultural activities, the passivity of film and television and the homogenised pap those media project, their need to express their independence or simply the need to make contact with others of the same generation. One explanation of the occupation of city streets at night by groups of young people, who may be perceived to be threatening to others and a danger to themselves, is that the dwellings they come from have insufficient space for them to have privacy."

* "Complaints about social opportunities and activities should not be interpreted solely or even significantly as related to the form of development. Propinquity may increase the likelihood of social contact but we also know that at a high density people act to preserve their personal space and privacy; that is, they withdraw from contact with others or try to limit interactions. We simply do not know whether higher density will eliminate the complaint of lack of choice of activities. The notion that the form of development can make up for all the other aspects of Australian urban society which lead to people feeling unfulfilled in some way is expecting too much of the urban environment."

In his article *Still nothing to gain by overcrowding*, Lock (1991:337-338) criticises the celebration of "a 'renaissance' of the city which in practical terms reduces it to a speciality shopping centre, with themed eating and drinking emporiums and privatised streets supervised by private police forces; an easily digested cotton wool package of pre-wrapped culture in small portions, with no homeless, no beggars, no dope and no violence".

He also warns that words like density, proximity and concentration can be synonyms for town cramming, overcrowding and oppression. He asserts that we simply do not yet know which urban forms and structures are the most sustainable. He warns that his own assertion that the environmental consequences of a garden city might be considerably less than a dense urban centre, is not proven. The claim that urban problems within existing boundaries can be solved is however disregarded as "dangerous and impossible nonsense" (Lock, 1991:339).

4.3 CONCLUSION

None of the claims and counter-claims of the compact city ideology rest on absolute determining factors. Human nature, income of individuals, social, racial and gender preferences all add to a differentiating mix of components of urban living.

The balance, substantiated by both rationality and preference, seems to tip to the side of low-residential density living situated away from city centres. The fact that so many people however do live in high-density residential developments might be a reflection of consumer inertia and security phobia exploited by planning policies and enforced by availability of housing stock.

A compact city form does not automatically relate to better access to services and jobs. The structure of the city, *id est* the locality of different land-uses in relation to each other is an important factor in this regard. Likewise, the proximity to jobs and amenities does not necessarily enable one to access opportunities. Socio-economical skills, education and aspirations still affect opportunities. To try to solve problems such as poverty and segregation by means of spatial methodology would relate to spatial feteism.

Chapter 5

Economical Aspects of the Compact City

5.1 INTRODUCTION

Caution that environmental sustainability is accentuated is reiterated by various authors (Aktinson, 2001:273; Breheny, 1996; Smyth, 1996:102). According to Jenks *et al* (1996:99), sustainability, especially in the urban context, is a complex concept with potentially grave consequences if the social and economical aspects are neglected in pursuit of an environmentally driven objective.

Smyth (1996:102) argues that, while sustainability comprises environmental, social and economical issues, ". . . the proposals for implementing the compact city are most frequently couched in physical terms. This is because it is tangible, the most easily controllable and in political terms has the fastest impact because it is noticed whether or not the desired social or economic effects are achieved. It also dovetails with the concern for the environment and sustainable development". In addressing the constraints upon creating compact city forms as the dominant form, Smyth points out that: "The compact city theory is not underpinned by economic casual factors: it envisages only positive economic effects."

Advocates of the compact city claim that intensifying urban areas would *inter alia* lead to inner city renewal, more vibrant urban areas, support for local businesses and services, and better utilisation of infrastructure. Counter arguments to the commonly claimed benefits of the compact city are however forthcoming, e.g. a further aspect pertaining to the economy of cities is raised by Stretton (1996:46) who states that household capital – house, equipment, garden, car – is the capital for more than a third of the national output of material goods and services. He is concerned that authorities do not measure this output and do not know how the output varies according to investment in infrastructure.

Knight (1996:117-119 highlights the constraints often encountered with infill development namely land contamination and fragmented land-ownership. He also makes a convincing case that short-term delivery (of housing) should not be pursued on its own merit, without consideration of long-term alternatives (providing integrated communities). He therefore suggests that *ad hoc* peripheral urban growth should be weighed up against new cities (which could be compact towns or cities, but properly integrated). The point taken is that fragmented townships may not have the desired outcome as claimed by the Compact City ideology. In this regard refer also to aerial photographs indicating many new

townships in the Wilgespruit case study area – the integration of these townships into neighbourhoods is what raises concern).

Green (1996:143-153) holds the opinion that wider issues must be considered e.g. that the location of housing, employment and services is not dictated simply by the quality of life offered in alternative locations, but that structural economic and social forces, such as spatial division of labour, government housing and transport incentives, determine urban form.

Economic sustainability also refers to the competition between cities on regional, national and international levels to capture investment and consumption activities.

5.2 BROWNFIELD VERSUS GREENFIELD DEVELOPMENT

5.2.1 Inner city renewal:

Pertaining to the incentive to develop inner city areas opposed to new suburbs, Crookston *et al* (1996:140) remark that the perceived demand is for conventional suburban and ex-urban housing, because it is what people want. Keating and Krumholz (1991) argue that there is a disappropriate allocation of resources to revitalize central business districts, and that there is too little attention to city-wide social problems and the role of the CBD in the amelioration thereof. They argue that proposals for the CBD are usually aimed at middle and upper income residents and their commuter workforce, who are insulated from the numerous social problems which affect central city neighbourhoods.

Due to the complication of brownfields development, both supply and demand deflect developer interest in inner areas. Crookston *et al* (1996:141) however remark that developers are not "just following the herd instinct and building the sorts of schemes that everyone else is, simply because everyone else is. They are perfectly prepared to entertain development on urban sites, if the return is seen to be worth the extra hassle". Crookston *et al* then propose that mechanisms to tilt the market towards in-town development should be considered, e.g. incentives pertaining to taxes, grants and restraints on greenfield sites.

5.2.2 Cost of land in relation to locality of land:

Von Thünen's model produced a theoretical landscape of concentric land use patterns around the central market. The most intensive land occurs near the market, and gradually became more extensive with increasing distance from the city centre. Thrall (1987:5) however argues that Von Thünen's model is limited to the production sector, e.g. landowners and landusers sought to maximise returns at each location. Thrall argues that: "Not all landuses in the city can be considered to be strictly production orientated". In the real estate business, the slogan of "locality, locality, locality" cuts across factors such as whether the site is located

on inner areas or on the periphery. The location of the site relative to perceived opportunities must outweigh the constraints of a site.

In the Wilgespruit area, however, the cost of land is further complicated by the locality of the site in relation to the urban development boundary. Land located inside the urban development boundary is in high demand, and due to the scarcity of land, expensive. Land located outside the urban development boundary is however sterilised for development with resultant cost implications.

5.2.3 Land contamination and fragmented ownership:

With rare exceptions, land available and located in existing development areas constitute smaller portions than land available on the periphery which is usually still agricultural holdings with a minimum size of 0,8565ha, or farm portions of similar or larger areas. Significant development in peripheral localities thus become more feasible.

Also, properties in development areas might be implicated by existing structures and services which affect the cost of both the land and the preparation of the construction site.

Administrative constraints such as different landuse rights of adjacent sites that need to be consolidated, and legal aspects such as different ownership and bondholders might further frustrate development in inner areas.

5.2.4 Effect of townplanning delays on the market:

Moor (1983:21) investigated the effect of townplanning delays on the market. He states that costs associated with these delays are as follows: they usually result in major costs to the would-be developer (and, therefore, to the eventual occupier), both in interest charges on borrowed capital and in returns delayed or forgone; costs of appeals are often high; there is often a loss of employment, as developers cannot afford to retain all their staff during a period of indefinite delay; a great deal of potential development or redevelopment may effectively be killed.

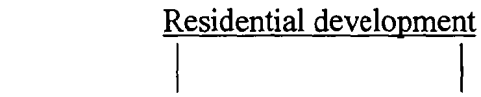
Townplanning delays in the Wilgespruit area, due to Council's opposition to applications outside the urban development boundary, or objections by the Greenbelt Action Group, have severe financial implications for land owners and eventually the end-user.

5.3 COST OF LOW-DENSITY VERSUS THE COST OF HIGH-DENSITY DEVELOPMENTS AND THE IMPLICATIONS THEREOF:

This aspect can be addressed by two different approaches:

- Firstly, the operating costs of low-density development compared to high-density development can be evaluated. Altshuler (1977:209) in his commentary on the publication *The costs of sprawl* states that the claimed operating cost benefits of high density did not uphold under scrutiny. The costs of low density and the benefits of high density appear to be greatly overstated. (Pertaining to capital costs refer to the Bulk Infrastructure Potential Cost Model as discussed in paragraph 5.3.1.)

- Secondly, the implication for smaller and bigger developers and the impact on demand for land should be addressed. In residential development a distinction should be made between land developers and building constructors / developers.



Land developers typically acquire land zoned for agricultural purposes and through a process of township establishment obtain the land-use rights for residential development. Newly proclaimed townships are then sold to building constructors / developers for cluster developments or townhouses, or in the case of single residential erven, directly to building contractors.

Bigger projects are frequently monopolised by consortiums or investment companies. This trend has been exacerbated by the fact that companies which previously catered for governmental projects, have now privatised and compete with the conventional residential developer.

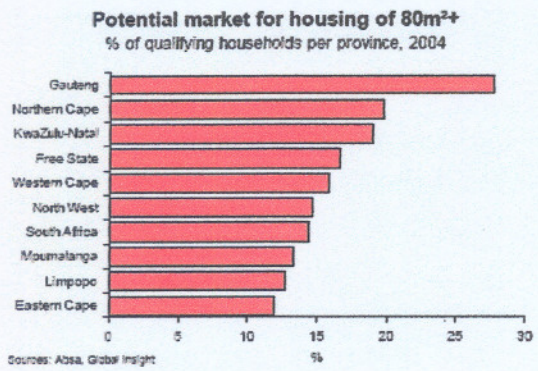
Scarcity of land has created competition between developers/building contractors and even very small properties are developed with townhouses. Refer to Annexure 4: Photograph 15. The smaller property developer prefers to build townhouses rather than clusters, due to the fact that smaller dwellings ($80m^2$ - $100m^2$), as part of a townhouse development, are perceived to be aesthetically more pleasing than a similar construction ($80m^2$-$100m^2$) developed on a conventional erf.

5.4 INCREASED LANDPRICES / AFFORDABILITY OF HOUSES

Due to the price increase of properties the demand for smaller dwellings is higher, as this is what people can afford to buy. We therefore see a proliferation of residential townships comprising smaller dwelling units on smaller stands. The following graphs illustrate:

- the average price per residential property (Graph 1); and
- the potential market for housing of 80m²+ (Graph 2).



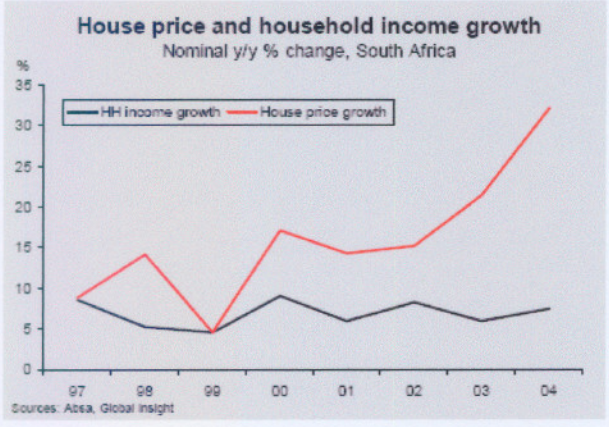


Source: Absa (2005)

The strong performance of the residential property market can be ascribed to various supporting factors, such as a strong growing economy, low inflation and interest rates. A nominal year-on-year house price growth of 32,2% was recorded in 2004. Taking into account an average headline consumer price inflation rate (CPI) of only 1,4% in 2004, real growth in house prices came to 'a staggering' 30,3% in 2004 (the highest real growth ever in terms of the Absa house price records dating back to 1966) (Absa, 2005,2).

The housing market is related to household income. At metropolitan level Johannesburg North and West had the highest annual average income per household at R251 959 in 2004 (Absa, 2005:5)

But did housing become more affordable? A generally accepted method to determine how the affordability of housing has changed over time is to calculate the ratio of house prices to household income. During the past five years (2000 to 2004), the nominal year-on-year growth in house prices outstripped that of gross household income by a large margin. The graph below illustrates the house price and household income growth:



Source: Absa (2005)

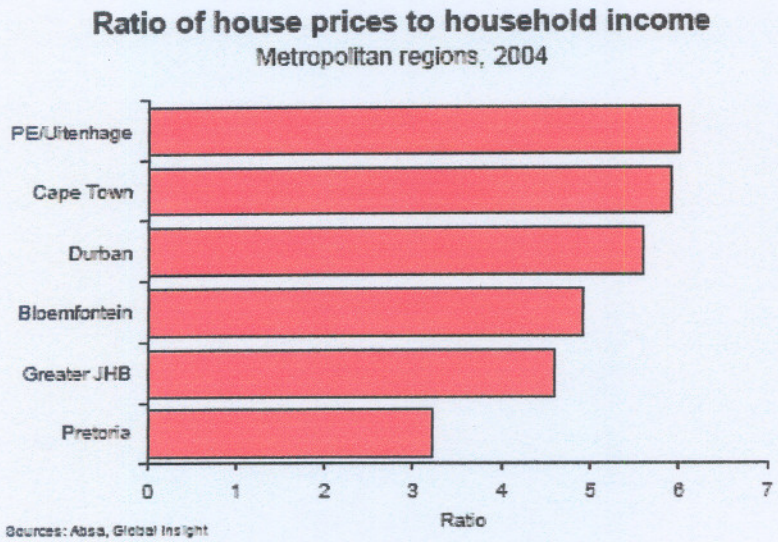
The following trends are identified by Absa (2005:6):

- The ratio of house prices to household income has increased without exception in each province, metropolitan area and rural region in the country between 1996 and 2004.

- In some regions (especially the rural areas) this ratio increased sharply to relatively high levels over the past nine years. This was mainly the result of generally low annual growth in household income in these regions over this period, whereas the level of household income in the metropolitan areas was, on average, also much higher than in the rural areas.

- In various provinces, the ratio of house prices to household income has increased at a much faster rate than in Gauteng and the Western Cape since 2000. The main reason for this is that the levels of household income in the Western Cape and Gauteng are, on average, significantly higher than in most other provinces, whereas Gauteng has also recorded the highest growth in household income of around 9,5% per annum during the past five years.

- In the metropolitan areas of greater Johannesburg and Pretoria, housing was more affordable than in any of the other urban areas around the country (see graph below). This can again be ascribed to household income levels being the highest in these two metropolitan areas, despite them having some of the highest house prices in the country.



Source: Absa (2005)

From a townplanning point of view the trends identified by Absa are interesting: the lesser affordability of houses in rural areas is ascribed by Absa to lower levels of growth in household income by rural residents. Yet as townplanning consultants, we experience that many of our clients in the Johannesburg area now instruct us to do townplanning applications in rural areas.

What might be deducted from this trend? People with higher levels of disposable income in Gauteng now buy property in rural areas for two possible reasons:

1. For speculation purposes (they can rent it out to residents in rural areas who cannot afford to buy a property);
2. To have a second, and possibly third, fourth or fifth country retreat – wishing to escape from the 'town cramming' of the compact city.

The growth of smaller and intermediate cities surrounding metropolitan areas due to the compact city ideology is predicted /recorded in literature.

The further implications for rural residents would be worth investigating e.g. would investment in small towns by metropolitan residents result in the escalation of property prices, thus impacting on the affordability for local residents whose growth in income is already below that of metropolitan residents? Would this result in the migration to metropolitan areas where higher incomes can be

realised? Is the productionism-environmentalism scenario being played out? Can this be ascribed to the Compact City ideology?

5.5 COST OF SERVICES

Stretton (1996:47) challenges the argument that Australia can no longer afford to build new suburbs. He indicates how the belief is arrived at: "Compare the $40,000 - $70,000 it is said to cost to service each new suburban allotment, with the negligible cost of connecting a new house to the under-used services of the existing city; multiply the difference by the number of additional households to be housed in the coming decades; and it is plain that we can not afford it."

He however responds that: "I do not know how this argument has escaped the derision it deserves. If you want to compare the likely alternative costs of suburban extension and compact rebuilding you must compare the cost of new suburban services with the cost of connecting not one but some hundreds of thousands of new customers to the old urban services. That will require the reconstructing and expanding of some of them through built-up areas, which is more expensive than installing them on greenfield sites. Any substantial increase of density will require some demolition and replacement as well as infilling, and the replacement costs should be brought to account. So should the loss of quality or quantity of some existing services, if a serious increase of numbers is going to compete for space in the existing recreational spaces and asphalt yards of the old inner city schools. Then, having arrived at an honest estimate of costs, our capacity to pay should be investigated. Our grandparents, with less than half our present productivity, enabled the Australian working class to afford and acquire their first suburban houses and gardens. Now more than twice as productive, we can perfectly well afford to continue meeting the market demand for standard housing and to supply it with standard services." (Stretton: 1996:47-48.)

It is interesting that in the Roodepoort area, the Roodepoort Residential Density Policy generally allowed for a density of 20 dwelling units in conventional suburbs. New residential density policies as adopted in the RSDF however now prescribe a base density of 10 dwelling units per hectare – with possible cumulative density if certain criteria is met, e.g. property adjacent to a park, close to a school or close to a business node. The significance is that the City Council has on its own accord decided to reduce density proposals.

Bierman (2000:295-308) investigated the relationship between bulk infrastructure capital costs and density and states that: "In South Africa, national housing, transport and urban development policies all promote the densification and compaction or urban areas and discourage sprawl in the interest of efficient, sustainable and integrated development." These policies reflect the generally accepted view that higher population densities over a smaller land area, as opposed to lower densities over a greater land area, lower the cost of providing

public services. It is assumed that this is because shorter distances need to be traversed, and because of savings derived from economies of scale.

In applying a bulk infrastructure potential cost model in the metropolitan area of Greater Pretoria, Bierman however argues that bulk infrastructure capital costs do not simply decrease with increasing density and compaction of urban form. This is because of the unique interrelationship between infrastructure thresholds, capacities, location and density over time and space.

Bierman (2000) states that it is not uncommon in South Africa, as elsewhere in developing countries, for actual development not to proceed according to the predictions made at the time of infrastructure installation. These predictions of demand are based on assumptions of the extent, type and level of service of the development. With changing development pressures and political changes, predicted demand may not be realised, resulting in areas of either under- or over-capacity, unrelated to the distance from the central area, with associated cost implications for accommodating future development. The degree to which an area is either under- or over-capacitated is relevant to the issue of density and cost effectiveness. If an area has spare capacity, it will be more cost effective to develop that area as opposed to others, but only until the infrastructure threshold is reached, at which point additional infrastructure investment is required to accommodate any further development. Thus, such a threshold is critical in influencing the cost of development, although it is largely unrelated to distance from the central area.

Bierman illustrates her point by means of the Bulk Infrastructure Potential Cost Model:

5.5.1 The Bulk Infrastructure Potential Cost Model:

Purpose

Bierman (2000: 297) states that: "The bulk infrastructure potential cost model was developed in order to provide a tool for planners to incorporate bulk infrastructure cost considerations into the early land suitability assessment phase of integrated development planning process. Although the model was specifically developed to assist in generating more cost-effective spatial options, it is essentially evaluative in nature and evaluates various density options, and it provides some evidence regarding the cost effectiveness of various urban forms."

Pillars

There are three essential elements in the bulk infrastructure cost model – threshold, density and cost. The manner in which these three pillars are incorporated and related to each other forms the basis of the model.

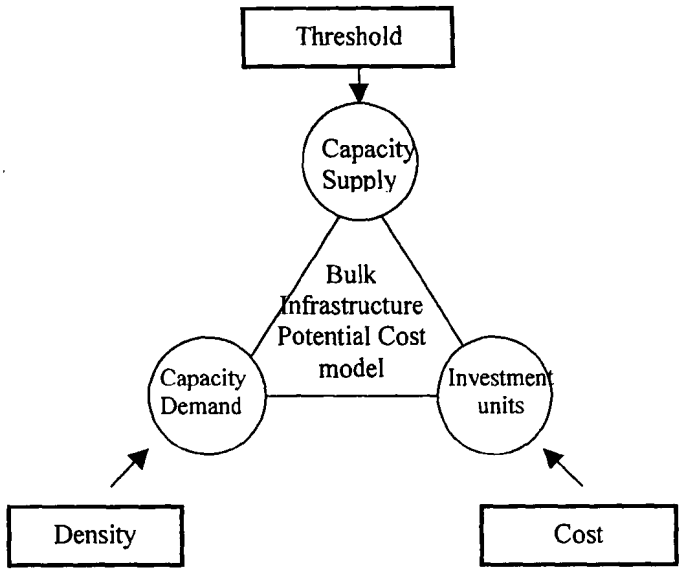


Figure 2: The three pillars of the 'bulk infrastructure potential cost model' and their inter-action mechanisms. (Source: Bierman, 2000:299)

Given the unique interaction between the existing infrastructure capacity, existing and proposed densities, level of service and environmental and land-use conditions across space, the intention is to demonstrate that: in terms of location – more compact development in the form of infill, close to the city centre, is not necessarily a sustainable option in terms of cost efficiency as compared to more peripheral, edge development; in terms of densities – more compact development in the form of increased residential densities does not necessarily reduce per capita infrastructure costs.

As a conclusion to the study, Bierman highlights the following implications for the compact city debate:

Density and distance
"The result indicates that bulk infrastructure costs do not simply decrease with increasing density and with decreasing distance from the central areas. In all cases, total infrastructure costs increase as density increases, due to the additional demand placed on the system as a whole. Per capita costs, however, do decrease with increasing densities for some cost items but not for all. Electricity per capita costs, for example, increase with increasing density. It has also been demonstrated that for all services considered, the more central areas can be as costly (or more costly) to develop as certain more peripheral areas, as a result of existing spare capacity and environmental and land-use conditions." (Bierman, 2000:305.)

Policy implications
"There is not enough evidence in the literature to conclude that densification is the cost-effective alternative in all situations, and under all conditions." (Bierman, 2000:306.)

Implications for sustainability
The importance of including infrastructure costs in the Compact City debate has been demonstrated. This is an important contribution to balance the economical aspects of sustainability with environmental aspects of sustainability.

Levying of bulk service contributions
According to Bierman (2000:307) the cost of services and the influence thereof on locational choice for development affects private developers differently than developers providing housing commissioned by the State. In the latter case the cost of services is crucial for the viability of the project, because the profit margin is so small. For private developers however, there are often other more important factors than services costs involved in decision-making.

Services contributions are levied by many local authorities on an averaged basis. Bierman (2000:308) suggests that "if real costs were levied this would contribute to development occurring where it is economically sensible to do so, thus reducing the negative impacts of sprawl". She also asserts that "the model can assist in determining a differential levy for various locations, which reflects more adequately real costs for that particular location."

This point is raised in suggestions provided for the Wilgespruit Case Study.

5.6 THE COST OF PLANNED DEVELOPMENT VERSUS THE COST OF UNPLANNED DEVELOPMENT

Aerial photographs attached in Annexure 4 indicate the fragmented development in the Wilgespruit area. Many small townships are added as land owned by private owners, become available to developers. This stands in contrast to conventional neighbourhoods in the Roodepoort area where extensive townships were previously developed by Council, e.g. Wilropark.

The cost implication of unplanned development versus planned development merits further investigation. The application/adaptation of the Potential Capital Cost Model of Bierman (2000) as discussed above to the scenario of planned/unplanned development would be interesting.

Peiser (1984:419) in his article "Does it pay to plan suburban growth?" reports that it costs less to produce the same levels of benefits in a planned community than in an unplanned community. Costs referred to are for land development costs, transportation costs and social costs. The advantages of the planned development, in the case examined, was however small – in the order of 1 percent to 3 percent of total costs. Peiser however concedes that there is general consensus that planned development would create a better environment and better residential services that enhance the quality of life in ways not measured in his case study.

Obstacles to large-scale planned development are *inter alia* delays caused by administrative procedures, problems of financing and finalising joint ventures. Bigger scale developments also require more extensive environmental authorisation, and impact studies for services. Developers thus prefer to develop smaller projects with shorter time horizons.

5.7 ROLE OF GOVERNMENT AND PRIVATE DEVELOPERS

The objectives of the role players warrant our attention, as this would impact on the end product.

The importance of the developer in townplanning issues is highlighted by Smyth (1996:105) in his observation that: "The mediator between the user and the urban form is not primarily the planner but the developer."

Sudjic (1992:47-48) paints the role of the developer as follows: "Developers have the last word in shaping the city, but their room for manoeuvre is severely limited by what the market will bear. They have to work with the current, rather than struggle against it. They are subject to all kinds of pressures, form the changing whims of the banks, to the planners and activists who try to frame legislative means of forcing developers to take the wider urban picture into account."

Referring to Britain, Knight (1996:114) states that the vast majority of development is carried out in the private sector, with the main objective to create profit. A distinction can be made between different groups of developers. Corporate investors, for example, are inclined to take a long-term view towards investment and are driven by security objectives. Property is just one source of their investment income and they will move in and out of the property market as necessary. Developers are however profit-orientated and willing to take a risk therefore.

The scope for public development is restricted by controls on public expenditure. In the Roodepoort area township development by the City Council was last done in the decade 1970 – 1980.

At present public development is restricted to the development of low-cost housing. The only influence on medium- and high-income housing is through policy interventions.

In their commentary aptly named "Market planning: Oxymoron or common sense?" Richardson and Gordon (1993) ask the question whether it is contradictory for planners to believe in and espouse the efficiency of markets. The authors abruptly answer their own question by confirming that they are not against planning, as some degree of intervention is inevitable. They are however

against inefficient and inequitable interventions and assert that, crucial to the positive outcome of intervention is when to intervene and how to intervene.

Their commentary addresses the following issues:

5.7.1 Market failure versus government failure:

The concept of market failure has culminated in support for planning, e.g: The perception is that the allocative efficiency of the market is rarely achieved due to aspects such as monopolies and externalities. Planners are thus needed to intervene to provide balance.

A further viewpoint is that markets achieve a high degree of economic efficiency but often at the expense of equity. Planners must therefore intervene to achieve an appropriate degree of redistribution. Richardson and Gordon (1993:347) however argue that: "Neither of these arguments is fully sound. Both greatly exaggerate the prevalence of market failure. Both fail to recognise that the abstractions of perfect competition and pure monopoly rarely exist." According to them: "The proper role for planners is to strengthen markets and even create them. The risks of monopoly power reside much more in government institutions than in markets."

Pertaining to externalities, Richardson and Gordon (1993:347) suggest that the appropriate way to deal with these issues is not through regulation by planners but by introducing taxes and subsidies as shadow prices for externalities. The payment of contributions and the installation of services required by the developers is existing ways in which development is "regulated".

The payment of contributions and the way they are levied seems to be the emerging refrain in this study (compare the suggestions of Bierman in paragraph 5.5), and will contribute significantly to the suggestions provided for the case study.

In addressing political mechanisms to resolve difficulties in the planning milleu, Moor (1983:2) in reference to Willes, points out that: "There is a growing tendency in planning to use political rather than market mechanisms to resolve social and individual problems. Now political power is far more concentrated and unevenly distributed than market power can ever be, and there is not a great deal that can be said in favour of it."

Richardson and Gordon (1993:347) state that: "The range of public goods that planners are supposed to protect is much narrower than often presumed." They furthermore conclude that "what passes for public goods can be provided by the private sector almost as easily as by the public sector, e.g. private security services, education facilities, health care, and sanitation services." Richardson and Gordon state that "the issue becomes the relative efficiency of private and public provision, rather than the nature of the good (private or public)."

Richardson and Gordon (1993:347), in referring to Wolf and Mills, argue that "any claims for the costs of market failure have to be balanced by an assessment of the costs of government failure". They hold the opinion that the political equilibrium that results from the choices of agents (voters, interest groups, politicians, and bureaucrats) in the political market place is far from optimal. This can be ascribed to *inter alia* bureaucrats who are more concerned with maximising agency budgets than maximising social welfare. As agencies press for larger budgets, government spending rises, and politicians trade support for larger agency budgets for approval of their pet constituency projects.

The idea of a trade-off with markets looking after efficiency and planners watching out for equity is equally unconvincing. "The evidence suggests that market approaches are more likely to result in EWE (efficiency with equity), while planning efforts often result in IWI (inefficiency with inequity)." (Richardson & Gordon, 1993:347.)

Richardson and Gordon (1993:348) argue that "market approaches to planning have much better prospects than command-and-control and regulatory approaches, because selected prices are much easier to adjust than the much larger number of adjustments required by a quantity-based approach. This is one of the main reasons why imperfect markets work better than imperfect governments".

Smyth (1996:105) remarks that in order to succeed, compact city managers' only potential solution is to "enforce planning policies that are sufficiently draconian to counter the economic forces". He predicts that "in doing so, the wrath of developers will be invoked."

Moor (1983:2.) in referring to Denman, states: "Planning by prohibition has culminated in a universal sense of ineffectiveness and a desire to strike a positive note. Neither the planners nor the planned are content. The planner is denied the power of positive planning and the holders of the property rights are discouraged from thinking daringly."

5.7.2 What is the scope for planning?

Næss (2001:513) states that: "There is little reason for hope that sustainable urban development will emerge as a result of unbridled market forces. Classical economic theory recognizes that market processes alone are not able to counteract so-called externalities. Externalities are social costs not included in the profitability analyses of the agents of the market, but shifted on to other people or the environment. Pollution is an example of such costs. Neither are sole market processes able to ensure a socially acceptable distribution of burdens and benefits. Thus, both the two key elements of sustainable development – to meet vital needs and ensure an equitable distribution in time and space, and the condition of environmental sustainability – depend on planning and management by public authorities."

Alternatives to government control that have been suggested are: pricing instead of prohibition; and greater public participation in urban planning.

5.7.3 Pricing instead of prohibition:

"The intellectual and moral basis for planning was originally a positive notion of how to shape society toward some broadly agreed on social ends. Increasingly planning has degenerated into negatives – how to stop certain activities. As a result, planning has inevitably had to interfere with people's rights, not only their property rights but also their human rights. Hence, a sound principle to guide planning interventions is to minimize interference with individual rights and freedom. This suggests that wholesale prohibition of an action may be less desirable, from an individual rights perspective, than measures permitting the action but raising its costs. Thus, rights-based planning would support pricing incentives and disincentives rather than regulations and controls." (Richardson & Gordon, 1993:348.)

Richardson and Gordon (1993:348) further remark that: "A standard argument to justify regulation over market approaches asserts that regulation is more egalitarian. A no parking rule applies to everyone. Regulation, however, is a particularly inefficient way to promote income distribution goals. The welfare improvements of relying on the income tax system and transfer payments at higher levels of government are far greater than under any redistributional alternative."

A further argument for regulation is that it preserves, and indeed promotes, the power of bureaucracies. The fiscal burden of these bureaucracies, however, significantly diverts scarce public resources. In this regard the significant costs to the Johannesburg City Council spent in recent years to commission consultants to prepare structure plans, LDO's, IDP's and precinct plans come to mind. Remunerations to officials preparing endless strategic documents, as well as costs to print and prepare such documents, should also be taken into consideration. The City of Johannesburg has ● 47 sector policies that are reviewed annually.

Richardson and Gordon (1993:348-349) now ask the following question: "Given these considerations, what is the appropriate scope of planning and regulatory approaches?" They suggest a two-tier approach:

1. Identify when public intervention is justified. Criteria to be used include: when some agreed on social purpose cannot be achieved by private initiative (e.g. pure public goods, national defence, criminal justice reform); when some service can be supplied by the public sector at a lower cost; when unfettered private actions result in serious adverse social costs that cannot be corrected by tax or pricing solutions; when public interventions maximise benefits to agents and society that would not happen in their absence, as in urban renewal and neighbourhood revitilisation programs; and when inaction would result in

socially unacceptable distributional consequences, which would rarely occur because policymakers can usually address distributional issues directly.

2. Determine the relative practicality of prices and regulation. They suggest that this provides an even finer filter because in most cases there is available a pricing alternative to public planning.

Is planning democratic? Richardson and Gordon (1993:349) respond that: "The simultaneous dismantling of the command-and control regimes of Eastern Europe and the introduction of command-and-control policy approaches at the local level in the United States constitute an astounding paradox. Ironically the collapse of central planning in Eastern Europe was the direct result of pressures for democracy and freedom, while the growth in local enforcement and regulation in the United States was essentially anti-democratic."

They illustrate that between 1971 and 1989, 357 land-use planning and growth management measures appeared on local ballots. The participation of voters varies: either everybody votes (the plebiscite of the authoritarian regime); or almost nobody votes (the typical US ballot initiative).

Richardson and Gordon illustrates that in California, in response to growth control initiatives, the measures were approved by voters, representing only 10,4% of the eligible voters, and that many initiatives are approved with much lower degrees of expressed support.

An explanation for this phenomenon might be the "wholesale withdrawal from political involvement by the vast majority of the population, leaving the playing field to narrow interest groups who compete until one side prevails. In the example above, the winners are usually the supporters of growth controls because it is difficult to mobilize interests in favor of the status quo, unless immediate tax increases are involved. Even without ballot initiatives, interest groups frequently prevail". (Richardson & Gordon, 1993:349).

They continue that: "The problem, however, goes deeper than voter apathy. Rather, voters consciously decide not to find out how policies might affect their interests because the costs involved in acquiring this knowledge are much higher than the costs of turning out to vote. We call this rational ignorance, which reflects neither a lack of education nor of intellectual sophistication. Those who rely on their own efforts to advance tend to prefer privatized solutions (private schools, private security services, private transportation, private entertainment), rather than incur the opportunity costs and uncertain success of trying to change the status quo. From this perspective the sole rational interest is to try to keep the costs of the status quo down by minimizing tax consequences. The inevitable result in the U.S. is a two-tiered service system with the poor condemned to consume in the 'socialist' sector while the nonpoor overwhelmingly consume private services.

The growing intrusion of planners into Americans' everyday lives is not the result of democratic endorsement, but rather reflects a spirit of abdication." (Richardson & Gordon, 1993:349.)

5.7.4 The role of public participation in the Compact City debate:

New policies adopted by Council since 2001 to promote the Compact City have a profound influence on the daily lives of people. Voters however are not alive to the possible adverse economic and fiscal impacts of growth controls, as politicians and officials are silent on these matters. It is only rarely mentioned in policy documents.

It is suggested that in this regard lessons should be learned from the EIA processes prescribed in terms of the Environmental Conservation Act, 1989 (Act 73 of 1989) (ECA). In assessment of developments the ECA requires that the possible impacts be disclosed, and that management and mitigation measures for possible adverse impacts be provided. It has been suggested by Steyn (2003) that development in the Wilgespruit area as proposed by Council policies, be subject to a collective EIA and should not only rely on individual EIA's conducted for individual townships.

Consultants dealing in the Ruimsig / Poortview area where landowners are frustrated by the fact that their properties are located outside the Urban Development Boundary, have often indicated to owners that part of their problem lies in lack of civil society and public participation as a consolidated group. They rely on consultants to 'fight the battle on their behalf' and attend public meetings sparingly. Townplanning consultants operating in the Roodepoort area are however often frustrated by the public participation process as it, in their opinion, only involves participation strategies as indicated in 1-3 hereunder, and does not result in influencing council policies.

Table 4: Types of participation in local-level development

Type	Characteristics
1. Manipulative participation	Participation is simply a pretence.
2. Passive participation	People participate by being told what has been decided or has already happened. Information shared belongs only to external professionals.
3. Participation by consultation	People participate by being consulted or by answering questions. No share in decision-making is conceded and professionals are under no obligation to take on board people's views.
4. Participation for material incentives	People participate in return for food, cash or other material incentives. Local people have no stake in prolonging practices when the incentives end.
5. Functional participation	Participation is seen by external agencies as a means to achieve project goals, especially reduced costs. People may participate by forming groups to meet predetermined project objectives.
6. Interactive participation	People participate in joint analysis, which leads to action plans and the formation or strengthening of local groups or institutions that determine how available resources are used. Learning methods are used to seek multiple viewpoints.
7. Self-mobilisation	People participate by taking initiatives independently of external institutions. They develop contracts with external institutions for resources and technical advice but retain control over how resources are used.

Næss (2001:514) propagates public participation in urban planning and states that "the effects of the planning process on people's self-esteem, values, behaviour, capacity for growth and co-operative skills are often considered more important than the merely instrumental consequences of a plan".

5.7.5 The new land use policies:

Growth management and control measures have recently burgeoned. Richardson and Gordon (1993:350) refer to Pincetl who states that: "growth controls are suppose to bring such community benefits as improved quality of life, reduced traffic congestion, lower taxes for infrastructure costs, environmental quality, and preservation of traditional community values and atmosphere".

But, reiterates Richardson and Gordon (1993:350), "Growth controls may not even achieve their key goals." They refer to a study by Landis done in 1991 which found no significant difference between controlled and uncontrolled cities with respect to public amenities (open space, quality of the environment) and the municipal services (schools, police services, water quality). Traffic congestion was judged to be worse in the uncontrolled communities. Population, however, grew faster in the controlled cities.

Richardson and Gordon (1993:350) furthermore confirm that: "the jobs-housing balance approach to growth controls is also suspect because it forces a disaggregated match between jobs and residences that will be achieved without regulation as firms and households spontaneously relocate to retain reasonable levels of accessibility to each other".

Richardson and Gordon suggest a common alternative, and in some cases a complement, to growth controls, namely "the imposition of developer impact fees to help finance the infrastructure ancillary to residential development. Financially strapped municipalities find this an appealing approach, because the developers comprise a much smaller group than the taxpaying, voting public. Whether such fees deter development and what impact they have on house prices are unclear. Certainly the common assumption that they are fully passed on to house buyers is wrong; this depends upon the relative values of the elasticities of housing demand and supply. However, impact fees are preferable to direct growth controls, because pricing is superior to regulation" (Richardson & Gordon, 1993:350).

Richardson and Gordon (1993:352) suspect that "neither the regulators nor the marketeers are likely to budge far from their staked-out positions". Their remark that "the world of practitioners is different", reflects the possible implication that an ethical responsibility both in private or public practice or in the academic world, is laid at the doorstep of planners to produce evidence / share enlightenment with Council officials and/or politicians, if it is perceived that such evidence/ enlightenment might produce improved quality of life.

It is interesting that historically, major paradigm shifts impacting on townplanning were not the result of contributions made by townplanners, but by persons from different occupation backgrounds, re. Howard, Le Corbusier, Bruntland. In the context of the South African history of townplanning, it is suggested that the role of influential individuals should be researched.

Richardson and Gordon (1993:352) remark that although most of the examples pertaining to regulation have been disincentives, they at least constitute pricing mechanisms. It is seen as a beginning and an alternative to prohibitions. They now "encourage the great minds to turn their attention to innovations in the employment of price incentives in land use planning."

5.8 ECONOMIC EFFICIENCY OF CITIES

Stretton (1996:46) defends the economic efficiency of Australian cities against denser cities, and argues that cognisance should be taken of household capital such as the house, equipment, garden and car, which is the capital for more than a third of the national output of material goods and services." He asks for a comparison between what families can produce for themselves in a house and a garden, compared to what can be produced "in a tower flat over a vandalised carpark."

Referring to a study by Castles, Stretton (1996:46) opposes the argument that the Japanese are now richer than Australians. He claims that Australians are more productive per hour than Japanese. He ascribes the higher Japanese money income per head of population as coming from longer hours and supporting fewer dependents.

Pertaining to buying power Stretton (1996:47) states that: ". . . an hour's work in Sydney buys about one and a half times the market goods that an hour's work in Tokyo buys". He concludes: "So much for the belief that more compact cities necessarily promise more efficient production of market goods."

In comparing "the private and public space and facilities with which people can produce non-market goods and services for themselves and each other with their unpaid labour, and can occupy their time interestingly and enjoyably", Stretton (1999:47) states that: "A majority of Japanese share the Australian preference for a separate house and garden. But in cities, fewer achieve it, and those who do, have smaller houses on smaller allotments and pay much more for them. 74% of Sydney households have some sort of house and garden, compared with 35% of Tokyo households. New Sydney dwellings of al types average more than twice the floor area of new Tokyo dwellings and those with their own allotments average more than four times the lot size. But on average, Tokyo's accommodation is more expensive than Sydney's."

It is concluded that: "Tokyo should copy Sydney, rather than Sydney copy Tokyo." (Stretton: 1996:47.)

It is expected that a similar comparison of South African cities with denser eastern cities will result in similar findings.

5.9 SUPPORT FOR LOCAL BUSINESSES

It might be argued that residential densification will provide critical thresholds which will result in viable local businesses. Although the planning and economic rationale might sound acceptable, the change in consumer preference and ingrained habits should be taken into consideration. Local businesses (if retail is considered) have restricted potential. We might buy the day-to-day convenient items at the neighbourhood shopping centre or convenience store at the nearest public garage, but for other items we want to go to a superstore or chain of familiar stores to compare a number of different products before a decision is made. A concentration of speciality stores is however only found in regional shopping centres. People are willing to travel to such stores.

If services are considered it might be accepted that the compact city will provide critical densities and support for services. But only if those services are allowed within neighbourhoods or neighbourhood nodes (depending on the adaptability of the landuses).

5.10 COMPETITION BETWEEN CITIES

In assessing economic aspects of the compact city it should be noted that, like most markets, the property market is dynamic and innovative. Knight (1996:115) remarks that "the compact city is going to have to be adaptable if it is not to stifle innovation". He concludes that "we cannot disregard the competitiveness of our economic system. Companies that find a town too restrictive or expensive often move elsewhere. Locational investment decisions are made by comparing towns, regions and countries. Capital moves internationally. Compact cities will need to be as attractive investment locations as cities that are not compact. Otherwise companies will vote with their feet and the people will follow them".

This point has been dramatically demonstrated in the Wilgespruit area. Due to restrictions of the Urban Development Boundary, and intense demand for higher income residential dwellings, development has spilled over to Mogale City where they are welcomed.

5.11 CONCLUSION

In the context of sustainability, focus on environmental sustainability only would have grave consequences for cities.

Due to the accountability of local governments' executives and politicians, due cognisance is being taken of budgets and expenditures. The concept of economic sustainability might however be interpreted to narrowly and long-term implications of townplanning alternatives might be neglected.

The bigger picture of household capital should be considered.

The bulk infrastructure potential cost model, which can be utilised to compare development costs for high and low densities, indicates that per capita cost for certain services in a compact city are lower, but not for electricity.

The investigation of the economic implications of development on virgin land in contrast to development on land in existing areas have indicated many constraints of brownfield development, e.g. contamination of land and fragmented ownership. Also, larger development sites are available on the outskirts of the city.

The affordability of houses impacts on densities as smaller units result in higher densities.

If the role of government and private developers are compared with each other it is conceded that market failure vs. government failure is the lesser of the two evils.

It is furthermore suggested that pricing instead of prohibition is preferred to regulate development.

Competition between cities is an important issue that local governments should attend to. If innovation is stifled in one city, companies will move to another city.

Chapter 6

Implementation and Management of the Compact City Approach

6.1 INTRODUCTION

Pertaining to Johannesburg, public awareness of the Compact City ideology was raised fairly recently by factors such as the following:

* The sustainable development imperative which was covered extensively in the media.
* South Africa's hosting of the World Summit on Sustainable Development, 2002.
* Since the Development Facilitation Act 1995, (Act 67 of 1995) was promulgated, townplanners utilised the Chapter 1 principles of the said Act to motivate townplanning applications.
* Since the inception of the Urban Development Boundary in Wilgespruit in 2002, and the strict enforcement thereof by the Council in 2003, landowners affected thereby became acutely aware of the Compact City approach to townplanning and management.

The idea of densification and the implication thereof for public transportation was however already present in much earlier policies.

The development of the Compact City ideology from embryonic form to a full-fledged "guiding principle", enforced in a bureaucratic manner, is reflected in the following summary of policies.

6.2 THE ROODEPOORT PHYSICAL GUIDELINE PLAN, 1981 (Roodepoort, 1981

In 1981 the Roodepoort Physical Guideline Plan was commissioned in order to provide general guidelines for orderly future development or re-development. Due cognisance was taken of the regional context of the study area as was legally required in terms of a notice in the Government Gazette of 16 October 1981, depicting Roodepoort as a part of the Central Witwatersrand Master Plan area.

During 1981 the Roodepoort City Council furthermore commented on the Spatial Development Strategy for the PWV-Complex, 1981. The said comments were utilised as a guide in the compilation of the Roodepoort Physical Guideline Plan. Roodepoort also formed part of the Johannesburg Metropolitan Transport Advisory Board – JOMET.

The Physical Guideline Plan provides interesting comments and projections for future residential developments and combination of housing types.

Table 5: Estimated future residential developments and combination of housing types.

HOUSING	1981 (ha)	1990 (ha)	2000 (ha)
Single residential	2 250	2 770	3 330
Duplex / simplex	30	110	220
Flats	110	120	130
Other	20	20	30
Total	**2 410**	**3 020**	**3 710**

Source: Roodepoort (1981:11)

In the document it is stated that the average erf size in Roodepoort is ± 1000m² - 1200m². It is however anticipated that densification by means of subdivision in areas such as Florida, Discovery and Witpoortjie will take place. Density proposals are as follows: houses at a density of 8 units per hectare; simplexes/ duplexes at a density of 25 units per hectare; flats at a density of 40 units per hectare; and other (boarding houses, hotels) at a density of 40 units per hectare.

Further comments on predicted re-development are that: the Sectional Title Act resulted in the selling of flats, which impacted on the availability of rental stock; housing types for smaller households and single persons became scarce; housing for the aged became problematic; townships became monotonous due to the fact that it was uninterrupted by other activities – this has not only impacted on aesthetics, but also on the formation of communities; there is not enough variation in sizes of erven; provision is not made for the full spectrum of housing typologies; and there is not a direct relationship between socio-economic status and erf sizes.

The prediction of the need for schools is provided in the following table (Table 6):

	1976		1981		1990		2000	
	Nr.	area (ha)	Nr.	area (ha)	Nr.	area (ha)	Nr.	area (ha)
High schools	8	40	9	45	10	50	12	60
Primary schools	19	66	23	80	25	87	27	94
TOTAL	**27**	**106**	**32**	**125**	**35**	**137**	**39**	**154**

Source: Roodepoort (1981:12)

Predicted area needed for public open space is indicated hereunder (Table 7):

1981	1990	2000
310 ha	400 ha	510 ha

Source: Roodepoort (1981:13)

The conservational value of the Ridge is recognised.

In the Plan the area comprising the current study area is divided by the proposed PWV 5 Road into two areas: the Northern Rural Area and the Northern Urban Area.

The Northern Rural Area is earmarked for agricultural landuses. (This area comprises Poortview, Ruimsig (Farm Portions and Agricultural Holdings Areas), Amorosa, Tres Jolie and areas located west of the proposed PWV 5 Road.) The Northern Urban Area, located east of the proposed PWV 5 Road and west of Christiaan De Wet Road, is earmarked for special residential land-uses. (It is interesting to note that the PWV 5 Road is explicitly referred to in the document as the urbanisation boundary.)

The Physical Guide Plan document explicitly states that the basic need to travel should be restricted by providing local job opportunities. The poly-centricity of Roodepoort is seen as an opportunity in the above-mentioned context. The use of public transportation is recommended as well.

It is furthermore recommended that the financial implications of the installation of services be taken into consideration where development is being assessed. The need is recognised for *inter alia* certain socio-economic amenities, e.g. schools, hospitals, cemeteries; engineering services; an integrated transport system; commercial development; office development; job opportunities; and an open space study.

From the above it can be deducted that: the area was from a very early date assessed in terms of its regional context; the need for additional amenities is not a phenomenon of current townplanning; the concept of an urbanisation boundary is not new; poly-centricity as a possible solution to reduce travel was recognised earlier and the need for an open space study was already determined in 1981.

6.3 THE VENTER COMMISSION, 1983

As the need for housing increased on a national level, the Commission of Inquiry into Township Establishment and Related Matters (chaired by Venter) was appointed under Government Notice 8276, dated 1982-06-25. The commission – known as the Venter Commission – was to inquire into, report on and make recommendations regarding:

a) "methods and proposals for the expeditious provision of more residential erven within the means of persons requiring new housing by giving special attention to the sustained calls for the simplification and expediting of township establishment by, for instance, the removal on all levels of government of impeding statutory provisions, measures, procedures and practices and the streamlining thereof;

b) any other methods which may promote the provision of sufficient residential erven and reduce the cost thereof." (Venter, 1983a:v)

6.3.1 First Report:

In the first report, factors that gave rise to the appointment of the Commission were elaborated on. References were made to previous commissions namely the Niemand Commission 1970 and the Fouché Commission 1977, which investigated township establishment and related matters, and made recommendations to remove problems at a procedural level which existed at that time (Venter, 1983a:1).

Venter (1983a:1) stresses the importance of economic and financial factors in township establishment and refer to other investigations conducted in this field, namely: the Browne Committee (1980), the Viljoen Committee (1981), the Du Plessis Commission (1982), the De Kock Commission (1982) and the Steyn Committee (1982/83).

The first report is concluded with *inter alia* the following recommendation made: "The special importance of housing in the social, economic and political context be accepted as a broad premise and that it serve as a basis in any case where, in determining priorities, other national development priorities are weighed against housing." (Venter, 1983a:27.)

6.3.2 Second Report:

The second report of the Venter Commission deals with townplanning procedures and provides recommendations to expedite applications and dates on which property rates should become payable in cases of township establishment on farm land or agricultural land.

Further recommendations made to assist in streamlining applications and promote housing delivery relate to the following aspects: the better utilisation of staff; liaison with developers; actions of township establishers whose applications are delayed by incomplete or incorrect applications; standards for engineering services; obtaining permission for township establishment from holders of mineral rights; subdivision of agricultural holdings and erections of a second dwelling on agricultural holdings.

6.3.3 Third Report:

The third report deals with matters that require structural adjustments in the township establishment process. Because the Commission's terms of reference emphasised the curbing of costs of residential sites, the Commission considered it necessary that the report should include a critical evaluation of cost structures and attempt to quantify the possible impact of recommendations on production costs (Venter, 1983c:1).

A recommendation was made that, although the commission has no objection in principle to local authorities undertaking production (of residential sites) if the private sector is not achieving satisfactory results, the commission is not in favour of the government section becoming more involved in this area.

It is stated that: "The Commission is also of the opinion that the operation of the market mechanism is the most effective means of regulating the supply and demand of residential sites and that interference with the process by government should be confined to the minimum. The Commission has accordingly assumed throughout that township establishment is the task of the private sector." (Venter, 1983c:1).

A further aspect dealt with in the third report is the aspect of cost of residential sites. The cost of township establishment is evaluated in terms of direct production costs such as capital costs, cost of engineering services, endowment contributions, professional fees, administrative costs and other miscellaneous expenses, and land costs.

The Commission particularly recommended that, under the auspices of the Department of Community Development, all aspects of the supply of electricity be intensely examined and that methods of ensuring upgrading in the future receive special attention. The Commission was furthermore "especially struck by the commission costs payable on residential erven and recommends that this matter be investigated in greater depth under the aegis of the Housing Matters Advisory Committee." (Venter, 1983c:16).

6.3.4 The Commission provides an in-depth report on residential densities:

Two components of residential densities were investigated, namely density as a physical and cost phenomenon, and the social implications of higher densities, especially in the South African context.

The Commission accepts that although higher densities are possible if blocks of flats are erected, the advantages of higher density and the saving on land and engineering costs are wiped out by higher construction costs. (Venter, 1983c:24)

Pertaining to the social implications of higher densities, Venter (1983c:26) states as follows: "It is clear to the Commission that by and large we still lack a scientific evaluation, based on social science studies, of residential density in the South African context. In deciding on policy the government is therefore largely operating in a vacuum and generally does not have the necessary input from the social disciplines to deal with the problems of increased density on a more comprehensive basis."

Densities in South African cities is compared to that of Singapore, which has a higher average per capita income than the Republic of South Africa but have average net residential densities of as high as 300 units per hectare in new development projects. In more restricted schemes, net densities of as high as 1 000 units per hectare are realised. Single residential dwellings on individual erven are only provided for families in the highest income groups at net densities of 12 to 13 units per hectare, which is the equivalent of standards applied for middle income white families in the RSA at present.

Venter (1983c:26) furthermore states that the above-mentioned densities are already traditional in most countries in South East Asia and that available literature does not point to social deviations and negative behavior patterns. Really high density development is initiated by the government, while lower density levels are confined to private development. Throughout the world, however, the first choice of families remains a single family dwelling with attached private land.

Venter (1983c:26) however acknowledges the specific spatial culture of communities and states that: "*The Commission* accepts that the density standards at which housing should be provided are not determined by technology so much as by a combination of financial and social principles that dictate density limits. The individual cultural and social character of the various population groups and the limited urban tradition of a large section of South African society are necessarily decisive in this regard."

Site sizes between 350m² and 600m² are recommended as being adequate for the needs of middle income households. "The Commission is of the opinion, however, that it is extremely difficult to lay down firm guidelines and norms for site sizes, owning to differing local conditions and differences in the needs of individual families, and that the price mechanism and the ability of the individual to pay could serve as an important criterion." (Venter, 1983c:27). No recommendation is made pertaining to residential stand sizes for higher income groups.

The Commission furthermore elaborates on, and provides recommendations on the following aspects of residential densities: guidelines for the utilisation of smaller residential sites, site size and income, increasing the density of existing residential areas, housing and the life cycle of the family, influence of non-residential uses on residential density (use of land for education purposes and standards for open spaces in new townships), speculation as a cause of high stand prices, and residential parks. (Venter, 1983c:27-34)

Pertaining to the implementation of recommendations, Venter (1983c:43) suggests that: "Townships establishment should be regarded as a fulfledged economic activity and it is important that its specialised nature be recognised." Due to the fact that the Commission's recommendations affect the activities of a

wide spectrum of government and other bodies, and should receive attention at the various levels simultaneously, implementation should take place on a co-ordinated basis. A permanent working committee should be nominated to give attention on a continuous basis to the implementation of recommendations and to monitor the industry. Permanent working groups should be appointed with representation by the Housing Matters Advisory Committee, provincial administrations, experts from the local government sector and private township establishers.

Following the report by the Commission a circular was sent by the Department of Local Government, Transvaal Provincial Administration on 1st October 1984 to all local governments. This circular included copies of the reports by the Commission as well as comments on the recommendations. The comments in general reflect appreciation and support for the recommendations proposed by the Commission.

A specific request was made that Local Government should support densities proposed in new townships and that restrictions on minimum erf sizes not be imposed, unless valid reasons therefore could be provided, e.g. availability of services (Department of Local Government, 1984).

6.4 ROODEPOORT RESIDENTIAL DENSITY POLICY, NOVEMBER 1994 (Roodepoort, 1994a)

Following government incentives (e.g. the Venter Commission) to support higher residential densities on the one hand, and development pressures due to rapidly changing patterns in urbanisation in and around the metropolitan area and in specific areas within the Roodepoort Municipal Area, the Roodepoort City Council resolved to appoint private consultants, Hunter, Theron & Zietsman Inc. to undertake a residential policy study for the entire Roodepoort area.

The brief agreed upon was to include and consider *inter alia* that the demand for housing should be established, with specific reference to the type of housing required. Cognisance and consideration should be taken of existing settlement patterns as well as other demands in the housing market. In the urbanisation trends addressed in the report it is stated that the Roodepoort City Council has recognised the challenge to have a pro-active approach to rapid urbanisation.

The metropolitan context and perspective of Roodepoort is emphasised by referring to the regional bodies of which Roodepoort forms part, e.g. it is an integral part of the Central Witwatersrand Regional Services Council's area of jurisdiction. Roodepoort is also influenced by the deliberations and recommendations made by the Johannesburg Metropolitan Chamber. The planning of the metropolitan area has furthermore been guided by the proposals and strategies that have evolved from the Interim Strategic Framework (ISF).

The ISF process outlined eight strategic 'areas of concern' as well as ten priority areas. The eight strategic 'areas of concern' may be summarised as intensification, densification and infill of the existing urban system; assimilating vacant land into the urban system; upgrading and renewal of those parts of the urban system under stress; reinforcing the spatial structure of the urban economy (i.e. strengthening of urban economic activity patterns, nodes and corridors); increasing investment in transport infrastructure (i.e. increasing access and mobility); investment in the service infrastructure (i.e. bulk provision); the provision of balanced and integrated community planning and social development; and trying to strike an environmental balance. (Roodepoort, 1994a: 8-9)

6.5 THE WILGESPRUIT STRUCTURE PLAN, NOVEMBER 1994 (Roodepoort, 1994b)

In the Executive Summary of the above-mentioned report it is stressed that the Wilgespruit Structure Plan was a result of mounting pressures in respect of development, not only at a metropolitan level, but also at a local level. The preparation of the report was firmly based on a comprehensive socio-economic survey compiled for the area in 1993. Prior to the formulation of any proposals, public participation meetings were held to establish the perceptions, concerns, fears, positive attitudes and opinions of the residents of the area.

The key issues that were identified are *inter alia* that only 33% of all household heads are employed in Roodepoort. Residential development taking place are multiple unit schemes (clusters or townhouses) and new residential development on the conventional township basis is practically non-existent. Residential densification is already taking place as a result of the predominantly multiple unit type of development. The existence of the Roodepoort Country Club, Witwatersrand National Botanical Garden and future Roodepoort Sport Centre, together with the attractive ridges and valleys, place strong emphasis on conservation and the creation of integrated open spaces. The availability of engineering services will influence the pattern of development so that attention must be focused on capacity levels and upgrading, together with actual reticulation. The future of two major traffic routes, the PVW5 and PWV10, is a major concern for the residents of the area.

The primary recommendations briefly are:

i) the recognition of areas of low, medium and high density in relation to areas created for employment opportunities;

ii) an additional 6 540 residential units will be required up to 2005 while the residential capacity of the area is calculated at 69 965 residential units accommodating a population of 230 885 at an average residential unit density of 20 units/gross ha of land or 66 persons/ha;

iii) residential development is to be planned unit development at densities exceeding 20 units/ha, and a site development plan below such a density;

iv) existing sport and recreational facilities are to be integrated into a co-ordinated whole using the natural environment;

v) community facilities are to be provided in accordance with population growth;

vi) a primary and secondary transportation network is proposed and internal road networks are to be developed on development plan level.

(Roodepoort, 1994b:(i)-(v))

Further reasons provided for the compilation of a structure plan was to provide certainty to the public and landowners on the City Council's long term development vision for the area. (Roodepoort, 1994b:2)

As would become clear from further discussion in this paper, policies, objectives and spatial development frameworks for the Wilgespruit Area all have the same refrain of city wide perspectives; the objective to provide certainty to landowners and the public; long term visions for the area and cognisance taken of all factors that could influence the locality of residential densification, namely availability of services, the importance of conservation of sensitive areas, topography, geology and soils, etc. Further policies, objectives and spatial development frameworks however had remarkable different outcomes.

One aspect that was addressed in the Wilgespruit Structure Plan that is absent in the following policies, etc., is the aspect of preference of landowners and the public. Although the LIDP process and the RSDF review processes provide for public participation, none of these initiatives seek to obtain public opinion as thoroughly as was done in preparation for the Wilgespruit Structure Plan.

Conventional socio-economic statistics relating to population size, age profile, education levels, occupation structure, place of work of residents of the Wilgespruit area, language, life cycle stages, household income, period of living at current addresses, etc. were taken into account. This additional substantiation for the Wilgespruit Plan is what constitutes the main difference between this structure plan and these that follow thereafter.

The Wilgespruit Structure Plan took into consideration a survey which was conducted by members of the Department of Psychology of the University of South Africa (D.M. Van Ede and C.H. Coetzee: Respondents' Perspectives on Future Development and Characteristics of Properties and Inhabitants, 1993) (Roodepoort, 1994b:57). Roodepoort (1994b:5,40,59) also refers to a report prepared for the Department of Urban Development of the Roodepoort City Council, namely Urban Development Studies: Wilgespruit Development

Potential, September 1993. The information utilised for the compilation of the Wilgespruit Structure Plan thus reflects a sensitivity to the needs of the population. Updated base information was utilised to compile the report.

The strong trend for "Residential 2" and "Residential 3" developments in contrast to "Residential 1" developments is according to Roodepoort (1994b:66) attributed to the cost of land which "has resulted in traditional or conventional housing being uneconomical". The following table reflects the trend towards sectional title developments:

Table 8: Selected Roodepoort Suburbs: Residential Unit Growth Rates, 1986 - 1992

Residential Unit Type	Number of units and growth rate (%)						
	1986	%	1989	% 1986-1989	1992	% 1989-1992	% 1986-1992
Houses	8 012	-	9 742	6.73	11 121	4.51	5.62
Sectional Title	399	-	764	24.18	1 123	13.70	18.82
	8 411	-	10 506	7.70	12 244	5.24	6.46

Source: Roodepoort (1994b:60)

The final Structure Plan reflects *inter alia* that recognition is given to a zone of areas of predominantly low residential densities and these areas are primarily towards the west of the proposed PWV5 traffic route, with minor exceptions (refer to Map 4 in Annexure 1).

A phasing approach was proposed. The problem statement in this regard is as follows: "In respect of the phasing of development for an area such as the Wilgespruit Area, the problem that arises is the unpredictability of the preferences of developers which are in turn guided by market forces. It is therefore of no value to create a development phasing programme and to restrict developers to operating within the limits thereof. This will be in conflict with the basis of the Wilgespruit Structure Plan – that it be a flexible plan to accommodate change and to encourage development." (Roodepoort, 1994b:178.)

The specific densities proposed by the Wilgespruit Structure Plan reflect cognisance taken of the principle of densification along major roads and the protection of sensitive areas. It furthermore provided certainty to residents of the areas and to developers. Although the Greenbelt Action Group opposed applications in the Ruimsig, Poortview and Amorosa area, applications were approved by the Roodepoort City Council and its successors.

What then caused the present dilemma of an Urban Development Boundary and frustrated residents, developers and prospective homeowners? The answer might be found in the policies which followed after 1994.

6.6 LAND DEVELOPMENT OBJECTIVES (L.D.O), 1997 (Western Metropolitan Substructure, 1997)

Since 1994 a plethora of new policies, programmes and legislation seek to determine urban form and spatial arrangements within cities.

In order to satisfy the requirements of the Development Facilitation Act, 1995 (Act 67 of 1995): Chapter IV: Land Development Objectives, and the August 1996 Gauteng Provincial Government Regulations relating to the Land Development Objectives in terms of the Development Facilitation Act, 1995 (Act 67 of 1995), the Western Metropolitan Sub-Structure (WMSS) commissioned that Land Development Objectives be compiled.

The contribution of the LDO's lie in the suggestion that Council buy land to reserve it for future use, for whatever requirements materialise. "Consideration needs to be given to more flexible approaches to land use zoning and re-zoning, with possible consequent implications for land purchase in identified development zones, and financial provisions for compensation." (WMSS, 1997:42.)

This is a crucial proposal, which should be thoroughly assimilated and the implications thereof must be understood. One should not let the implication of this remark pass oneself by as if one's mind has been anaesthetised. What it means is that there is a danger that areas for parks and community facilities will not be provided by market-driven planning. Council should thus identify land for such purposes and buy it in order to reserve it for the preferred land uses. Reference to this statement will be made in the final comments on the Wilgespruit Case Study.

The LDO (WMSS, 1997:54) furthermore provides valuable remarks pertaining to the management of land-use systems and the new challenges that come with new policies and legislation. It states that:

* A thorough review of the role of town planning schemes and rights as they now stand is required as DFA principles are far removed from those embedded in conventional town planning schemes.

* Town planning schemes are typically prescriptive in nature, saying what can (and often must) occur where, exclusionary in their practice, saying what may not occur where, and finite about what will be (how to keep tomorrow the way it was yesterday).

* The review should yield a system (amended or new) that is proscriptive, saying how broad development trends should be encouraged to shape a sensible urban form, inclusionary in their intentions, saying what range of possibilities is to be encouraged in achieving development objectives, and

dynamic and open-ended pointing to the possibilities of future change (how can tomorrow be made to be better than it is today).

The LDO (WMSS, 1997) states that: "The danger exists that those seeking the protection, certainty and stability offered by the existing scheme simply enter a lottery of development thrusts couched in the terminology of the DFA. Thus LDO's must be developed annually with an indication of the nature of spatial frameworks and the trend towards future urban management. Otherwise the intentions of all LDO's may grind to a halt at inception in the face of the many claims that may be brought to bear under the auspices of the provisions of the town planning scheme."

Pertaining to the transport infrastructure and services it is noted that there is a lack of bulk transportation, that there is no major highway within the WMSS, and that the railway is only used for carrying passenger traffic.

6.7 LOCAL INTEGRATED DEVELOPMENT (L.I.D.P) FOR ADMINISTRATIVE REGION 5: NOVEMBER 2000 (City of Johannesburg, 2000)

The former Roodepoort area and the later Western Metropolitan Sub-Structure (WMSS) was now assimilated into the Greater Johannesburg Metropolitan area. For the compilation of the Local Integrated Development Plans the Johannesburg area was divided into 11 sub-regions and LIDP's were compiled for each area. The Wilgespruit area, including the Ruimsig Farm Portions and Poortview Agricultural Holding areas, form part of Sub-area 4 of Administrative Region 5. The LIDP takes the Land Development Objectives (LDO's) previously done for the GJMC and MLC's forward. It also incorporates other planning directives from Provincial, Metropolitan and Local Government Level.

Addressing the overview and major trends of the area, the LIDP (City of Johannesburg, 2000:iii-iv) states that: "Essentially Administrative Region 5 presents one of the few remaining opportunities to expand the urban area of Greater Johannesburg. It is the last frontier of new development and with an undefined urban edge, urban sprawl is a serious threat in this Region, as it is counter productive to the concept of a compact city.

Pertaining to congestion, city structure and convenience, the LIDP (City of Johannesburg, 2000: Annex 2.6: 2-3) comments as follows:

Congestion:
Many motorists complain about congestion. So do councillors and officials who often blame this for the stagnation of their commercial areas. Most traffic and transportation projects are aimed at eliminating congestion, to which the following points refer: Experience shows that improvements to eliminate road congestion serve only to attract more traffic to the improved road, which then

becomes congested again. What is considered to be congestion depends to a large extent on what users perceive as unacceptable travel conditions. This varies from city to city and changes over time. The fact that many motorists (who might be free to change the time, origin, destination and even mode of travel) continue to travel under congested conditions implies that the existing conditions are in fact accepted. Congestion could be relieved substantially if one lane is dedicated to public transport and peak period commuters choose to use this mode. Road construction aimed at relieving congestion actually creates the opportunity for more persons to travel to a sought-after destination. It must be assumed that a sought-after area produces relative economic advantage for a business to locate there; which should translate into a contribution to the national economy.

City Structure:
A city solely dependent on the motor car will have a grid road network and many centres limited in size by the access possible from using private transport; whereas a city dependent on public transport will have radial corridors focussed on the central CBD. Radial corridors are already evident in Greater Johannesburg but these (and others) need to be strengthened by means of: increasing journey speed by reducing the number of access points and the amount of accessing traffic along the corridors; densifying activity along the corridors to increase potential public transport passenger volumes; introducing dedicated public transport lanes to overcome congested sections (even at the expense of increasing travel time for general traffic); and by developing cross linkages between the radial corridors.

Convenience:
The private motor car offers great convenience when compared to public transport modes. As such most individuals will try to use it if they can afford to. It is however the responsibility of the transport authority to assess whether increasing the infrastructure to permit greater use of the motor vehicle is beneficial to the community as a whole.

All subsequent LIDP's and RSDF's constituting the review processes as prescribed by the Municipal Systems Act, 2000 (Act 32 of 2000) were compiled by officials of the City of Johannesburg. No external consultants were thus appointed for such purposes.

6.8 LOCAL INTEGRATED DEVELOPMENT PLAN (L.I.D.P) FOR ADMINISTRATIVE REGION 5: DECEMBER 2001 (City of Johannesburg, 2001)

The status of the LIDP is presented as follows: "The LIDP takes the Land Development Objectives (LDOs), which were previously completed for the Greater Johannesburg Metropolitan Council and Metropolitan Local Councils, forward. It also incorporates other planning directives from provincial, metropolitan and local government level, such as the Strategic Metropolitan Development Framework (SMDF)." (City of Johannesburg, 2001:ii.)

The vision and guideline principles stated are inter alia as follows:

Vision:
The vision is to promote a region of high residential amenity and consistent service levels.

The 2001 LIDP indicated city-wide principles that were to guide development, namely: to recognise the importance of the Johannesburg Inner City as part of the primary investment area of Gauteng; to promote sustainable development – development that delivers basic environmental, social and economic services to all, without threatening the viability of the natural, built and social systems upon which these services depend; to promote development that is within the fiscal, administrative and institutional means of local government; to delineate an urban development boundary to prevent further urban sprawl; to facilitate an appropriate mix of land uses in support of a compact and vibrant metropolitan area; to promote nodal and focussed development and prevent the encroachment of commercial uses into residential areas; and to promote residential densification in and around nodes and along major arterials in support of a viable public transport system. (City of Johannesburg: 2001:iii-iv)

Pertaining to the Development Perspective the LIDP (City of Johannesburg, 2001: Section 3: 42-47) addresses the urban development boundary in detail. The urban development boundary is defined as "the edge of the city beyond which no development is permitted".

The implementation of a clearly demarcated urban development boundary was perceived to be essential in order to combat urban sprawl, protect the hinterland beyond the urban boundary, manage growth and to promote infill development, redevelopment, transportation oriented development and densification within the urban boundary. (City of Johannesburg, 2001: Section 3:42)

Types of urban sprawl identified by the LIDP comprise *inter alia* informal settlements on vacant land beyond the built urban areas as there is no better-located land available; and low-income single-homes-on-single-stands developments on greefield (undeveloped) land, due to the lower costs of land on the outskirts of the city. Developers also develop upper income housing estates on greenfield sites due to lower land costs and the natural beauty of the area.

Urban sprawl is defined as "usually low density and due to the location far from urban facilities. People who can afford private vehicles are dependent on these for mobility. For poor people living on the urban edge to reach the facilities and places of employment, the costs in terms of time, public transportation fares, inconvenience and energy, are very high" (City of Johannesburg, 2001: Section 3:42). Whether development in the Wilgespruit area constitutes sprawl or infill development, consistent with the densification rationale would become a much-debated issue.

The LIDP (City of Johannesburg, 2001: Section 3:42) elaborates further: "In contrast to sprawl, in a compact city people live closer to all the urban facilities and places offering a variety of opportunities. There is less land available for development so better use has to be made of this scarce commodity. Densities are higher and so there are more people to provide the critical threshold to support an efficient public transportation service and economic activities. Plus the authorities do not have to supply or maintain services in distant places at high costs."

The LIDP (City of Johannesburg, 2001: Section 3:42-43) defends an urban development boundary on the basis that, for land beyond the urban development boundary, agricultural and "related uses" should be protected. Within the urban development boundary land should be used more intensively. The following development guideline is provided: "Urban development in the form of township establishment will only be permissible within the urban development boundary, to concentrate development and ensure optimal use of land and infrastructure." (City of Johannesburg, 2001: Section 3:43)

The following rationale from the LIDP (City of Johannesburg, 2001: Section 3:43) pertaining to the optimal use of land is obviously applicable to low-cost residential areas, yet is frequently referred to when applications for medium- to high-cost residential areas are assessed (and recommended for refusal):

> "Compact urban form requires that optimal use is made of land and infrastructure capacity available within the city. Greenfields development or provision of additional infrastructure capacity on the outskirts of the city should not be permitted. The current problem facing Johannesburg is that land at the outskirts of the city is more affordable, while spare infrastructure capacity is also available in some of these areas making them attractive for development. This is particularly so for low-income housing. However, peripheral development entrenches the marginalisation of disadvantaged communities who are resident here. The lack of social services, economic activities and employment opportunities in remote areas, as well as the long-term transportation costs to the individual and the city, should be taken into account when calculating the development costs of peripheral settlements. Viable and sustainable development cannot be maintained in settlements outside the urban development boundary. The Development Guideline is, therefore, to use centrally located land, linked to the movement network, public transport system and infrastructure services."

Pertaining to strategic densification, urban renewal and infill the LIDP (City of Johannesburg, 2001: Section 3:43-44) states that: "Urban areas are dynamic entities that require renewal and upgrading to counteract decay and adapt to socio-economic changes. Residential areas, particularly in the north of Johannesburg, were designed and laid out at low densities. Low densities hamper resource-efficiency and the viability of the public transport system." (The Council was later

to 'swallow its words' pertaining to this issue, as services became overloaded and further applications for subdivisions were refused, e.g. in the Bryanston area where owners of stands of 3 000m² applied for subdivision into 1 000m² stands. Also contributions charged for services, especially electricity, became very expensive.)

The LIDP continues: "However, all cities need to have a range of densities and high income, low density areas are as important to the city as having high and medium density areas. High density is not synonymous with low income, but is often associated with high-income residential developments."

Pertaining to the implementation of the policy the LIDP (City of Johannesburg, 2001: Section 3:44) suggests four strategic actions required to ensure the effectiveness of the boundary namely: the clear demarcation of the boundary and the land beyond the urban boundary (and how it should be dealt with); meeting the demand for growth; as well as strategic densification, urban renewal and infill.

The criteria used to define Johannesburg's urban development boundary (UDB) were indicated to be local authority boundaries, natural and conservation areas, engineering infrastructure provision, existing and planned roads, township boundaries, natural features such as rivers and ridges, property boundaries, anticipated growth, accessibility, and existing developments. (City of Johannesburg, 2001: Section 3:44)

In subsequent Tribunal hearings for township establishment in the Ruimsig / Poortview area, which were in terms of the LIDP located outside the UDB, these criteria and their applicability were debated with great indignation.

6.9 GAUTENG SPATIAL DEVELOPMENT FRAMEWORK (G.S.D.F): FEBRUARY 2002 (Gauteng, 2002)

The Gauteng Spatial Development Framework delineated an urban edge which had a radical impact on socio-economic aspects in the Wilgespruit area.

What is most alarming is that only a short literature study was done before the compact city approach to townplanning and management was adopted. The Urban Edge was apparently delineated by means of outdated aerial photographs which did not reflect existing developments.

The original Urban Edge was intended to be a starting point to be commented on by city councils. At that stage the erstwhile Roodepoort Municipality did not submit comments – the reasons one might arrive at, being the following: the seriousness of the implication of the Urban Edge was not comprehended; the council itself was in a process of restructuring and upheaval; and the Urban Edge

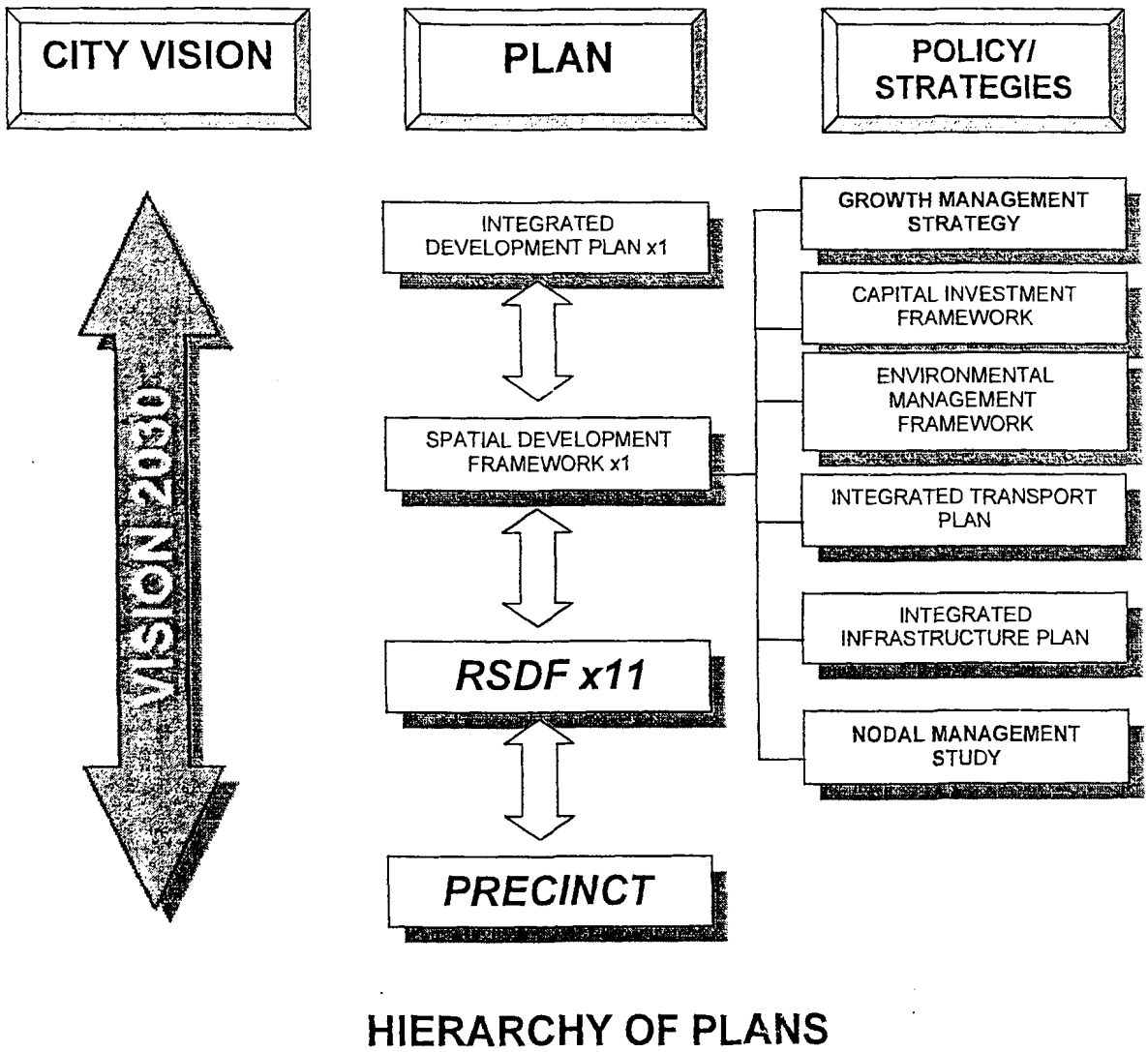
line was so ridiculously irrational that everybody assumed that it would be corrected routinely.

6.10 REGIONAL SPATIAL DEVELOPMENT FRAMEWORK (R.S.D.F) FOR ADMINISTRATIVE REGION 5: MARCH 2002 (REVIEWED 2001 L.I.D.P) (City of Johannesburg, 2002)

LIDP's now became known as RSDF's.

The position of the LIDP's in terms of the level of plans in the City is explained in Figure 3:

Figure 3: Position of RSDFs in terms of the level of plans of Johannesburg City Council.



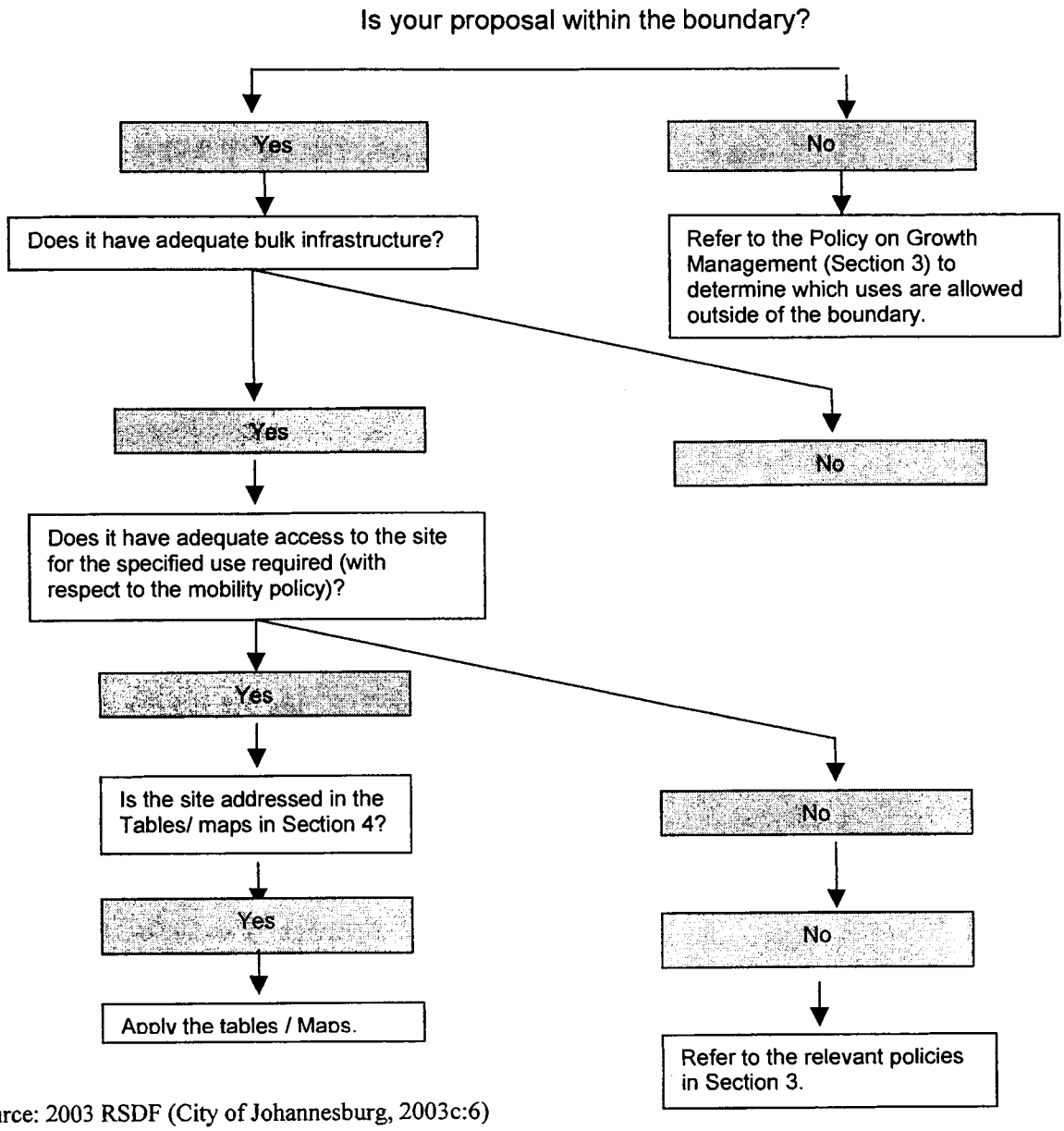
Source: 2002 RSDF (City of Johannesburg, 2002)

The 2002 RSDF (City of Johannesburg, 2002) for Administrative Region 5 generally repeated previous policy and strategy elements pertaining to Growth Management, the Movement System, Mobility Policy, Nodal Policy, Density Policy and Environmental Guidelines. The Urban Development Boundary was not uplifted, despite intense pressure therefore.

6.11 REGIONAL SPATIAL DEVELOPMENT FRAMEWORK (R.S.D.F) FOR ADMINISTRATIVE REGION 5: JUNE 2003 (City of Johannesburg, 2003c)

The issue of the Urban Development Boundary (UDB) became more prominent, and was actually indicated as the very point of departure for any application. The reference to the LIDP as being a guide was purely sugar coating, for in practice the LIDP was strictly adhered to.

Figure 4: The interpretation / use of the RSDF



Source: 2003 RSDF (City of Johannesburg, 2003c:6)

The densification of strategic areas within the City is motivated by the RSDF by referring to the densification benefits and potential concerns.

Densification benefits:

- The cost of providing public transportation infrastructure and services is potentially lower in areas of higher densities where there are higher numbers of users.
- Building costs can be reduced through densification.
- Higher densities result in savings in total land requirements for development, which supports sustainable development practices.
- It is more cost effective to upgrade an existing infrastructure network for densification purposes due to economies of scale (cheaper to concentrate services than to provide an extended network in an environment of urban sprawl).
- Densification will require the upgrading of services in existing urban areas – this will allow for optimal utilisation of existing infrastructure and for phased implementation, with obvious cash-flow advantages.
- Quality of life is improved through densification in the sense that reduced travel times required for home-school and home-work trips offer people more time for socialising, leisure and other activities.
- Opportunities for social interaction are promoted through reduced walking distances to social amenities and living configurations (building designs) that support social networking.
- Densification reduces pressure for the development of open spaces and environmentally sensitive areas in support of the conservation of such areas.
- Air pollution can be reduced as fewer private vehicles are used thus lowering their emissions.

Potential concerns in respect of densification are as follows:

- Significant public expenditure is required for the development of an integrated movement system catering for the range of modes of transport, and that includes a reliable and efficient public transport system.
- The provision of well-located land and housing for the poor is a prerequisite.
- The city has a range of users, with diverse requirements. The supply of housing across densities and typologies needs to be available, so that there is consistency with demand. That is, both areas of low and high densities.
- Disruption of services provision within established communities while upgrading the existing infrastructure.
- Appropriate design is needed in higher density areas in order to mitigate against social stress (and the resulting symptoms). Crime prevention through environmental design needs to be a key consideration in this regard.
- Higher densities may result in concentrations of air and noise pollution, particularly emanating from private motor vehicle emissions. An effective public transport system is thus essential. Energy efficient design is also to be promoted.

(RSDF, 2003:30-31)

The 2003 RSDF (City of Johannesburg, 2003c:31) however suggests that the impact of densification can be mitigated by adopting the following guidelines: areas for strategic densification be identified in terms of the nodal and mobility policies; densification areas to be phased and prioritised, taking into account a number of limiting factors that prevent immediate densification in strategic areas, namely:

- There are limited capital funds within the public sector in the short term to either carry the cost of actual developments, or to provide infrastructure across the city in support of densification.

- The market is demand driven and profit oriented. This means that the areas of densification and the rate of development in support of densification are dependent on market demand, capital availability and profit. The challenge is to channel market supply into strategic areas. Consequently, there is a need to prioritise and phase densification."

(City of Johannesburg, 2003c:32)

In order to mitigate the possible negative impacts of higher densities, design guidelines were drafted.

Table 9 reflects **Design Guidelines in respect of Increased Density Proposals:**

ELEMENT	CRITERIA
Infrastructure	★ The development should not overload the capacity of existing public infrastructure ★ Public infrastructure includes reticulated services, streets, open spaces and social and community services ★ The design should allow sufficient space for services to be installed and maintained efficiently and economically ★ The design should indicate stormwater management measures
Neighbourhood character	★ The development should take into consideration and accommodate the built form, vegetation, topography and streetscape of the surrounding neighbourhood in its design ★ Development should be sited and designed to acknowledge the privacy of abutting developments ★ Significant height difference between existing developments and a new development should be graduated
Parking and vehicle access	★ Proof of adequate parking provision must be provided ★ Parking must be provided on site ★ Parking for residents and visitors must be provided ★ The number of bays in residential developments should be in line with the car ownership trends in the particular area ★ The access-way must allow for the passing of vehicles and must be sited so that cars entering the development will not hinder the vehicle movement in the public street ★ Paved areas must not hamper the efficient management of stormwater ★ A minimum of one tree for three open parking bays must be planted ★ Car parking facilities should not dominate the development or street frontage ★ Access to the development must be in line with the mobility policy
Site layout and landscaping	★ Developments should integrate well with the surrounding neighbourhood, enhance existing character of streets and maintain the predominant character of the area ★ Layouts should respond positively to site features, e.g. topography, drainage, vegetation, etc. ★ Common property on the site should be functional and be capable of efficient management ★ Developments next to existing public open spaces should be laid out to complement the open space ★ Provide good lighting, visibility and surveillance with perimeter lighting on the street frontage
Building form	★ Street frontage should suit the efficient use of the site, the residential amenity and the character of the neighbourhood ★ Building height and location must not have a negative impact on surrounding developments ★ Private open spaces and habitable rooms of adjacent existing dwellings should be reasonably protected from direct overlooking

Source: 2003 RSDF (City of Johannesburg, 2003c:36)

The 2003 RSDF is concluded with an explanation of the City Development Programming and Management Programmes. This will be elaborated on in the discussion of the RSDF 2004 – 2005 Review.

6.12 REGIONAL SPATIAL DEVELOPMENT FRAMEWORK (R.S.D.F) FOR ADMINISTRATIVE REGION 5: JULY 2004 (City of Johannesburg, 2004)

The 2004 RSDF provides a comprehensive reference to legislation, development policies and strategies that impact on land-use regulation and management. Existing legislation which influences policy development is stipulated as being the following:

a) The Constitution of South Africa (Act 108 of 1996)
b) The Reconstruction and Development Programme, 1994
c) The Development Facilitation Act (Act 67 of 1995)
d) The Local Government Transitional Act (Act 209 of 1993)
e) The Physical Planning Act (Act 32 of 1989)
f) The Land Use Management Bill, 2001
g) The National Environmental Management Act (Act 107 of 1998)
h) The National Land and Transport Transitional Act, (Act 22 of 2000)
i) The Municipal Systems Act (Act 32 of 2000)
j) The Municipal Structures Act (Act 117 of 1998)
k) Gauteng Spatial Development Framework, 2002
l) The Townships and Town Planning Ordinance (Ordinance 15 of 1986)
m) LEFTEA
n) Peri Urban Town Planning Scheme, 1975
o) Roodepoort Town Planning Scheme, 1987 and Randburg Town Planning Scheme, 1976
p) Development Plans, Programmes, Structure Plans, Community LDO submissions and policies (SDF, LIDP's, RSDF's) used in previous assessment of town planning land use changes and development control.

(City of Johannesburg, 2004:28)

The Local Government: Municipal Planning and Performance Management Regulations, 2001 (Government Notice 22605, 24 August 2001) states that a Spatial Development Framework (SDF) reflected in a municipality's Integrated Development Plan (IDP) must set out a Capital Investment Framework for the municipality's development programmes, identify programs and projects for the development of land within the municipality, and prioritise spending areas. (City of Johannesburg, 2004:120)

Regional Development Policies and Strategies that can be applied as a management tool when assessing development options, include three distinctive levels/spheres, namely City Wide Strategic Spatial Structuring Elements, City

Wide Policies (Sectoral Plans) and Precinct Plans within a regional context. (City of Johannesburg, 2004:28)

City Wide Policies include the following:

Vision 2030

According to the Joburg 2030 vision statement, Johannesburg needs to develop into a world-class African city with service delivery and efficiencies, which meet world best practice. Its economy and labour force will specialise in the service sector and will be so strongly outward orientated that the city economy will operate on a global scale. The strong economic growth resultant from this competitive economic behaviour will drive up city tax revenues, private sector profits and individual disposable income levels. This will ensure that the standard of living and quality of life of all the city's inhabitants will increase in a sustainable manner (City of Johannesburg, 2004:28-29).

Integrated Development Plan (IDP)

Integrated development planning crosses departmental divisions by linking the physical, social, institutional and economic components of planning and development with a management and implementation structure. The IDP also integrates planning in the different spheres of government. Lastly, it integrates the municipality and it's financial planning with other service providers and residents.

The IDP comprises of several plans, strategies, frameworks and polices. The City of Johannesburg's IDP is medium-term plan (3-5 years) which provides for annual participation and reviewal/ amendment where appropriate (City of Johannesburg, 2004:29).

The Spatial Development Framework

The Spatial Development Framework (SDF) is based on seven 'Growth Management' elements with the strategy being to address a more sustainable urban environment with inherent savings as a result of greater efficiencies. These strategies are inter-related and impact on one-another and directly relate to the development direction as applicable to Region 5, as illustrated in intervention tables. The Growth Management elements are the movement system, nodal development, sustainable neighbourhood development/ densities, environmental management, corridor development, design guidelines and Urban Development Boundary (UDB).
(City of Johannesburg, 2004:29-30)

Sectoral Policies

In addition to the compilation of the SDF and the regional specific RSDFs, the City of Johannesburg has produced further policy directives. These directives both compliment the SDF and RSDFs, and elaborate further on specific sectoral components, like the Environmental Management Framework (EMF), Johannesburg Metropolitan Open Space System (JMOSS), the Nodal Study, the

Integrated Transport Plan (ITP), the Integrated Infrastructure Plan (IIP), the Capital Investment Framework and the Housing Strategy.

Environmental Management Framework (EMF)

According to the 2004 RSDF (City of Johannesburg, 2004:34), "the rate of environmental degradation and the amount of pressure exerted on the City's natural resources is increasing by the day". The driving forces (human activities) which have contributed to the current, environmental situation include population growth; rapid urbanisation and urban sprawl; the failure of government to enforce regulations (i.e. pollution control); the need to meet the basic need of the population (i.e. food, shelter and energy requirements); the need for economic growth and job creation; unsustainable and exploitative patterns of resources use – industry, mining and agriculture use water wastefully as there are no incentives to use them wisely or to recycle waste products; and increased waste generation.

Based on the analysis and identification of key challenges as presented in the State of Environment report, broad policy vision, desired goals and objectives have been set, together with accompanying intervention programmes for implementation to address the challenges. The above is presented as the City of Johannesburg's commitment to sustainable development.

Johannesburg Metropolitan Open Space System (JMOSS)

According to the 2004 RSDF (City of Johannesburg, 2004:35) the purpose of the study was to develop an approach to establish a Metropolitan Open Space System (MOSS) for the City of Johannesburg, which will be utilised as a decision support tool and a spatial planning tool that can assist in the promotion of sustainable management of open space within the City.

The Nodal Study

The purpose of the nodal study was to collate urban planning, property economics and engineering information on the specific nodes and examine their existing characteristics within current policy guidelines and development trends. The aim of the report was to provide the City with a first phase management tool to assess and manage certain identified nodes (City of Johannesburg, 2004:39).

In the study area major nodes are found, e.g. the Monash University, the Contantia Kloof Office Park and major shopping centres along Hendrik Potgieter Road. The 2004 RSDF (City of Johannesburg, 2004:39) states that: "The area has good accessibility, but the problem is inadequate public transport – except for the predominance of taxis operating in the area."

Integrated Transport Plan (ITP)

According to the 2004 RSDF (City of Johannesburg, 2004:40) "The current modal split within the City is approximately 52% private transport based and 48% public transport based. Over the last 4 years there has been an increasing demand for private transport. Of the 48% of commuters using public transport, 72% of

commuters are relying on the taxi industry as their mode of choice for home to work travel. For this reason the ITP focuses on road based public transport.

Integrated Infrastructure Plan (IIP)

According to the 2004 RSDF (City of Johannesburg, 2004:42) the Integrated Infrastructure Plan is informed by the Capital Investment Framework and both are tools that guide the development of infrastructure within the urban boundary and will inform investment decisions for the city, focussing on pre-determined priorities.

Main Witwatersrand Ridge Policy

According to the 2004 RSDF (City of Johannesburg, 2004:59) the topography of the southern extent of Region 5 is characterised by ridges that represent one of the greatest natural environmental resources in the area. The ridges present special, unique irreplaceable environmental and scenic value. The value of these amenities can be expressed in an aesthetic, intellectual and spiritual meaning and satisfaction for the community as a whole. It also has the potential to be developed as open space corridors that provide a variety of amenities such as attractive views, open space preservation, passive recreation and conveniently located recreation opportunities."

Wilgespruit Development Plan

Pertaining to residential development the study area is divided into 2 areas: residential development within the Urban Development Boundary and development outside the Urban Development Boundary. In areas such as Ruimsig and Poortview residential densification is not supported.

The 2004 RSDF (City of Johannesburg, 2004:83) states that a precinct plan for the Wilgespruit area is required and that the existing Wilgespruit Development Plan should be rescinded. It can be assumed that this statement has contributed to the appointment of consultants to prepare a precinct plan. The urgency of appointing consultants furthermore rested on unresolved applications for township establishments in Ruimsig and Poortview.

6.13 REGIONAL SPATIAL DEVELOPMENT FRAMEWORK (R.S.D.F) FOR ADMINISTRATIVE REGION 5: MAY 2005 (City of Johannesburg, 2005b)

The 2005 RSDF does not introduce significant new information or policies. It however elaborates on the merits of the Urban Development Boundary (UDB). The delineation of the boundary is however not affected.

6.14 SPATIAL DEVELOPMENT FRAMEWORK (S.D.F): 2005 – 2006 (City of Johannesburg, 2005c)

The approach to townplanning and the regulation of land-uses in Johannesburg is based on the three distinctive policies, namely the Mobility Policy, the Nodal Policy and the Residential Density Policy.

The SDF explains the individual policies as well as their relation to each other.

6.14.1 The Mobility Policy:

The Johannesburg City Council interprets the movement system as one of the key structuring elements within the City. It is stated that "cities are to a large extent 'movement economies' with the efficiency of respective urban systems directly relating to the efficiency of the movement system." (City of Johannesburg, 2005c:28.)

The Mobility Policy constitutes three elements, namely: functional road classification, indication of land-uses related to the specific hierarchy of roads, and specification of the function and design of different roads.

The Mobility Policy incorporates the *Integrated Transport Plan (ITP)* alignment which serves as one of the main planning and management mechanisms for the City's road system.

The vision for transport as stated in the approved ITP document reads: "A safe and efficient transportation system, with a public transport focus that will support a world class City; connecting business, people and places in a sustainable and cost effective manner and through this, improve the standard of living and quality of life of all the City's inhabitants and the overall competitiveness and growth of the City's economy." (City of Johannesburg, 2005c:30.)

Public Transport Initiatives:

The ITP has identified and defined three implementation mechanisms that are relevant to the SDF's mobility policy and the implementation of an appropriate public transport system, namely the Strategic Public Transport Network and associated flagship projects (SPTN), the Public Transportation Nodal Program, and Gautrain.

6.14.2 The Nodal Policy:

The Nodal Policy identifies types of nodes and their characteristics.

6.14.3 The Density Policy:

According to the SDF the promotion of strategic densification is a primary objective in achieving a sustainable, compact and concentrated urban form.

6.14.4 Urban Development Boundary (U.D.B):

The UDB as a growth management tool is elaborated on extensively.

It is stated that within the City's present context and development climate the delineation of an Urban Development Boundary (UDB) provides a clear message that "business as usual" needs to adapt to support broader principles of efficiency, accessibility and sustainability.

The fundamental outcome of an UDB is perceived to be to combat urban sprawl, create economies of urbanisation, to focus on in-fill and redevelopment, to support efficient infrastructure provision (capital investment), to provide a mechanism for effective growth management, to support a more efficient urban form that is public transport orientated, to protect environmentally sensitive areas, agricultural land and open space, and to provide direction for capital investments for efficient infrastructure provision.

The SDF however indicates that the UDB is only one form of public intervention to assist and guide efficient city growth management and its application should be in conjunction with other interventions and strategies to influence a desired city structure. To be effective and succeed in managing growth the City has to apply its collective mind to additional interventions, which might include improved land use and infrastructure coordination, designation of enterprise zones/strategic development areas, more flexible zoning, re-structuring bulk contributions, a range of incentives (tax, infrastructure, etc), and public transport orientated development.

It is concluded that the city will need to determine the most appropriate of these other tools to complement the UDB and the principles of efficient growth management.

6.14.4.1 *Provincial Edge vs. City's Urban Development Boundary:*

The relation between the Urban Edge and the UDB is explained as follows:

During 2002, both the Provincial Urban Edge and the City's UDB were adopted by the Provincial Executive Council and the Council respectively. In most instances, the Edge and UDB (the two "lines") were aligned. There were however, a number of discrepancies; in certain instances the City's "line" was more restrictive, in others, more expansive.

The City's adopted and approved UDB was reflected in both the SDF and RSDFs of 2003/04. A formal submission to re-align the Provincial Urban Edge to that adopted by the City via the UDB was submitted to the Department of Development Planning and Local Government in June 2003. To date, the City has received no formal response to the submission and the mismatch of the lines remains a major concern in terms of the UDB's management and policy application in respect of applications.

6.14.4.2 *UDB and Urban Edge Alignment:*

The SDF states that the delineation of the UDB was a complex exercise. Depending on a particular criterion, the line could be drawn in a number of ways. For example if the City had considered the availability of social services (e.g. schools and clinics) in isolation from other factors a very different line could have been determined. In many respects the determination of the line was a balancing act noting a host of variables.

The delineation of the UDB considered:

- A future city structure and growth management strategy as detailed in the SDF;
- Citywide bulk engineering and social infrastructure backlogs and requirements (as detailed in the CIF);
- The Provincial Urban Edge (as noted in the Gauteng Spatial Development Framework Review: Sub-Project 4 – Management of the Urban Edge Final Report 2002);
- Appropriate location for future growth, (components of the Strategic Interventions Master Programme);
- Areas compromised in terms of development proposals and policy plans;
- Strategically located vacant land favourable for infill;
- Existing developments, such as Lanseria, Diepsloot and existing peripheral settlements in the Deep South;
- Subsidised housing projects and areas compromised by housing proposals;
- Prominent growth areas and emerging areas;
- The environmental footprint provided by Johannesburg's Metropolitan Open Space System;
- A logical alignment of the boundary along existing physical features, to prevent the creation of isolated land parcels with no development potential;
- Existing developments and proclaimed rights;
- The existing municipal boundary and development beyond the municipal boundary; and
- Inputs from communities via the RSDF and IDP "Outreach" programmes.

6.14.4.3 *Criteria for development within and beyond the UDB:*

The SDF argues that two perceptions appear to have been created since the City adopted the Urban Development Boundary via the SDF.

The first would suggest that "anything goes" within the UDB and secondly, that no development is permitted beyond the UDB. According to the SDF both these perceptions are incorrect and in both instances criteria are applied to assess the appropriateness and acceptability of development proposals and applications.

Development beyond the Urban Development Boundary:

The SDF determines that land located beyond the City's UDB is predominantly rural and agricultural in nature. Naturally, the concurrent land uses tend to be of a lower-intensity and density. There are however areas where the distinction between urban and rural is blurred. Development outside the Urban Development Boundary will, according to the SDF, be considered in terms of compliance with the following land use criteria:

- Agriculture: purposes normally associated or reasonably necessary in connection with agricultural purposes and agri-villages. This includes only dwelling units related to the agricultural use of the property.
- Conservation Areas and Nature Reserves: Areas designated for nature conservation, which may include tourism facilities (accommodations/restaurants) and recreational facilities directly related to the main use.
- Tourism and recreational related facilities: Outdoor and tourism related activities including hiking trails, hotels, 4x4 trails, restaurants, curio markets, conference facilities, wedding venues, game lodges and other similar uses with a rural character not causing a nuisance or having a detrimental effect on the environment.
- Farm stalls.
- Rural residential uses and agricultural holdings.
- Any other related development or service, provided that the proposed development services primarily a local market or is located at a service delivery centre or central place to the community.

The SDF furthermore explains the Council's financial arrangements:

6.14.5 The Capital Investment Framework (CIF):

The SDF states that the Capital Investment Framework aims to improve the management of existing infrastructure and address the many developmental challenges within the city.

6.15 CONCLUSION

The commitment of densification and the relation thereof to public transportation has form part of council's policies for a long time. The implementation thereof however varies:

* Certain policies/reports allow markets to determine development, e.g. the Venter Commission.

* Bureaucratic and insensitive management has however now become the dominant approach.

Present-day policies (the RSDF and SDF) reflect text-book cases of the compact city ideology, motivated in terms of all the claims of the compact city and to be accomplished by means of densification, promotion of public transport, protection of agricultural land and the delineation of an urban development boundary. Although it is stated continuously that the purpose of the RSDF is to guide development, it is in fact enforced very strictly, resulting in antagonism.

In the context of the definition provided by Duany (2000), these policies are however promoting sprawl namely that different land-uses are strictly separated. This has the implication that people will have to travel to places of work, schools and other socio-economical amenities.

* Valuable suggestions are made from time-to-time, which could contribute to a better quality of life, e.g:

* The suggestion that Council should buy land to reserve it for future use, e.g. for educational facilities.

* The suggestion that consideration be given to more flexible approaches to land-use zoning and rezoning.

* The suggestion that development be regulated, not by prohibition but by contributions which reflect real costs of development.

* The suggestion that social sciences be involved in townplanning.

* The acknowledgement that township establishment be regarded as a full-fledged economic activity and the suggestion that a permanent national working group be appointed to monitor the industry.

Chapter 7

The Compact City in Practice: Case Study of the Wilgespruit Area

7.1 INTRODUCTION

In the previous chapter the plethora of legislation, special reports, structure plans, LDO's, LIDP's, SDF's and RSDP's have been introduced.

The Wilgespruit area has been the subject of intense townplanning and development scrutiny for a decade and longer. Mounting pressure for development coupled with often conflicting townplanning and management approaches resulted in much controversy and thwarted expectations.

The area provides an opportunity to assess the implications of the Compact City ideology for medium- to high-income residential areas in a South African city.

7.2 DEMARCATION OF THE STUDY AREA

The boundaries of the area are indicated by Maps 1 and 2 in Annexure 1:

To the West: The municipal boundary between the City of Johannesburg (formerly Roodepoort Municipality) and Mogale City (formerly Krugersdorp Municipality).
To the East: Christiaan de Wet Road.
To the North: Beyers Naudé Drive.
To the South: The Roodepoort Ridge (Main Witwatersrand Ridge which traves the Roodepoort area in an east-west direction).

Within the metropolitan perspective the study area is located in the north-western area of the city of Johannesburg Metropolitan Municipal area. See Map 3: Annexure 1.

The study area of the former Wilgespruit Structure Plan (Map 4) included an area to the east of Christiaan de Wet Road, up to the N1 Highway. The recent detailed development framework commissioned by the City of Johannesburg however only refers to the area as demarcated above. The report was titled *The Poortview/Ruimsig Development Framework: Draft Report May 2005*. This is confusing as the study area incorporates a larger area than only the Poortview / Ruimsig area. In the final report (July 2005) the title was amended to read *The Poortview, Ruimsig and Surrounding Areas Development Framework.*

For ease of reference the study area as demarcated by the Poortview / Ruimsig Development Framework was taken as the area for the case study as well.

The significance of the impact in the Wilgespruit area should not be underestimated: the area is 4 003,3 hectares in extent and has the potential to accommodate 38 626 dwelling units (± 112 438 people) (Poortview/Ruimsig, 2005b:75).

The development can be viewed as a new city. (In this regard compare the dimensions and densities of other proposed new cities.)

- Ebenezer Howard's Garden City was planned to accommodate 32 000 people in a city built on 404,7ha (1 000 acres): 2 023,5ha (5 000 acres) was to form the surrounding agricultural area. (Total area = 2 428,2ha.)
- Luchao Harbour City is to be built on 6 500ha (65km²) and planned for 300 000 inhabitants. (Maak, 2003:83)

Table 10: Comparison of new cities / development areas.

Name of development area	Area (ha)	Nr. of dwellings	Nr. of people per ha. (gross)	Nr. of people
Wilgespruit	**4 003,3**	**38 626**	**28,08**	**112 438***
Garden City	404,7		74,12	30 000
	2 023,5		0,98	2 000
	2 428,2		**13,17**	**32 000**
Lachao Harbour	**6 500**		**46,15**	**300 000**

* Reflects a household size of 2.9 persons.

Although the Wilgespruit area reflects high densities, it has however not been developed as an integrated new city, but consists of fragmented small residential developments. Refer to Annexure 2: Aerial photographs.

7.3 HISTORICAL BACKGROUND

The townplanning history of the study area is closely related to the geographical context of the (former) Roodepoort City. Roodepoort (1981:3-4) provides a brief history of Roodepoort:

Roodepoort City has its origins in mining activities. On 11 October 1886 the farms Roodepoort, Vogelstruisfontein and Paarde-kraal was proclaimed public diggings under the Gold Act, 1985 (Act 8 of 1985). Four small towns, Roodepoort, Florida, Maraisburg and Hamberg, arose from the mining camps which consisted of tents and corrugated iron shacks. Between 1886 and 1888 these villages, as well as portions of Witpoortjie, Weltevreden and Waterval, became known as Roodepoort-Maraisburg, and from 1963 as Roodepoort.

The 1930 depression had a negative impact on agriculture and rural areas but resulted in an increase in urban areas like Roodepoort. During the period 1930 – 1940 the population increased significantly. Industrial areas were established. In 1955 the municipal area comprised 40 residential and 4

industrial areas. By 1970 it has increased to 76 residential and 8 industrial areas, and by 1980 to 166 proclaimed residential townships and 13 industrial townships. These townships were all situated south of the Roodepoort Ridge.

As the areas south of the ridge became fully developed, development spilled over the ridge. The geographical context of the area provided opportunities for densification on greenfield areas. Although the Wilgespruit area is situated on the periphery of the former Roodepoort Municipality, it is also surrounded by established and newly mushrooming urban areas of the former Randburg/ Johannesburg Municipality to the north and east, and Krugersdorp/Mogale Municipality to the west.

Due to the fact that greenfield development is possible, the potential for high-density development is significant. Backed up by Council's policy in favour of densification (especially the Wilgespruit Structure Plan), a scarcity of vacant land in other areas of the metropolitan area, favourable climate and aesthetic conditions, as well as an unprecedented property boom period – the densification of the Wilgespruit area became a *fact de accompli.*

Producers of the built environment found development economically viable. Different segments of the market were catered for: township establishments for both townhouses, and cluster developments comprising smaller erven as well as bigger "Residential 1" erven (especially in the Ruimsig area) were approved. Since the inception of the Wilgespruit Structure Plan in 1994 significant development has taken place in the study area. Developers and investors alike invested heavily based on the proposals as contained within the Wilgespruit Structure Plan.

The following residential-supporting amenities were developed in the area:

- The Monash University (established on land which was acquired from the Council. The area of the site is ± 100 ha.)

- A major regional shopping centre – The Clearwater Mall (in excess of 6 000m² permissible floor area, situated on the south-western corner of the intersection of Hendrik Potgieter Road and Christiaan de Wet Road. Two neighbourhood shopping centres situated on the north-eastern and south-eastern corners of the intersection of Hendrik Potgieter Road and Peter Road. Several other shopping centres were developed adjacent to and north of Hendrik Potgieter Road.

The feasibility of the said developments to establish in this area was based on the potential demographics of the proposals of the Wilgespruit Structure Plan (Agenda Town Planning Tribunal, 2003:5.2-5.3).

Table 11 indicates the extent of approved land-use rights/applications awaiting approval:

Table 11: Extent of approved land-use rights / applications awaiting approval

Township Establishment, Rezoning and Division of Land applications Approved / Received Beyond the Urban Boundary in the Wilgespruit Area: Administrative Region 5		
APPLICATION TYPE	**STATUS**	**TOTAL**
Township Establishment applications	APPROVED (Prior inception of LIDP in Dec 2001)	64
	RECEIVED (Prior inception of LIDP in Dec 2001)	18
TOTAL		**82**
Rezoning applications (Non-agricultural uses only)	APPROVED (Prior inception of LIDP in Dec 2001)	24
	RECEIVED (Prior inception of LIDP in Dec 2001)	2
TOTAL		**26**
Division of Land applications	APPROVED (Prior inception of LIDP in Dec 2001)	55
	RECEIVED (Prior inception of LIDP in Dec 2001)	10
TOTAL		**65**

Source: Extract from items by Development Planning, Transportation & Environment (City of Johannesburg) to Town Planning Tribunal (several applications in the area outside the Urban Boundary).

Applications approved after the inception of the LIDP (December 2001) and the RSDF which follows thereafter:

Township	Residential Township	Date approved	Approved by
Ruimsig x45	6 erven ("Residential 1")	28/01/2003	Executive Tribunal of Johannesburg City Council
Ruimsig x55	94 erven ("Residential 1")	2004	Mayoral Committee of Johannesburg City Council

Applications recommended by the Executive Tribunal for approval to the Mayoral Committee:

Township	Residential Township	Date
Ruimsig x36	4 erven ("Residential 1")	27/01/2004
Ruimsig x50	6 erven ("Residential 1")	27/01/2004
Ruimsig x51	3 erven ("Residential 1")	27/01/2004
Ruimsig x52	6 erven ("Residential 1")	27/01/2004

Applications recommended by the Executive Tribunal for:

- approval to the Mayoral Committee;
- amendment of the Urban Boundary to include the subject properties:

Township	Residential Township	Date
Ruimsig x3	2 erven ("Residential 2")	24/08/2004
Ruimsig x37	3 erven ("Residential 1")	24/08/2004
Ruimsig x47	3 erven ("Residential 1")	24/08/2004
Ruimsig x48	6 erven ("Residential 1")	24/08/2004
Ruimsig x49	6 erven ("Residential 1")	24/08/2004
Ruimsig x53	3 erven ("Residential 1")	24/08/2004
Ruimsig x56	6 erven ("Residential 1")	24/08/2004
Ruimsig x58	6 erven ("Residential 1")	24/08/2004

With the inception of an Urban Development Boundary, development was abruptly halted for these areas which were now located outside the boundary. (A few applications were still approved until the Council became more bureaucratic in its approach to land use management.) For the majority of the applications, however, the Berlin Wall came up overnight.

Several applications were however approved in terms of the Development Facilitation Act.

7.4 IMPACT OF THE URBAN DEVELOPMENT BOUNDARY (U.D.B)

The Urban Development Boundary is indicated on Maps 5 and 10 (Annexure 1). The Ruimsig Farm Portions and the Poortview Agricultural Holdings area were indicated as located outside the Urban Development Boundary.

A period of intense confrontation with the Council followed. Landowners in the Ruimsig/Poortview area felt that their legitimate expectations to develop their properties in terms of the Wilgespruit Structure Plan, were thwarted. Consultants submitted comments to officials of the Strategic Planning Unit of the Council on a continuous basis.

The concern of townplanning consultants about the implementation of the LIDP's and RSDF's was not restricted to Region 5. A letter signed by 23 Townplanning consultancies in the City of Johannesburg and submitted to *inter alia* the Municipal Manager (City of Johannesburg) and the MEC reflected the concern pertaining to RSDF's which were perceived as irrational, defective and utilised in a prescriptive manner.

The "struggle" with the Council pertaining to the perceived irrationality of the UBD as well as the administrative approach of the Council in dealing with the issue has been ongoing for several years and has severe financial implications for homeowers.

In December 2004 the City of Johannesburg commissioned the compilation of a Detailed Development Framework for the Poortview and Ruimsig area. In a tender brief it was indicated that the study was to be completed by February 2005.

The area was thoroughly investigated along the following lines:

a) **<u>The situational analysis:</u>**
This analysis addressed the legislative overview, the regional context of the study area, a socio-economic profile, an environmental assessment, a land-use and development trend analysis, and an investigation pertaining to the availability and capacity of services (roads and transportation infrastructure, stormwater, water and sanitation, and electricity supply).

Refer to Demographic Statistics (Annexure 3) and Maps 6-15 (Annexure 1).

b) **Development Framework:**
The subsequent Development Framework (Annexure 1: Map 1) provides development objectives, as well as detailed development and growth management guidelines, namely to conserve and manage the natural environment, to implement an effective and sustainable movement network, to promote a hierarchy of economic activity nodes and a variety of economic activities, to provide a full range of community facilities, and to ensure viable and harmonious residential development.

A land use budget was compiled, which indicates the estimated development capacity of the various functional areas, the improvements necessary to develop the area and the estimated costs of the improvements.

c) **Implementation strategy:**
Finally an implementation strategy indicating a phasing of development and an associated alignment of the Urban Edge is provided (Annexure 1: Map 16).

d) **Main findings of the study:**
- The study area was divided into 3 functional areas as per Map 16.
- The UDB was not amended.
- Ruimsig/Poortview was excluded from development.

Table 12 provides an overview of the estimated development capacity of each functional area and the associated costs needed to develop the area:

Phase No.	Total capacity (d/u)	Cost implication to develop
Phase 1	31 820	R147, 409 163 m
Phase 2	2 902	R 10, 316 916 m
Phase 3	22 792	R206, 478 402 m
TOTAL	**57 514**	**R364, 204 481 m**

Source: City of Johannesburg (2005a:80-87)

In comments received on the Draft report it was indicated that:

- The figures pertaining to development capacity reflects an over-estimation. The resulting figures which indicate the infrastructure required is thus also an over-estimation. The financial implication is likewise affected.

- The costs needed to fund the development of Phase 2 is insignificant compared to that of Phases 1 and 3, and a recommendation is made that there should be only two phases: Phase 2 to be included into Phase 1 – thus the UDB amended to include Ruimsig and Poortview.; Phase 3 to become Phase 2.

- The developers in Ruimsig and Poortview are prepared to pay additional contributions in order to raise the money needed (R10m) for the proposed development of the area. This would constitute an amount of R10 316 916 ÷ 2 902 units = R 3 555,00 per additional unit

developed. This is an insignificant amount as properties developed in Ruimsig/ Poortview target the higher income market of R1 million+.

- The delineation of the UDB is contested by challenging the Council's own criteria for the delineation thereof, namely local authority boundaries, natural and conservation areas, engineering infrastructure provision, existing and planned roads, township boundaries, natural features such as rivers and ridges, property boundaries, anticipated growth, accessibility and existing developments.

- The ultimate scenario should be to withdraw the UDB altogether.

- It was pointed out that in areas directly adjacent to the Ruimsig/ Poortview area namely in the Mogale jurisdiction area, applications were approved. Landowners in Ruimsig/Poortview experienced this as an injustice as applications in Ruimsig and Poortview were recommended for refusal based on the comments by Strategic Planning that there are not sufficient engineering services available for new townships. Yet the new townships of the adjacent Mogale area concluded services agreements with the City of Johannesburg for the provision of services.

- The distortion of the market is obvious. Landowners in the Mogale area benefit from the property boom, while land in the Ruimsig/ Poortview area remained sterilised.

- The development community felt strongly that the report is based on wrong base information and that the outcome of the report may thus also be incorrect. Subsequent meetings were scheduled with Council. The adoption of the Poortview/Ruimsig Development Framework (PDF) was postponed in order to assimilate updated information and recommendations.

The final report (City of Johannesburg: 2005a:74) amended the Land-Use Budget to reflect a total development capacity of 38 626 dwelling units (instead of 57 514 dwelling units) and a population of 112 438 persons, should the area be developed at an average total net density of● 18 units per hectare.

(On 8 December 2005 the City of Johannesburg resolved to amend the UDB to include the totality of the Wilgespruit area. The amendment of the UDB was however made subject to a condition that a social contribution for low-cost housing be determined. On the date of the final print of this mini-dissertation such contributions have not been finalised.) Townplanning applications, which were submitted in 2002 and which are affected by the UDB are thus still pending approval.

7.5 ASSESSING THE STUDY AREA AGAINST OTHER CLAIMS / COUNTER CLAIMS OF THE COMPACT CITY IDEOLOGY:

7.5.1 Transport claims / counter claims:

7.5.1.1 *Claim: The compact city promotes public transportation:*

According to the Integrated Transport Plan (ITP): "The City's transportation system should support a "compact" city structure where higher densities are promoted and urban sprawl discouraged. A compact structure will reduce costs in terms of travel times and distances and provide the thresholds required for the provision of efficient public transport." (City of Johannesburg, 2005c:31.)

According to the SDF (City of Johannesburg, 2005c:31): "Residential densities should be sufficiently high and in appropriate locations so as to support public transportation. An efficient public transport system is essential for sustainability and efficiency. Its effectiveness is dependent to a large extent on appropriately located densification and infrastructure."

The ITP supports the following desired outcomes of the City: improved standards of living; providing safe and affordable transport; access to employment, education, recreation and markets; and poverty reduction.

Large areas of the Wilgespruit area have been earmarked for densities of 30-40 dwelling units per hectare in terms of the Wilgespruit Structure Plan, 1994, the Wilgespruit Development Plan and the Poortview/Ruimsig and Surrounding Areas Development Framework (City of Johannesburg, 2005d). Densification of the area has certainly been accomplished.

Although public transportation has been stated as an objective, public transportation in the study area is restricted. The poor transport services are reflected by the heavy bias toward car trips (ITP, 2003).

Transport policies indicate that public transportation is not aimed at rail facilities (with the exception of the Gautrain project and a possible feeder network), but at road orientated public transport, e.g. taxi's.

Considerable planning and implementation must however still be done in this regard.

Aspects that must be addressed are not only spatial implications – e.g. to provide park-and-ride facilities or to establish pick-up networks – but also overcoming the stigmatisation pertaining to public transportation. In the South African context the safety of taxi's, not only pertaining to roadworthiness but also pertaining to road use ability, is notorious.

Other hurdles that must be overcome is the preference for and convenience of private transport. Social preference and the "scare of the other" evaluated in a multi-cultural society will impact on decision-making pertaining to transport mode.

7.5.1.2 *Counter claim: The compact city will result in traffic congestion:*

A recipe for traffic congestion is to promote densification in an area, propose to provide public transportation, and then neglect to provide public transportation. The result is traffic congestion both locally and regionally.

ARUP Transport Planning (2005) indicates that, based on current development rates and corresponding growth rates, levels of congestion are likely to increase rapidly in the short-term. There will also be a substantial increase in vehicular peak period queuing and delay, with the subsequent economic and financial costs increasing rapidly.

Traffic in peak hours in the Wilgespruit area is a matter of further concern. Due to congestion on collector roads, rat-running into neighbourhoods is taking place. Congestion on main arterials such as the N1 Highway can be ascribed to other high-density developments between Johannesburg and Pretoria – resulting in collective dumping of the traffic onto main arterials.

7.5.1.3 *Claim: The compact city will reduce travel time and distances:*

In the Wilgespruit area the following trends are observed:

- Due to congestion, especially during peak hours, travel time to work is not reduced. A further contributing factor to this phenomenon is that people still travel to job opportunities located in the broader metropolitan and regional area.

- Due to the proliferation of shopping centres and recreational opportunities in the area it can be assumed that travel time to these venues is reduced.

- Due to the absence of community facilities within certain neighbourhoods, travel time to schools, churches, clinics, etc. are not reduced.

7.5.1.4 *Counter claim: The compact city increases health risks:*

Related to the aspect of congestion, air pollution due to emissions from vehicles is likely to increase. In the Wilgespruit area the main transportation mode is at present by means of private cars with resultant high levels of CO^2 emissions. Likewise, high levels of private car usage have a higher potential for noise pollution.

Increased density poses a greater threat to light pollution at night. During daytime light reflection in denser cities is much higher due to more hard surfaces and lesser soft surfaces such as vegetation which absorbs light, rather than reflecting it.

The over-exposure to indoor entertainment, for example television and computer games, and the impact of violence on the psychological development and well-being of children and vulnerable persons have been reported on widely. The occurrence of density-pathology can also not be ignored.

7.5.1.5 *Counter-claim: The compact city promotes vulnerability to hazards:*
The Wilgespruit area is not situated in an area prone to natural hazards. Flooding is not considered a high risk as no major rivers run through the area.

The affect of higher densities, with the associated greater non-permeable areas needed for parking and manoeuvring space, raises concern about stormwater attenuation. The City of Johannesburg however imposes stormwater attenuation measures on all new developments.

The vulnerability of high-density areas in the event of interruption of services such as water (and sewer) and electricity is higher than in less denser areas where the impact can be assimilated more readily.

7.5.1.6 *Counter claim: The compact city leads to an overcrowded environment and lack of domestic living space:*
The floor area of dwelling units in townhouse developments is much smaller than in conventional neighbourhoods. Coupled with significant lesser garden space the personal area per person has decreased drastically.

In certain developments almost no outdoor privacy is possible for individuals or families.

7.5.1.7 *Claim: The compact city promotes the conservation of the countryside / agricultural land:*
The aspect of the conservation of agricultural land has been blown out of proportion. Even within the urban development boundary resistance is encountered due to Gauteng Department of Agriculture, Conservation and Environment's (GDACE) insistence that areas earmarked as having high agricultural potential be reserved.

Once high agricultural potential is identified in terms of GDACE's Gauteng Open Space Programme (GOSP), developers are obliged to submit specialist reports in order to free land up for development. This culminates in situations where, for example, 4 hectare becomes available for development. The area is surrounded by urban land-uses, e.g. business developments and higher density residential townships.

The value of the land (± R12m) does not make agricultural landuses viable. It is however no small task to convince DGACE to release the land for development.

7.5.1.8 *Claim: the compact city results in improved vitality, urbanism and a sense of community:*
Due to the favourable locality of the Wilgespruit area in relation to urban amenities it can be deducted that there is sufficient potential to participate in urban activities.

On a local scale there is however insufficient community facilities which could support cohesion of residents. The school and church which have traditionally been the catalyst to bind communities together, is absent to a large extent.

Certain areas of the Wilgespruit area are however well serviced.

7.5.1.9 *Claim: the compact city promotes equity:*
The potential for intergenerational equity in the Wilgespruit area is restricted. Due to the lack of facilities within walking distances, minor children and the elderly is dependent on adults to drive them to school, extra-mural activities, churches, clinics and other community facilities.

If these facilities are not available for current generations, they will also not be available for future generations, if land is not reserved for such purposes.

7.5.1.10 *Claim: the compact city provides better opportunities for walking and cycling:*
The opportunities for walking and cycling in the Wilgespruit area are reduced by the negative impacts of traffic congestion, the lack of open space and the lack of community facilities within walking distance.

7.5.1.11 *Claim: the compact city results in reduced crime rates:*
Due to the dominance of gated communities crime is reduced within residential developments.

7.5.1.12 *Claim: the compact city promotes energy efficiency:*
Due to the absence of public transportation in the Wilgespruit area, this claim of the compact city is not realised. Also, energy efficiency derived from e.g. solar heating in multi-storey developments becomes less viable.

Due to the fact that buildings are narrowly spaced in relation to each other, the wind chill factor is reduced. More energy for cooling purposes is thus required.

7.5.1.13 *Counter claim: The aesthetics of the compact city is questioned:*
The city scape in the Wilgespruit area is criticised due to the proliferation of new high-density developments. In order to mitigate

the impact of monotonous building styles, the City of Johannesburg provides Density Design Guidelines as indicated in Table 9.

Although these guidelines regulate development of individual developments, the overall visual impact remains that of a sterile environment.

7.6 CONCLUSION

It is advocated that the compact city approach to townplanning and management will affect the very way that we conduct our daily lives and should therefore be subject to intense scrutiny, before it is embedded in policy. Unfortunately, this has not been done. We are now in the position to evaluate the impact of the compact city as is evident in case studies.

The Wilgespruit Case study provides such an opportunity.

* It was found that many of the claims of the compact city did not materialise, the counter-claims have however become obvious.

* Private transportation is still the overwhelming mode of travel as public transportation is almost non-existent.

* High densities have resulted in increased congestion – not only in local areas, but on a regional level, since high-density development has become a trend and all regions are eventually dumping their traffic on main arterials and national highways. The apparent implication is that travel time has not been reduced.

* The vibrant urbanity and improved quality of life claimed by the compact city ideology is not experienced by many people. Instead they experience less private space, congested roads and crowded shopping centres.

* There is a lack of social amenities for example schools, as developers for these amenities have to a large extend not materialised. Government departments are silent on this matter.

* The compact city approach to townplanning and management has not increased the competitiveness of the Wilgespruit area. The Urban Development Boundary has resulted in a distortion of the economy as land outside the UDB has been sterilised for development. Developers have moved to Mogale, thus the City of Johannesburg loses considerable revenue which could have been earned by means of rates and taxes.

There are still considerable areas of vacant land available in the Wilgespruit area. Depending on townplanning policies, this could develop as a mirror image of the existing development in the Wilgespruit area, or could result in integrated development if proactive planning is attended to.

Chapter 8

Conclusion and Recommendations

According to Knight (1996:114) the development of a city is the result of economic activity over years and the impact thereof has a direct effect on people's daily lives.

The concern that sustainable development focuses too heavily on environmental sustainability and neglects social and economic aspects has frequently been raised. Due to their accountability and budget constraints, local governments *are* taking economic aspects seriously. It however appears that their economic awareness relates to short-term budget issues and that the bigger picture is not seen. Social and environmental concerns are increasingly being raised as congestion and 'town cramming' continues. It is thus an irony that environmental sustainability, which is held so dearly by the compact city ideology, is now threatened by high-density residential developments.

The Wilgespruit area, which poses the opportunity for 'paradise found', may very well end up as 'paradise lost' if development potential is not steered in the right direction. What is more alarming is that many other similar scenarios are being played out all over Johannesburg and the country. To continue along the lines of business-as-usual would constitute ignorance of the precautionary principle. The current economic situation and availability of land provide great opportunities for development in the Wilgespruit area. Available land is however owned by private owners and constitutes small portions of land. Should these areas be developed in accordance with the current trend of smaller townships, the fragmentation of development will continue.

The Council has often been labelled as bureaucratic and insensitive, and this is not a call for further restrictions. Rather it is a plea for holistic planning to ensure that all amenities of a successful place will be provided. It has already been recommended that social contributions be levied as part of an application for increased residential densities. Contributions pertaining to engineering services and parks are already standard practice and enshrined in townplanning ordinances. The need to also provide for social and educational amenities as well as for open spaces has now clearly been demonstrated. The institutional backup to administer this aspect should also be attended to.

Pertaining to the immediate situation in the Wilgespruit area it is recommended that the Urban Development Boundary be lifted and that development in the remaining area available for development be regulated along more integrated planning principles.

Townplanning *per se* is still not sufficiently integrated with other sciences. The marriage between townplanning and environmental conservation is already a statutory requirement. The current EIA processes however only address individual small developments and the evaluation of the impact of Council's policies is not a listed activity. It is

recommended that a comprehensive EIA for densification of bigger areas should be considered. Specialist studies such as the sociological and physiological implications of the compact city should also be commissioned.

Finally, economical aspects should further be explored. All aspects impacting on the affordability of housing should be investigated. The question that comes to mind is, why the majority of people who could previously afford conventional houses in garden areas, can now only afford a 80m² residential dwelling in a gated community? It could be worth the while to consider the recommendations by the Venter Commission which relates to increased house prices, namely the impact of townplanning delays and fees of estate agents.

It is accepted that knowledge brings responsibility. Maybe the time has come for a townplanning declaration, calling for reform, similar to what Luther and Bruntlandt have done when it was called for.

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ANNEXURE 1
MAPS OF THE WILGESPRUIT CASE STUDY AREA

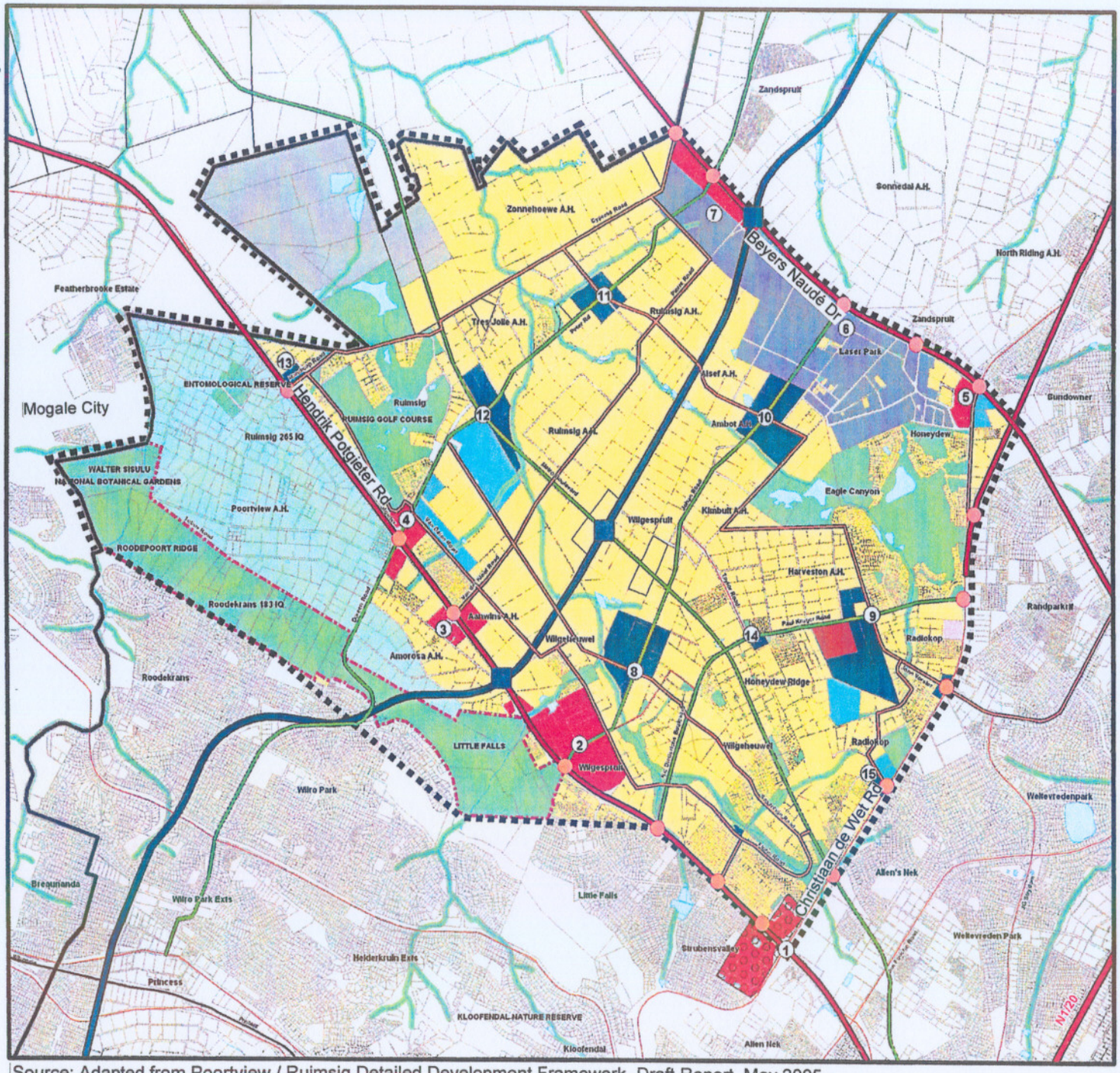
LIST OF MAPS: WILGESPRUIT STUDY CASE AREA[1]

1. Locality plan and Spatial Development Framework
2. Aerial photograph
3. Regional context
4. Wilgespruit Structure Plan
5. Wilgespruit Development Plan
6. Topography and Hydrology
7. Geology
8. Soils
9. a) Conservation potential
9. b) Agricultural potential
10. Land use
11. Development Trends
12. Planned Local Road Network (Draft)
13. Drainage system
14. a) Sewer capacity investigation: Current scenario
14. b) Sewer capacity investigation: Future scenario
15. Electricity substation loads
16. Proposed phasing

[1] Note: The Wilgespruit Study Case Area is referred to by Plan Associates as Ruimsig / Poortview.

Map 1

Locality Plan and Spatial Development Framework



DRAFT
RUIMSIG / POORTVIEW
SPATIAL DEVELOPMENT FRAMEWORK

- Low Density Residential Development (3 / 5 units/ha)
- Medium Density Residential (10 - 40 units/ha)
- Regional Node
- District Nodes
- Local and Neighbourhood Nodes
- Mixed Use Areas: Industrial / Commercial / Service Industries / Residential
- Hospital
- Institutional
- Cemeteries
- Mining

Primary Conservation Area

- Botanical Gardens
- Roodepoort Ridge
- Entomological Reserve
- Rivers and Vleis (1:50 Year Floodline / 32m Buffer)
- Dams / Wetlands

Secondary Conservation Area

- Protea Caffra Veld (Eco Focused Development)
- Parks, Sport and Recreation
- Rivers

Road Network

- Freeways (First Order Road)
- Mobility Spine (Second Order Road)
- Mobility Road (Third Order Road)
- Local Collector (Fourth Order Road)
- Access Spacings
- Access Interchange
- Study Area

N

0 500m 1000 m 1500 m

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PLAN

Source: Adapted from Poortview / Ruimsig Detailed Development Framework, Draft Report, May 2005

Map 2



RUIMSIG / POORTVIEW

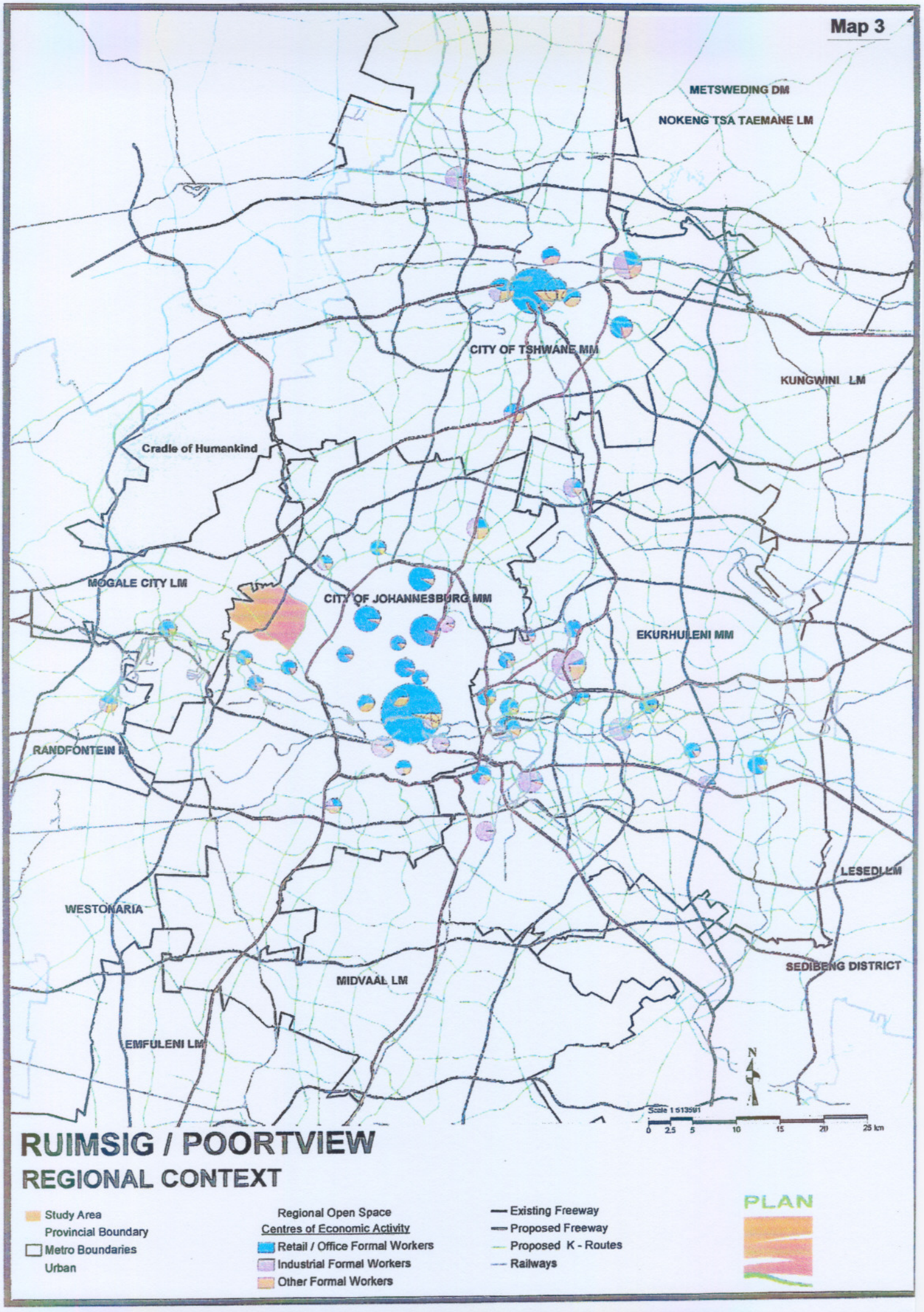
STUDY AREA

Study Area

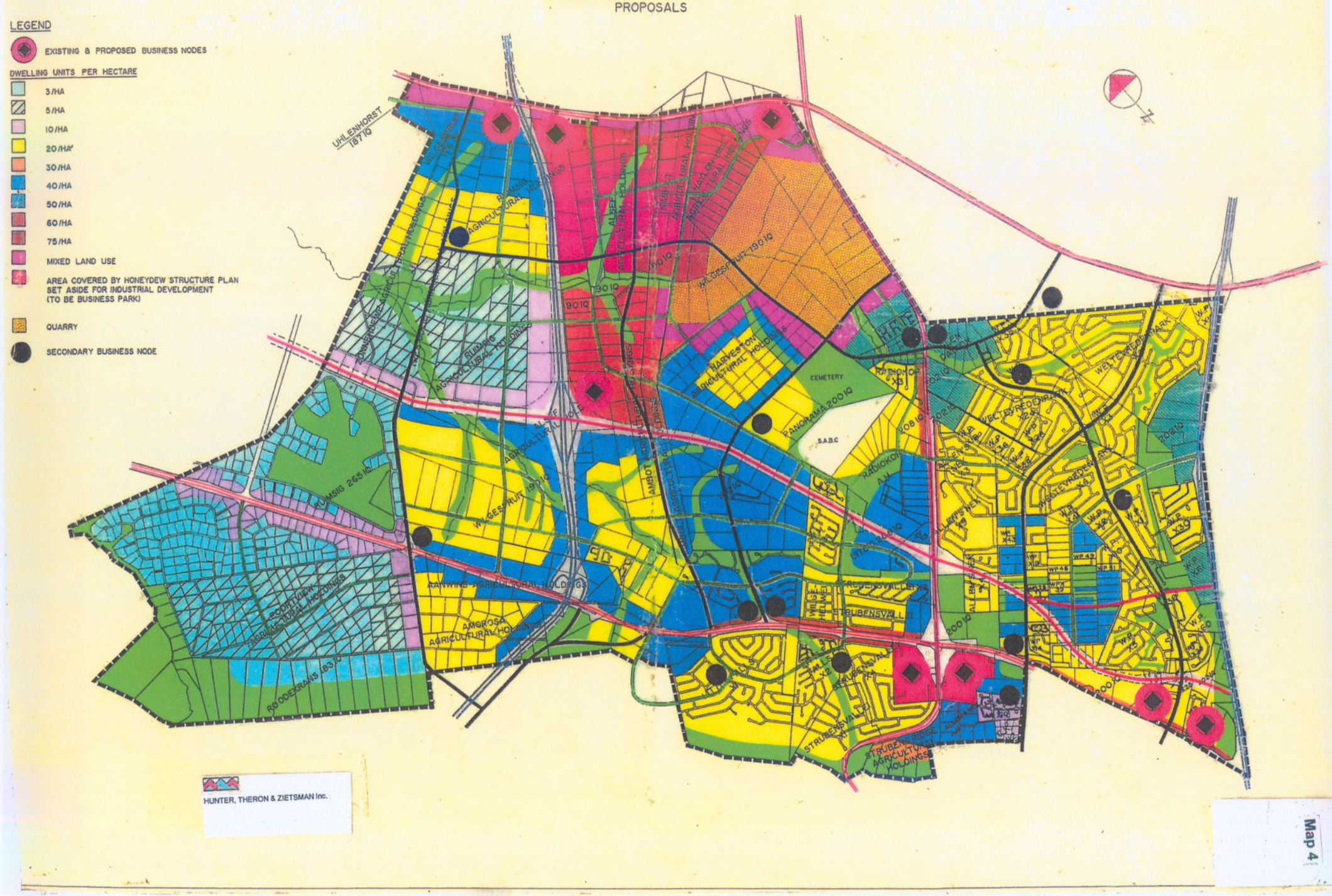
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PLAN

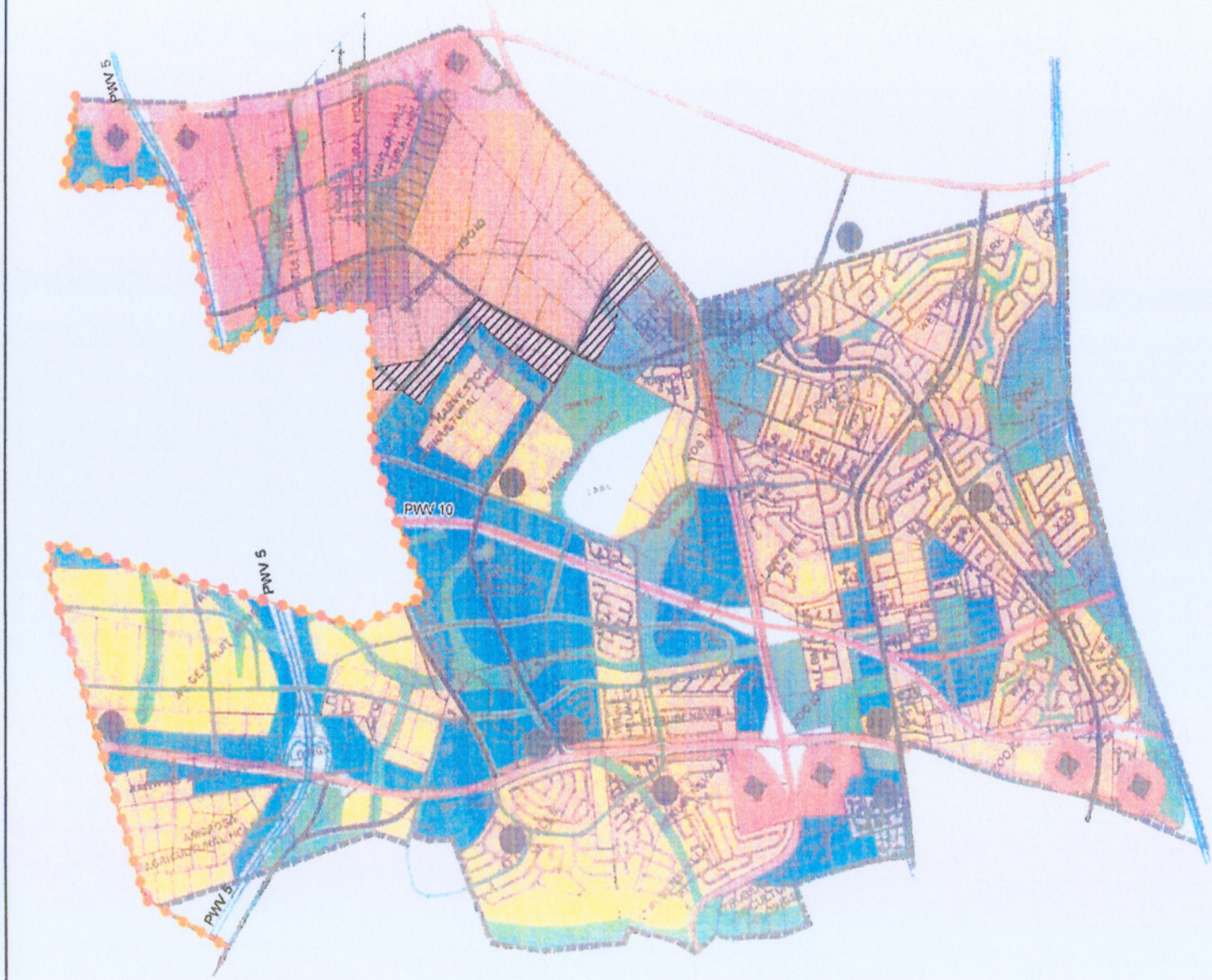

Map 3
METSWEDING DM
NOKENG TSA TAEMANE LM
CITY OF TSHWANE MM
KUNGWINI LM
Cradle of Humankind
MOGALE CITY LM
CITY OF JOHANNESBURG MM
EKURHULENI MM
RANDFONTEIN
LESEDI LM
WESTONARIA
SEDIBENG DISTRICT
MIDVAAL LM
EMFULENI LM
N
Scale 1 513591
0 2.5 5 10 15 20 25 km
RUIMSIG / POORTVIEW
REGIONAL CONTEXT
Study Area
Provincial Boundary
Metro Boundaries
Urban
Regional Open Space
Centres of Economic Activity
Retail / Office Formal Workers
Industrial Formal Workers
Other Formal Workers
Existing Freeway
Proposed Freeway
Proposed K - Routes
Railways
PLAN

WILGESPRUIT STRUCTURE PLAN
PROPOSALS


LEGEND
EXISTING & PROPOSED BUSINESS NODES
DWELLING UNITS PER HECTARE
3/HA
5/HA
10/HA
20/HA
30/HA
40/HA
50/HA
60/HA
75/HA
MIXED LAND USE
AREA COVERED BY HONEYDEW STRUCTURE PLAN SET ASIDE FOR INDUSTRIAL DEVELOPMENT (TO BE BUSINESS PARK)
QUARRY
SECONDARY BUSINESS NODE
UHLENHORST 187 IQ
WILGESPRUIT 190 IQ
ZONNEKEDER AGRICULTURAL HOLDINGS
FLUBARG AGRICULTURAL HOLDINGS
HARVESTON AGRICULTURAL HOLDINGS
CEMETERY
PANORAMA 200 IQ
S.A.B.C
RADIOKOP
WEIDEVREDEPARK
WILGEHEUWEL
STRUBENSVALLEI
STRUBENS RIDGE AGRICULTURAL HOLDINGS
ZUMSIG 265 IQ
RANWINS AGRICULTURAL HOLDINGS
AMOROSA AGRICULTURAL HOLDINGS
RIETFONTEIN AGRICULTURAL HOLDINGS
RIETVLEI AGRICULTURAL HOLDINGS
RIETFONTEIN 190 IQ
WILGESPRUIT 189 IQ
RIETFONTEIN 189 IQ
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Map 5

Wilgespruit Development Plan
(areas located outside UBD are eliminated by CoJ)



REGION 5
Wilgespruit
Development Plan

(Plan No. 5)

Legend

Existing and Proposed Business Nodes

Dwelling Units per Hectare

30.0 HA

40 HA

40 HA

50 HA

60 HA

70 HA

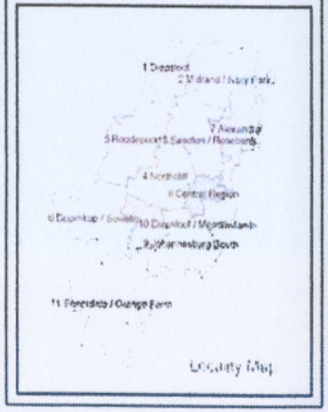
Mixed Land Use

Area covered by Honeydew Plan set aside for industrial development (to be business park)

20 HA

Secondary Node

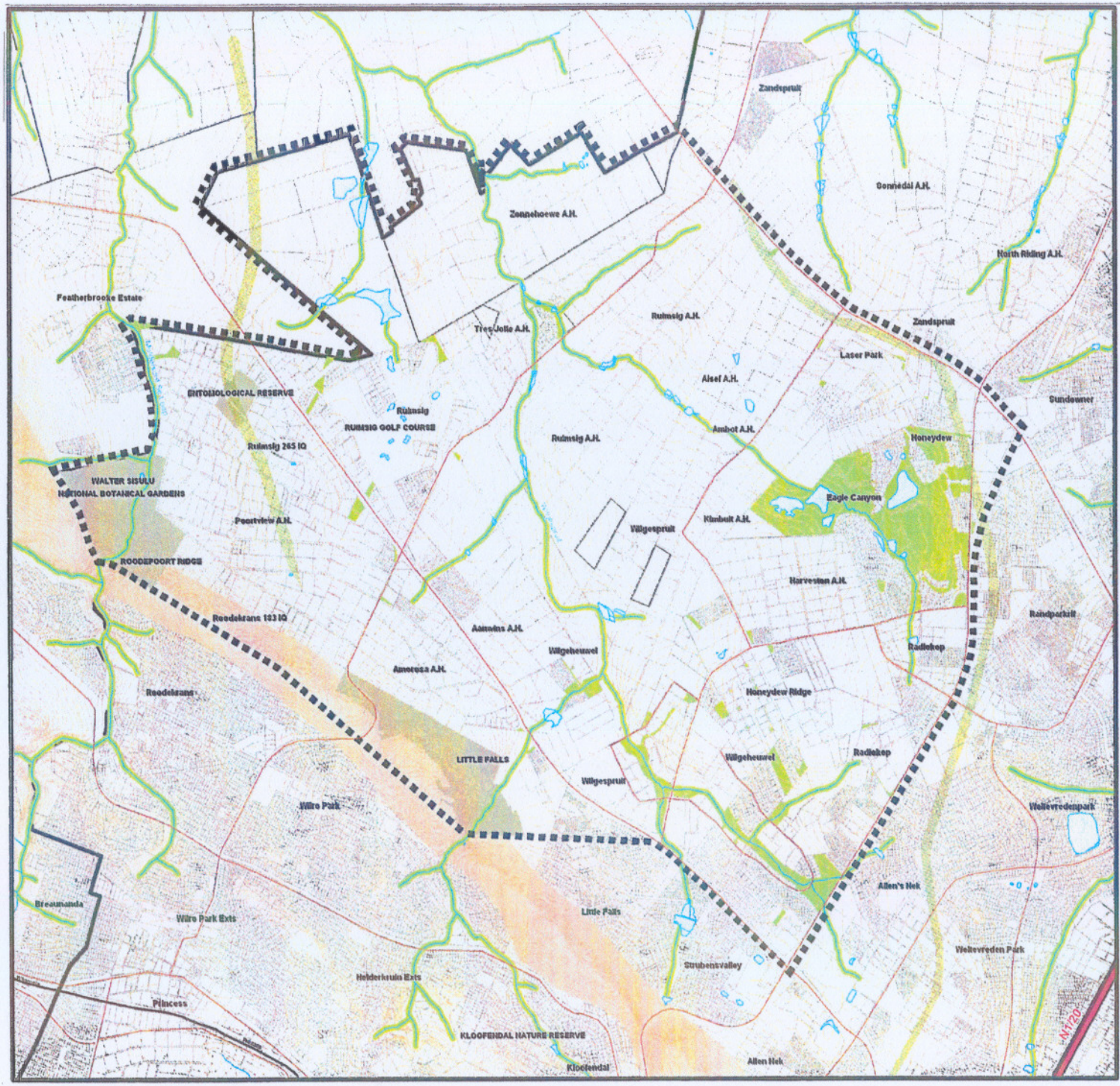
Urban Development Boundary



Joburg

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Map 6



RUIMSIG / POORTVIEW

TOPOGRAPHY AND HYDROLOGY

- Roodepoort Ridge
- Nature Reserves
- Open Space System
- Watershed
- Dams
- Rivers

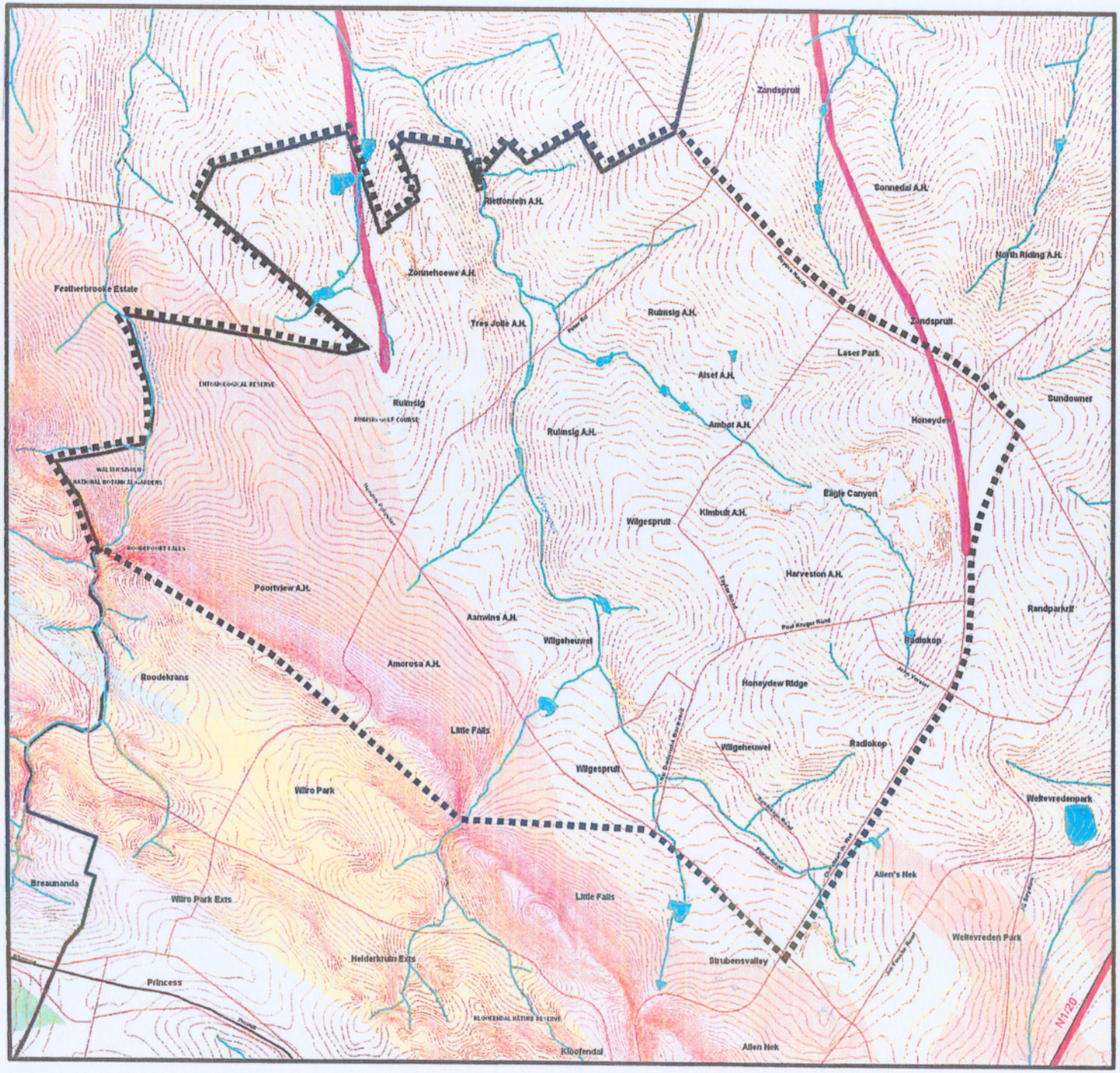
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PLAN

Map 7



RUIMSIG / POORTVIEW

GEOLOGY

- Diabase, syenite and pyroxenite
- Ferruginous shale
- Mafic and ultramafic rocks, amphibolite, undifferentiated granite and gneiss
- Migmatite, ultramafic rocks
- Quartzite
- Quartzite with interbedded shale and conglomerate
- Shale
- Syenite

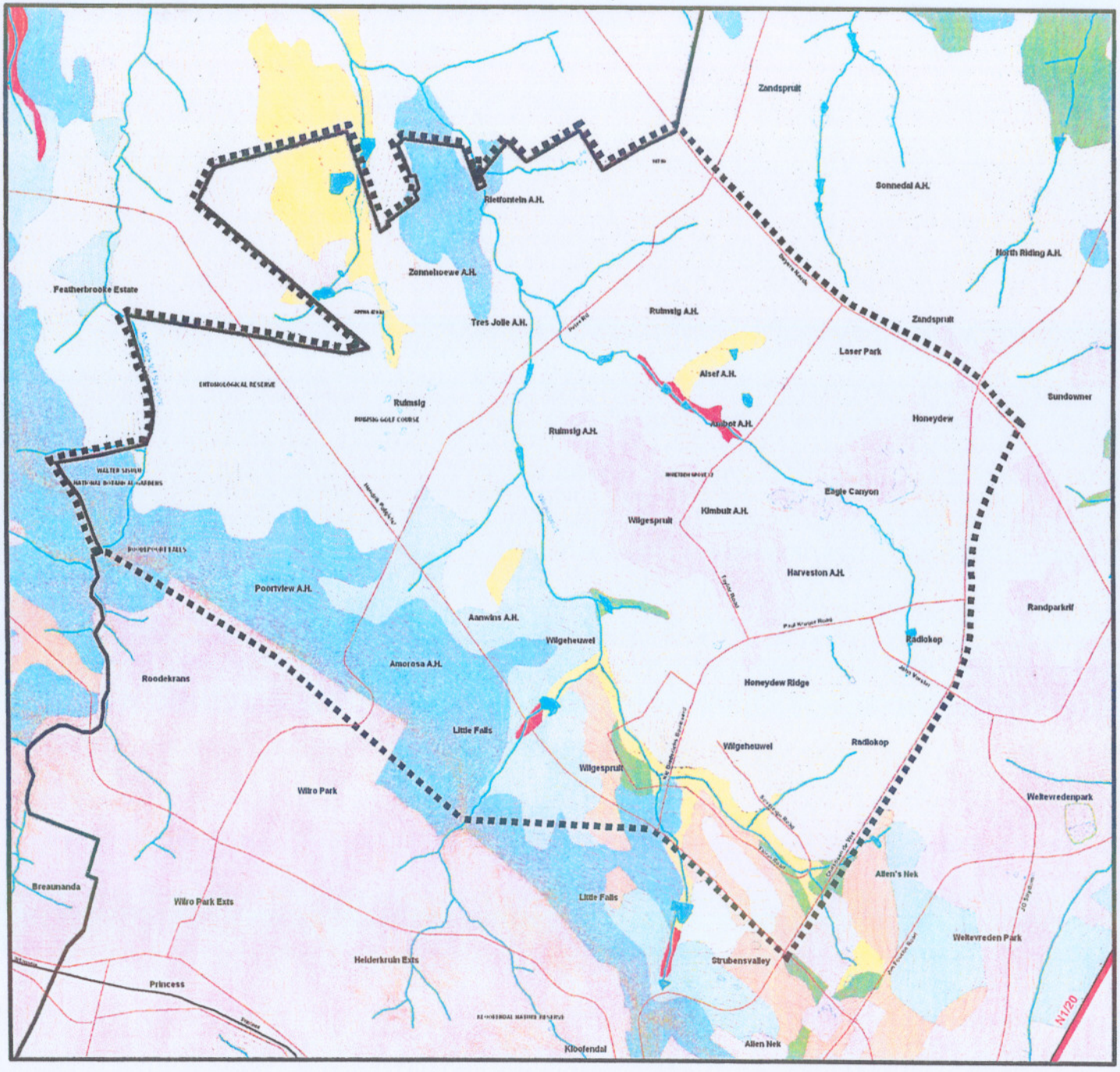
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Map 8



RUIMSIG / POORTVIEW

SOILS

- Disturbed sites
- Limiting soil depth
- Limiting soil depth, rock outcrops, steepness
- Limiting soil depth, moderate to strong structure
- Limiting soil depth, impeded internal drainage
- Impeded internal drainage, flood hazard
- High clay content
- Low clay content, impeded internal drainage

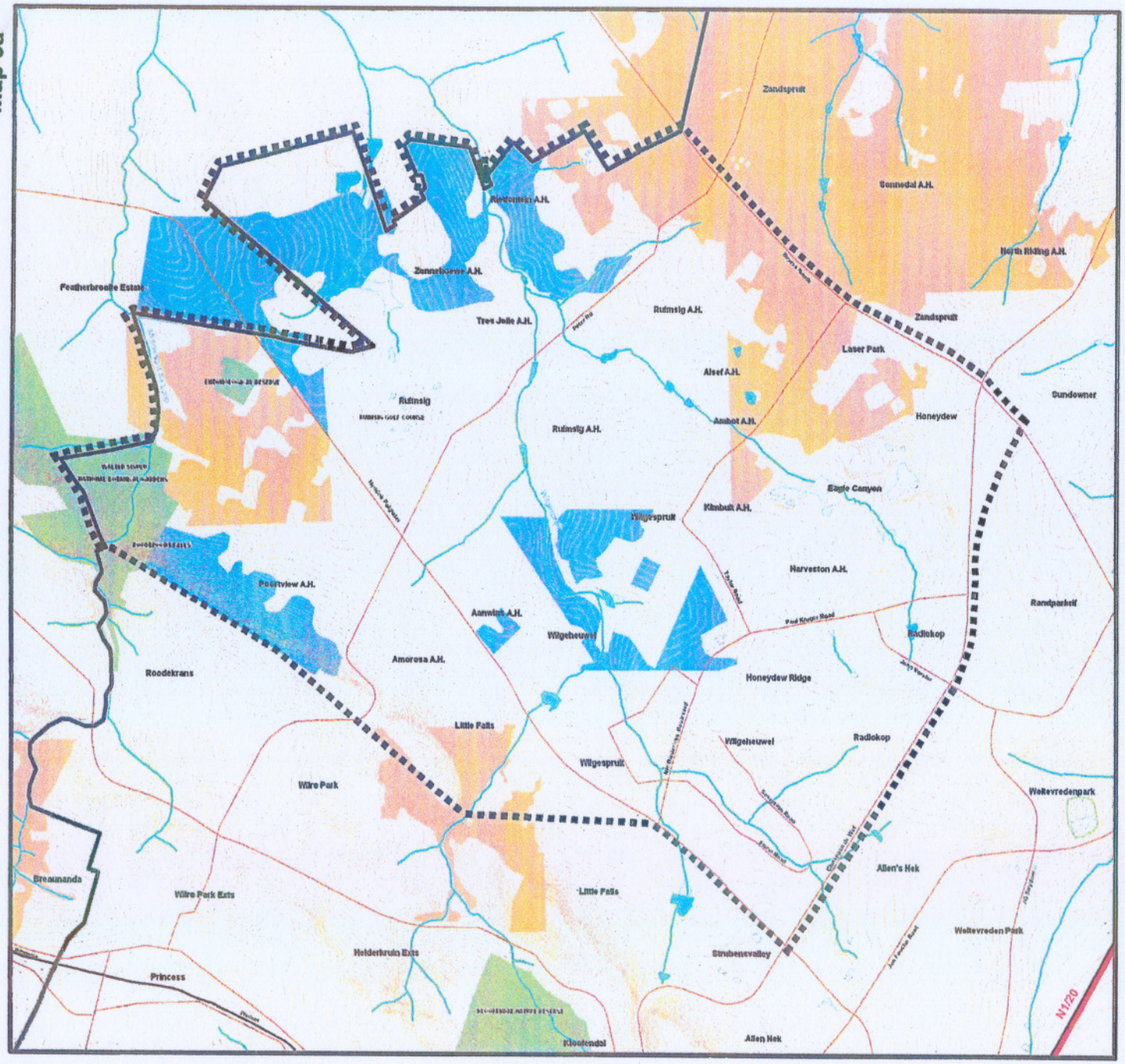
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Map 9a



RUIMSIG / POORTVIEW

CONSERVATION POTENTIAL

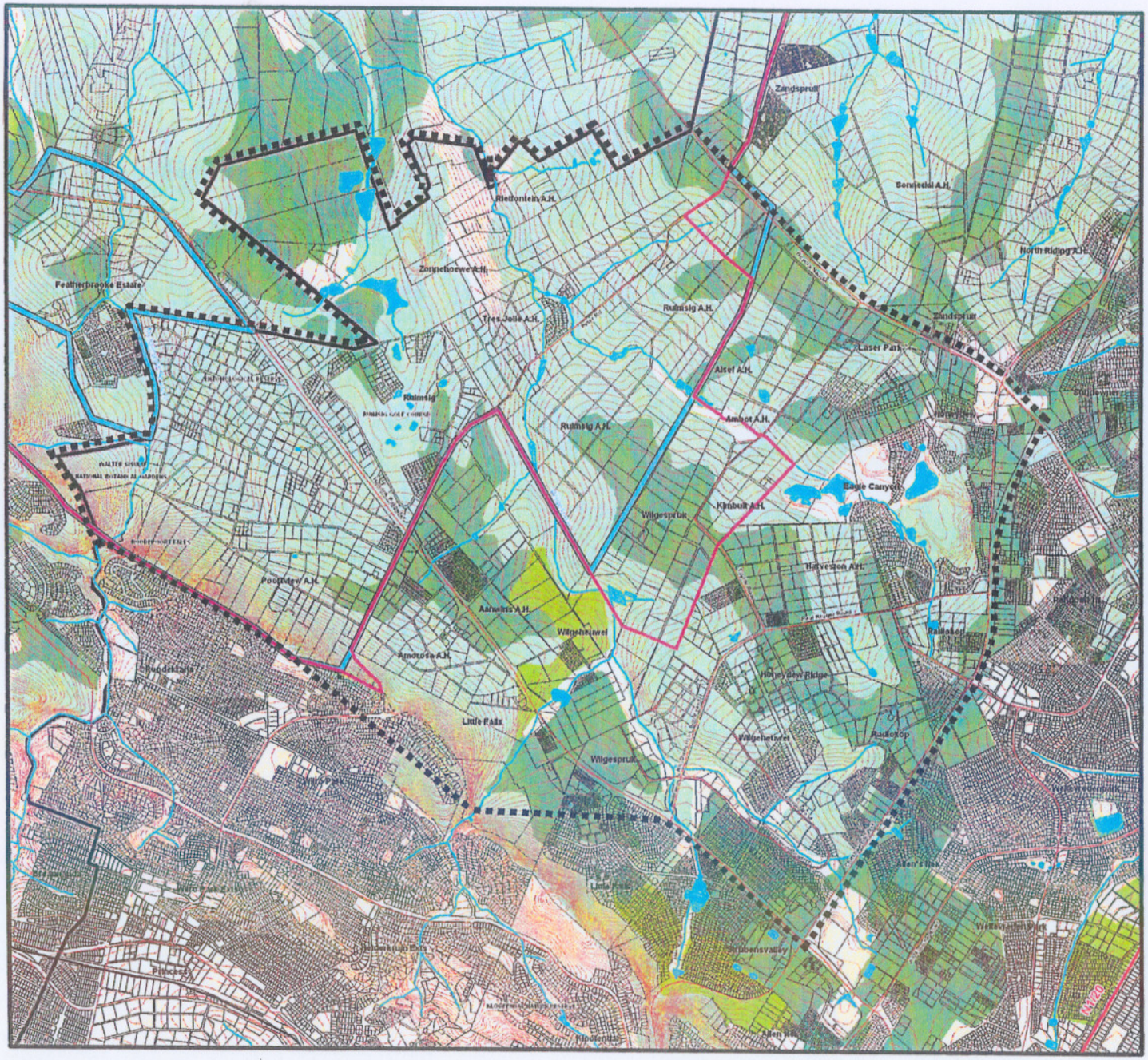
- Important Site
- Irreplaceable Site
- Protected Area

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PLAN

Map 9b



RUIMSIG / POORTVIEW

AGRICULTURAL POTENTIAL

- High
- Moderate
- Low
- Very Low - None
- Provincial Urban Edge
- Jhb Urban Development Boundary

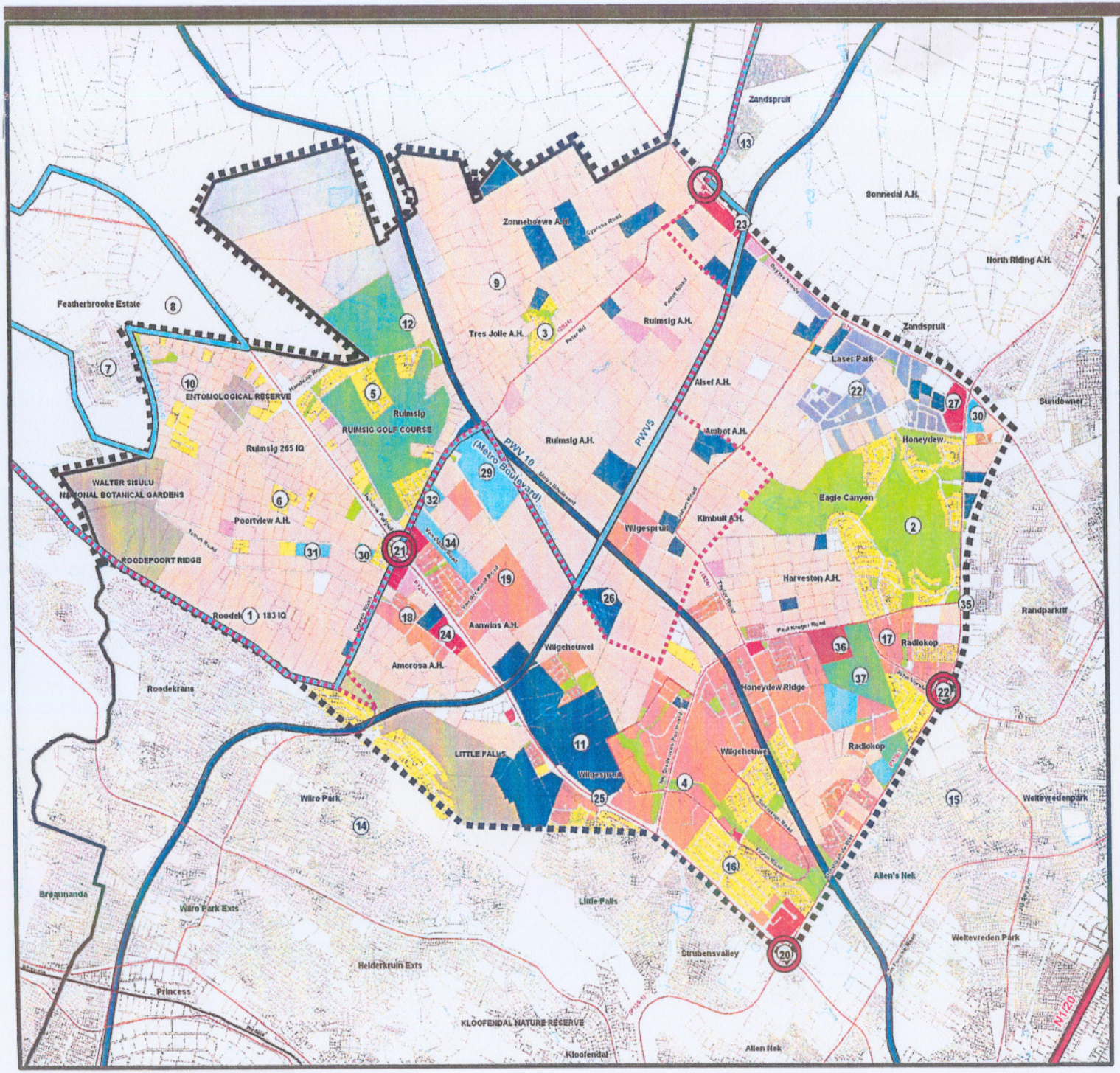
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Map 10



RUIMSIG / POORTVIEW

LAND USE

- Study Area
- Rural Residential
- Low Density Residential
- Medium Density Residential
- Business
- Industrial / Commercial
- Institutional
- Hospitality Uses
- Mixed Peripheral Uses
- Mining and Quarries
- Hospital
- Nature Reserves
- Open Space
- Sport and Recreation
- Vacant
- Cemeteries
- Proposed Freeway
- Gauteng Urban Edge
- Jhb Urban Development Boundary
- Existing Nodes

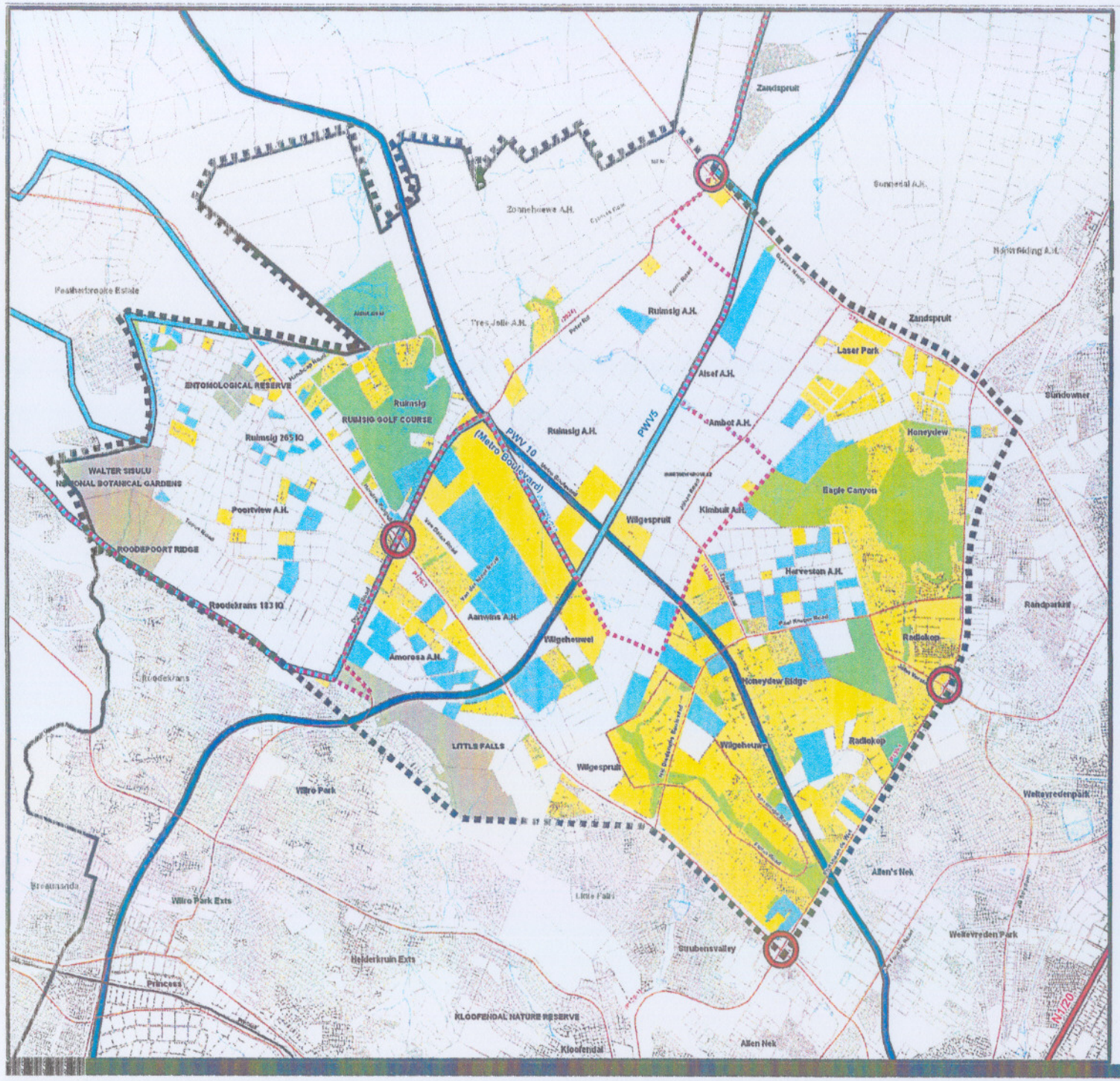
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PLAN

Map 11



RUIMSIG / POORTVIEW

DEVELOPMENT TRENDS

- Study Area
- Approved_Proclaimed Townships inside study area
- Proposed Townships inside study area
- Nature Reserves
- Open Space System
- Sport and Recreation
- Proposed Freeway
- Provincial Urban Edge
- JHB Urban Development Boundary
- Existing Nodes

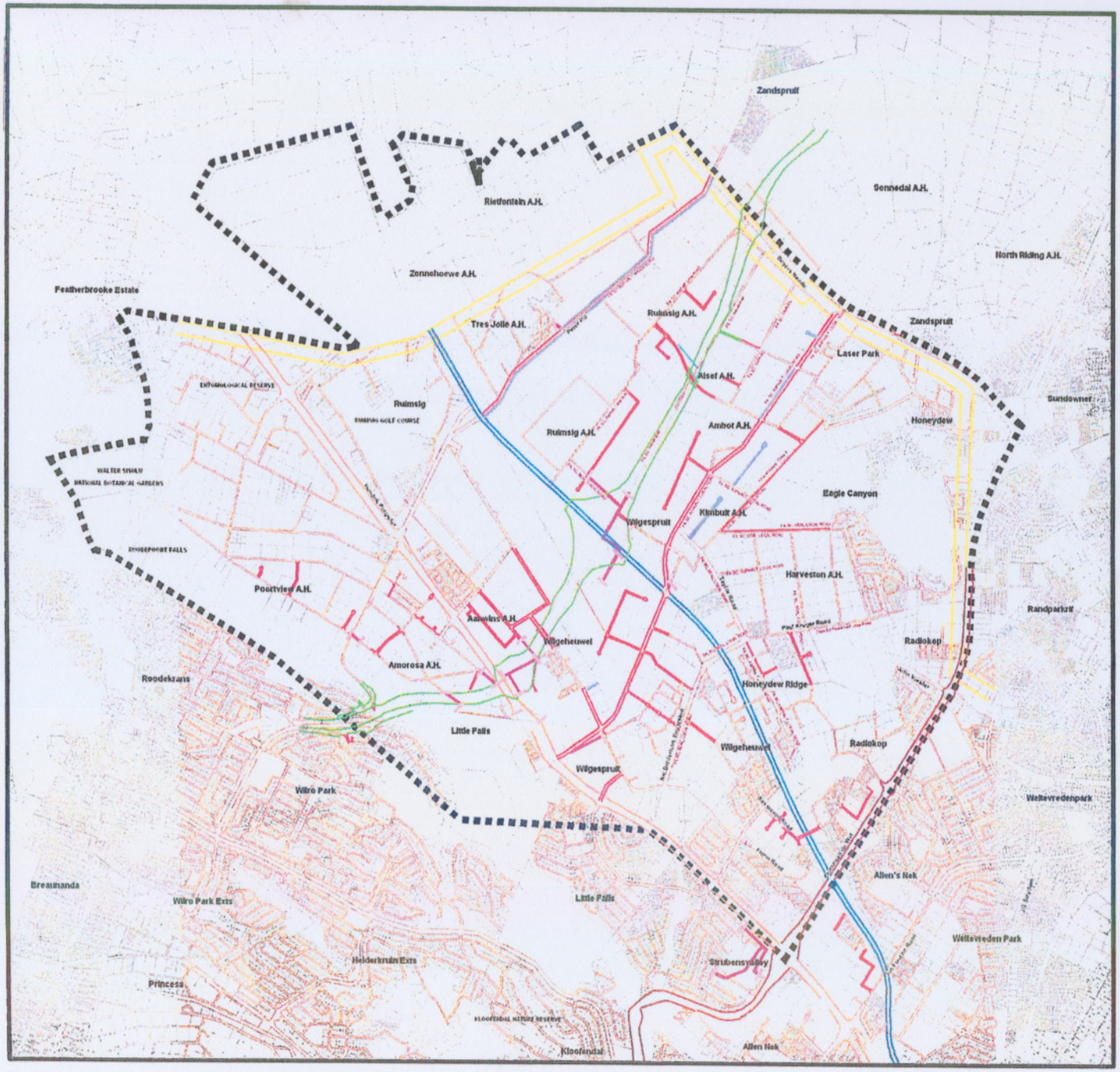
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PLAN

Map 12



RUIMSIG / POORTVIEW

PLANNED LOCAL ROAD NETWORK (DRAFT)

- Study Area
- Existing Reserves
- Boundry
- Christian de Wet
- Closed_Roads
- Construced_Roads
- Hendrik Potgieter
- Metro Boulevard
- Planned_Roads
- PWV 5
- Road Closure
- Ukhule

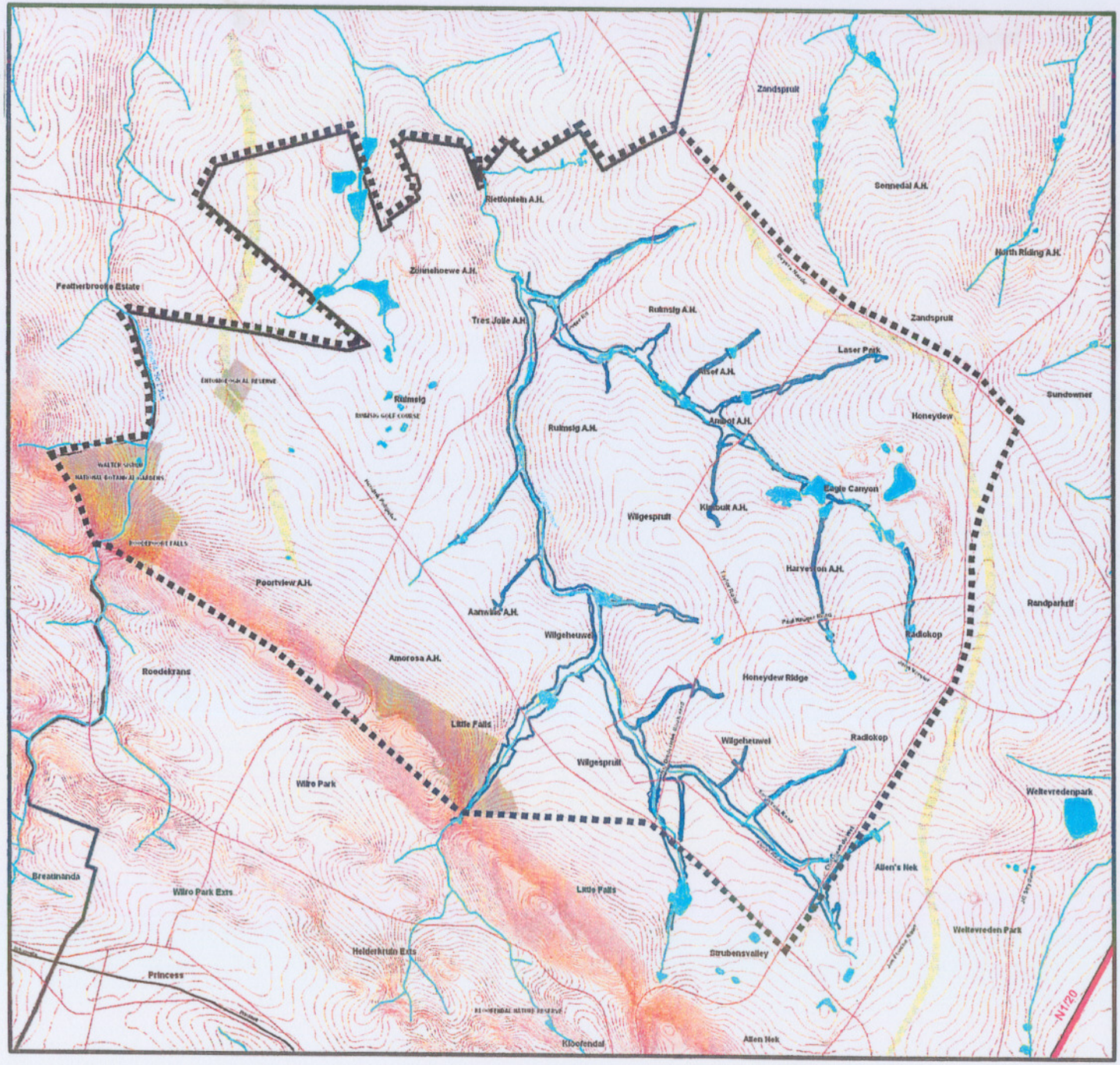
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Map 13



RUIMSIG / POORTVIEW

DRAINAGE SYSTEM

- Roodepoort Ridge
- Nature Reserves
- Watershed
- Stormwater Drainage System
- Dams
- Rivers

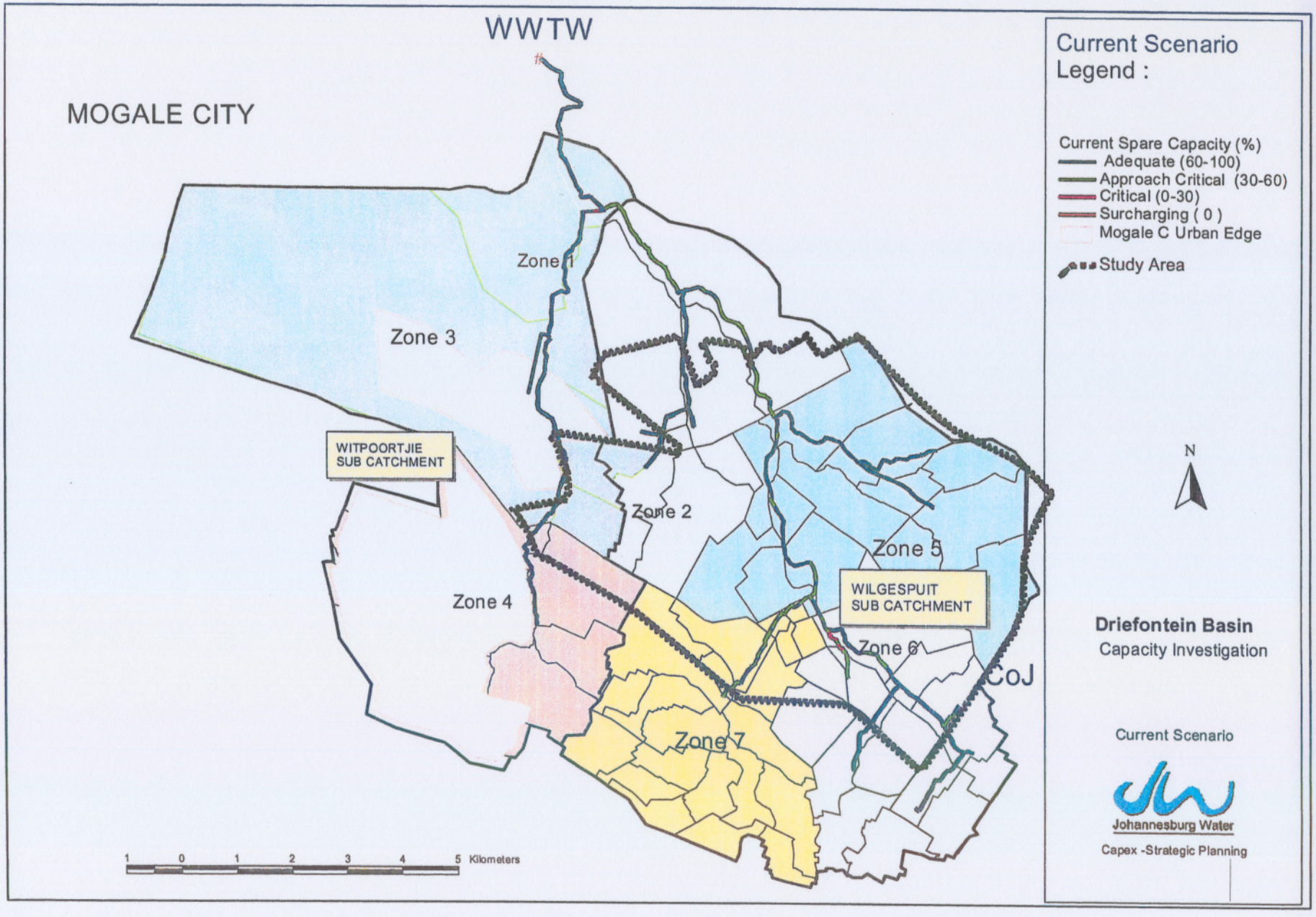
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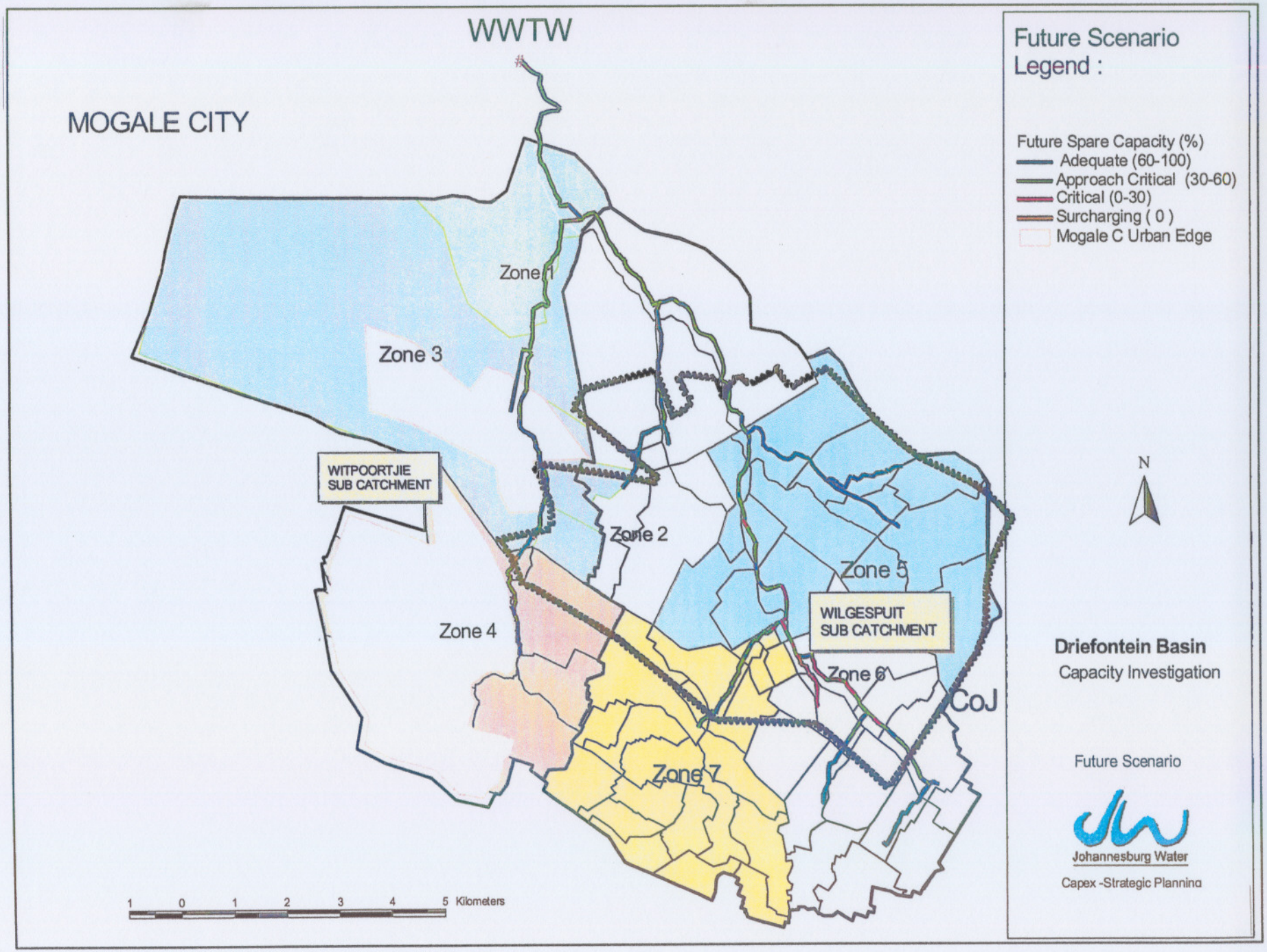
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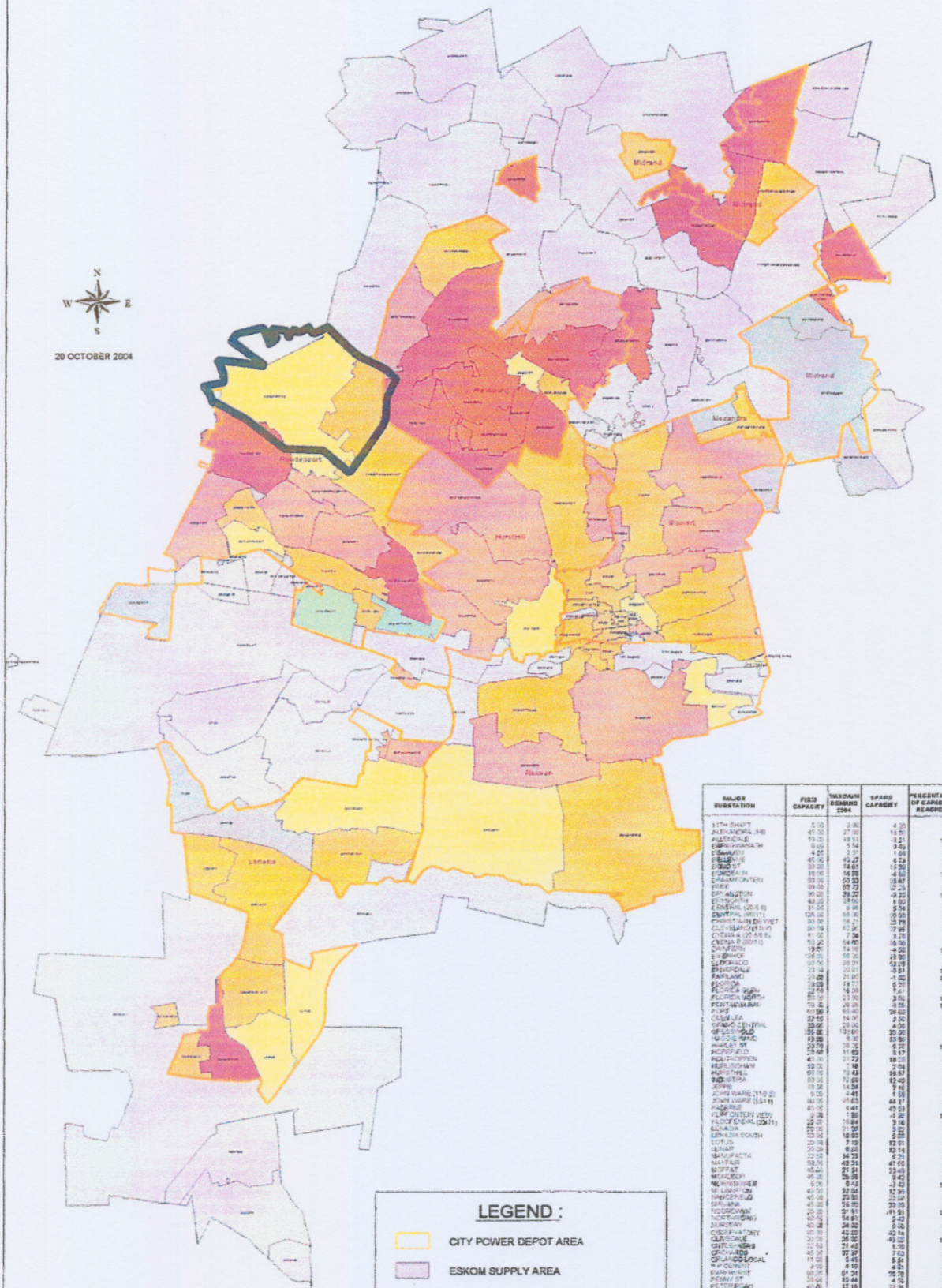
Map 14a


WWTW
MOGALE CITY
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Zone 6
Zone 7
WITPOORTJIE SUB CATCHMENT
WILGESPUIT SUB CATCHMENT
CoJ
1 0 1 2 3 4 5 Kilometers
Current Scenario Legend :
Current Spare Capacity (%)
Adequate (60-100)
Approach Critical (30-60)
Critical (0-30)
Surcharging (0)
Mogale C Urban Edge
Study Area
N
Driefontein Basin
Capacity Investigation
Current Scenario
Johannesburg Water
Capex -Strategic Planning

Map 14b

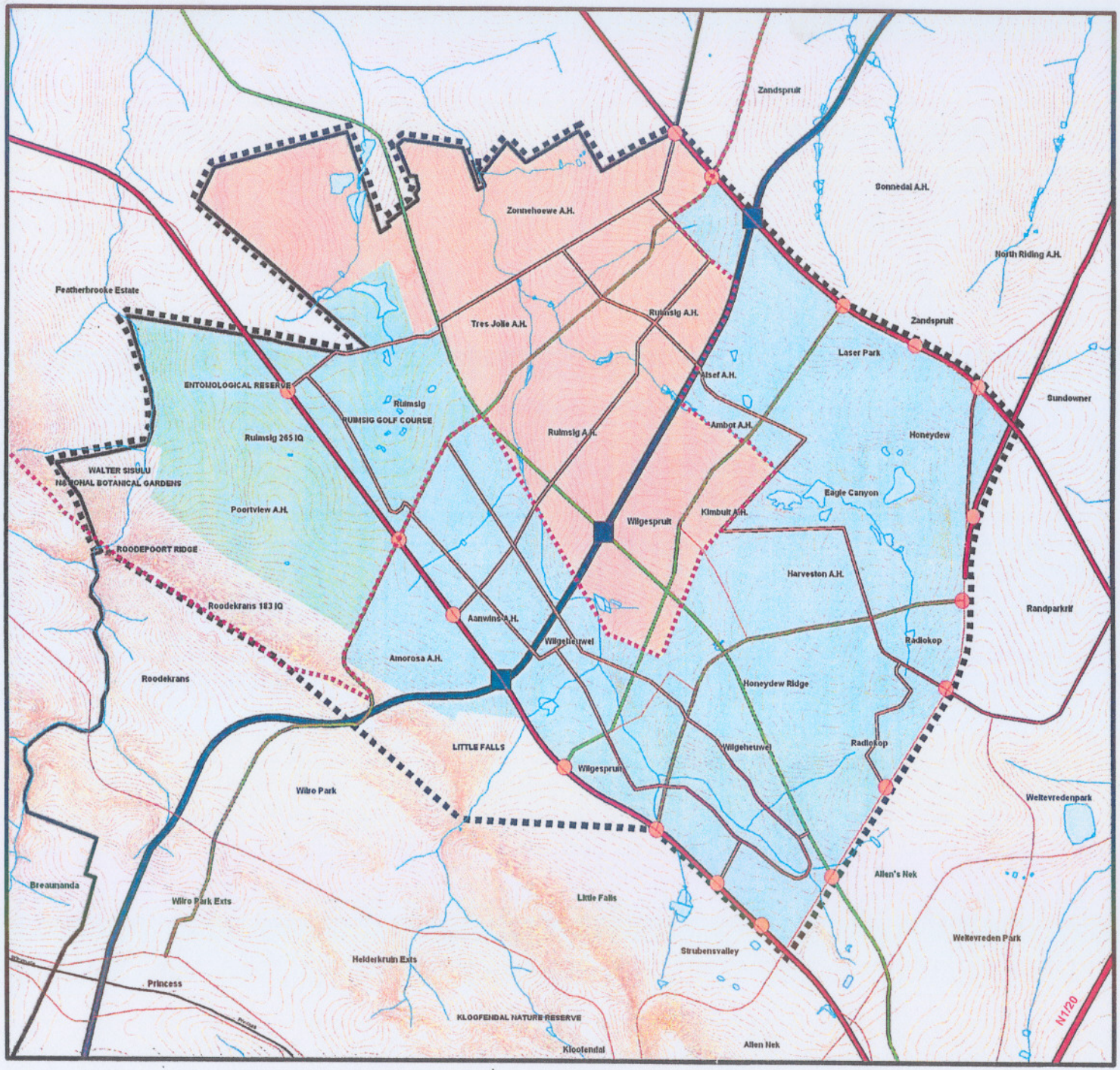

WWTW
MOGALE CITY
Zone 1
Zone 3
WITPOORTJIE
SUB CATCHMENT
Zone 2
Zone 5
Zone 4
WILGESPUIT
SUB CATCHMENT
Zone 6
CoJ
Zone 7
1 0 1 2 3 4 5 Kilometers
Future Scenario
Legend :
Future Spare Capacity (%)
Adequate (60-100)
Approach Critical (30-60)
Critical (0-30)
Surcharging (0)
Mogale C Urban Edge
N
Driefontein Basin
Capacity Investigation
Future Scenario
Johannesburg Water
Capex -Strategic Planning

CITY POWER JHB (PTY) LTD
SUBSTATION LOADS
2004 LOAD READINGS



MAJOR SUBSTATION	FIRM CAPACITY	MAXIMUM DEMAND 2004	SPARE CAPACITY	PERCENTAGE OF CAPACITY REACHED	MAXIMUM DEMAND 2003	COMPARISON 2003/2004	NO PROVIDED 2003	COMPARISON NO PROV. 2003/04
11TH SHAFT	5.00	0.00	4.20	16	0.00	-80.00		
ALEXANDRA (HB)	45.00	27.00	18.50	60	27.00	0.00		
ALEXDALE	10.00	10.51	-0.21	106	10.53	1.50		
BARBARANATH	5.00	5.54	-0.54	111	6.42	1.28		
BEAUMARIS	4.50	2.31	1.69	56				
BELLEVUE	47.00	49.27	-4.24	105	44.00	-3.28	42.00	5.00
BIRD ST	20.00	14.61	15.39	43	11.22	29.00	13.50	43.00
BONDEVAN	10.00	14.00	-4.00	140	12.72	-10.00	13.10	-23.00
BRAAMFONTEIN	60.00	60.20	13.67	82	60.78	-1.00	67.50	-17.00
BREE	60.00	57.72	17.25	69	35.00	-45.00	64.00	-10.00
BRYANSTON	30.00	39.72	-9.23	121	25.00	-2.00	26.00	9.00
BRYNSTAN	40.00	39.00	1.00	98	38.00		42.00	-7.00
CENTRAL (2004)	11.00	5.96	5.04	61				
CENTRAL (2011)	105.00	55.80	49.00	53	55.28			
CHRISTIAAN DE WET	30.00	38.21	-15.79	73	45.00	-15.00		
CLEVELAND (11kV)	30.00	42.20	-17.95	89	34.13	-16.50		
CRYDA A (25 kV)	11.00	7.36	3.20	69	10.40	-29.00		
CRYDA B (2011)	53.20	54.40	-16.70	103	36.00	-25.00	37.40	-30.00
DAVEYTON	19.51	24.10	-4.59	143	17.72	24.00	34.40	9.20
EINSHOF	104.00	56.26	28.00	43	57.00	-1.00		
ELDORADO	60.00	39.21	53.09	45	41.00	-13.00		
ENGENEALE	20.00	20.61	-0.61	103	20.00	-10.00		
FAIRLAND	10.00	11.85	-1.85	119	6.70	34.00		-5.00
FLORIDA	10.00	14.71	-4.71	147	20.00	-10.00		
FLORIDA SOUTH	16.00	16.20	-0.20	101	20.00	-10.00		
FLORIDA NORTH	20.00	23.00	-3.00	115	20.00	-10.00		
FONTAINEBLEAU	70.00	49.26	6.09	134	21.74	34.00	23.00	-4.00
FORT	120.00	69.40	34.60	73	100.00	-30.00		
GOLDEN LEA	22.50	14.00	3.50	62	14.00			
GRAND CENTRAL	35.00	21.00	4.00	67	20.73	0.00		
GREENWOOD	330.00	172.00	33.00	78	110.00	-14.00	87.00	36.50
HADDON (HB)	40.00	8.00	63.00	44				
HAMLET ST	20.00	20.20	-0.20	104	20.00	-2.00		
HOPEFIELD	25.00	31.00	5.17	69	0.00	13.00	9.00	40.00
HOUTPOORTEN	40.00	17.00	18.00	54	21.00	1.00	23.00	5.00
HURLINGHAM	10.00	10.00	2.00	80	7.14		6.00	-43.00
HURSTHILL	60.00	70.43	69.57	79	110.00	-41.00	52.00	-18.00
INDUSTRIA	50.00	51.00	52.00	80	62.00	-25.00		
JEPPE	10.00	14.00	2.00	93	13.00	10.00	16.00	15.00
JOHN WARE (11kV)	0.00	1.41	1.59	29	0.00	-42.00		-5.00
JOHN WARE (33kV)	60.00	0.41	44.37	1	50.00	-31.00	69.00	-34.00
KASERNE	40.00	1.41	45.59	39	5.00	-43.00		
KEW (INTERVAL)	20.00	0.00	4.00	150	0.00	-54.00	150.00	
KLOOFENDAL (2011)	20.00	10.64	3.16	84	20.00	-23.00	20.00	
LENASIA	220.00	0.00	0.00	31	0.00	-45.00	24.00	-31.00
LENASIA SOUTH	60.00	0.00	0.00	31	20.00	-45.00		
LOFUS	20.00	7.10	12.91	36	4.00	-64.00	4.00	50.00
LUNAR	20.00	0.00	13.16	24	0.00	-20.00	10.00	-21.00
MAGAZZA	22.00	14.25	6.21	65	15.00	-24.00		
MAYFAIR	58.00	42.24	47.00	47	87.00	-37.00	45.00	-6.00
MCDERMOT	45.00	23.40	23.40	48				
MCINDOE	45.00	0.00	9.40	79	20.00	-1.00	40.00	-12.00
MCNAUGHTEN	0.00	0.44	-4.40	100	3.00	-3.00	10.00	-22.00
MELVILLE (2)	41.00	35.04	12.00	71	34.00	-8.00	39.20	-10.00
MENGERFIELD	45.00	23.00	22.00	51	35.00	-6.00	31.00	-27.00
MIRAMA	45.00	19.00	23.20	85	43.00	-26.00	30.00	-29.00
NOORDWYK	20.00	11.91	11.91	100	12.00	-12.00		
NORTHRIDING	40.00	34.00	3.43	89	35.00	-3.00	39.00	-11.00
NORTON	40.00	24.00	8.00	60	24.00	-20.00		
OBSERVATORY	40.00	34.00	40.00	85	34.00	-15.00	47.75	-2.00
OLIVESAVE	20.00	20.00	40.00	100	21.00	-12.00	28.00	-0.09
ONTDEKKERS	20.00	14.00	5.00	70	15.00	-40.00		
ORCHARDS	45.00	37.37	7.63	83	44.00	-15.00		
ORLANDO LOCAL	11.00	5.49	5.51	50	12.00	-54.00		
PARKDENSE	4.00	0.00	4.00	0				
PARKHURST	90.00	65.24	56.76	109	100.00	-41.00		
PENNYST	20.00	15.64	4.36	78	15.00	-25.00		
PETERSFIELD	40.00	31.18	22.82	43	24.00	30.00		
PINEHAVEN	45.00	29.16	53.28	65	32.00	-9.00	32.00	14.00
PINEWOOD (11kV)	20.00	24.04	-4.04	120	20.00	20.00		
PINEWOOD (33kV)	20.00	12.00	2.48	60	20.00	-40.00		
PRIDE	60.00	37.00	23.00	62	40.00	-8.00		
PRIMA	16.00	9.16	1.00	57	12.00	-24.00	9.00	14.00
ROBERTSHAM	120.00	78.00	63.17	67	89.00	-12.00		
ROBERTSVALE	40.00	19.15	23.20	48	17.00	13.00		
ROODEPOORT	20.00	9.40	10.60	47	12.00	-21.00		
ROODEVAL (11kV)	30.00	27.00	16.25	90	24.00	-3.00	31.00	9.00
ROODEVAL (33kV)	60.00	60.00	21.00	75	30.00	-15.00	65.75	-4.00
SELBY	22.00	12.00	10.00	55	16.00	-30.00		
SYDNEY	40.00	20.21	34.73	51	25.00	-19.00	27.00	-25.00
SOWETO LOCAL	11.00	9.16	1.00	83				
VAN BEEK	22.00	6.80	15.16	31	10.00	-31.00	11.00	-43.00
VICTORIA VALLEY	22.00	20.20	-6.20	128	25.00	-20.00		
VICTORIA (MIDRAND)	20.00	10.38	9.62	52	13.00	-43.00		
VILLIERSDP	120.00	110.00	33.00	85	130.00	-47.00		
WOLMERANS	40.00	41.27	-1.27	103	29.00	-42.00		
WOODSDP	20.00	20.00	-0.00	100	24.00	-17.00	31.00	-13.00

Map 16



RUIMSIG / POORTVIEW

PROPOSED PHASING

Study Area

Proposed Phasing

- Phase 1
- Phase 2
- Phase 3

Road Network

- First Order Road
- Second Order Road
- Third Order Road
- Fourth Order Road
- Access Interchange
- Access Spacings
- Jhb Urban Development Boundary

N

0 500m 1000 m 1500 m

Plan Associates
P O Box 14732
Hatfield
0028
Tel: (012) 342 8701
Fax: (012) 342 8714
e-mail: planassoc@icon.co.za

PLAN

ANNEXURE 2
AERIAL PHOTOGRAPHS

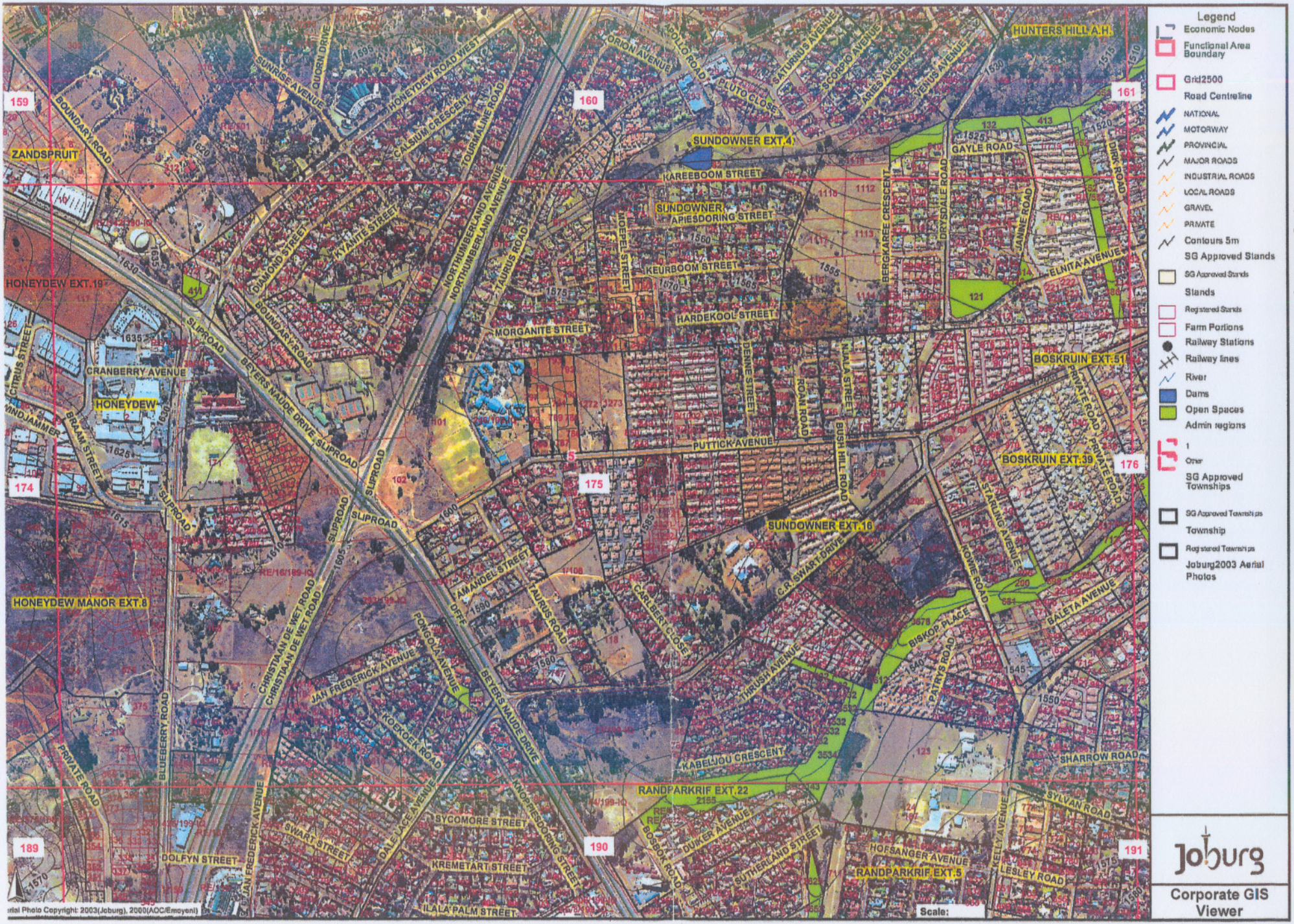
LIST OF AERIAL PHOTOGRAPHS:

1. Newly developed townships west of Christiaan de Wet Road
2. Development in the Randburg area
3. Medium to low density development in Ruimsig/Poortview in contrast to high density development in Mogale City

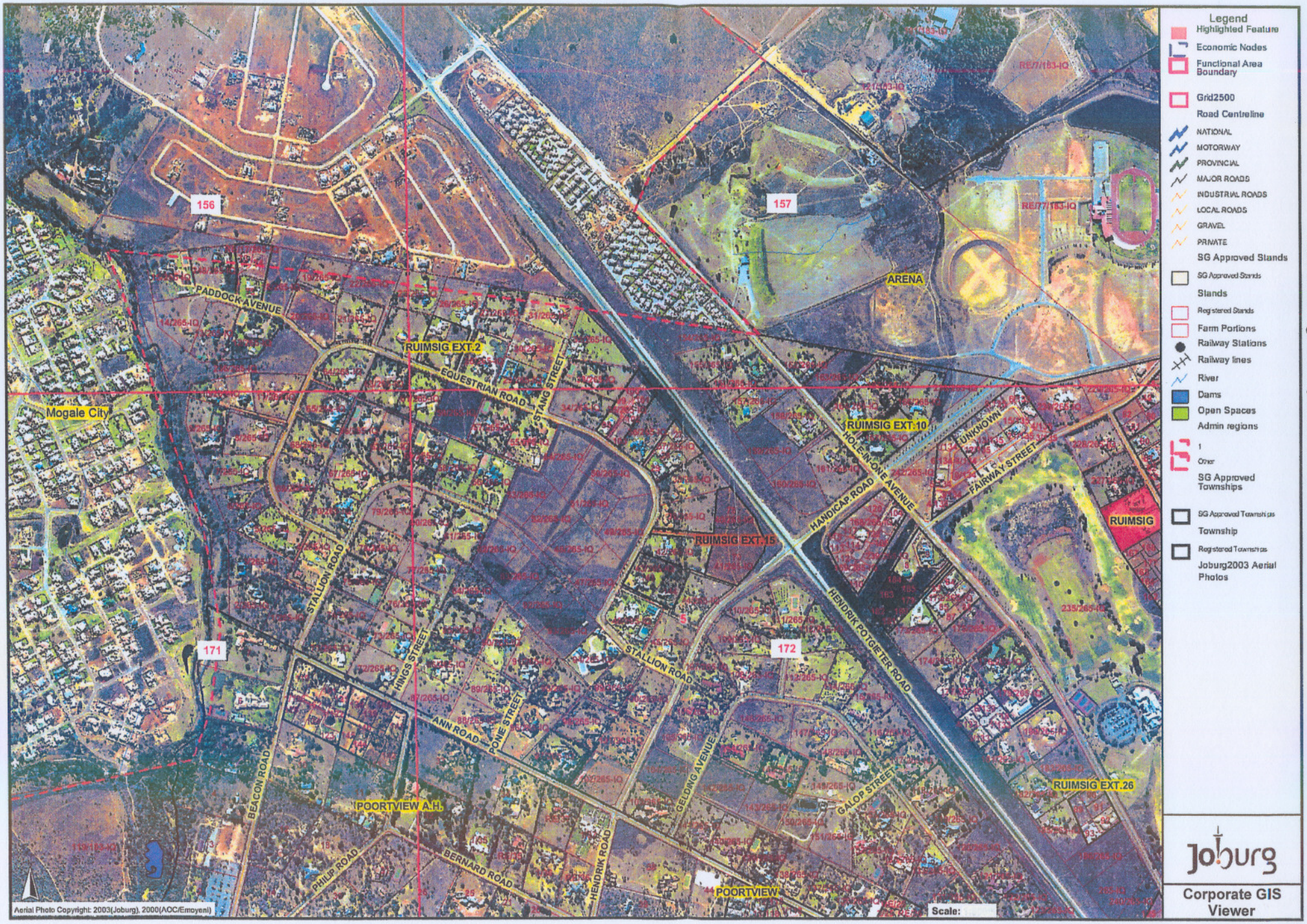


Aerial Photograph 1

Newly developed townships west of Christiaan de Wet Road (compare to conventional neighbourhoods on single residential erven to the east of Christiaan de Wet Road)



Aerial Photograph 2
Development in the Randburg area
(High density residential development is not unique to the Wilgespruit area)



Aerial Photograph 3
Medium to low density development in the Ruimsig / Poortview area in contrast to high density development in Mogale City

ANNEXURE 3
DEMOGRAPHIC STATISTICS

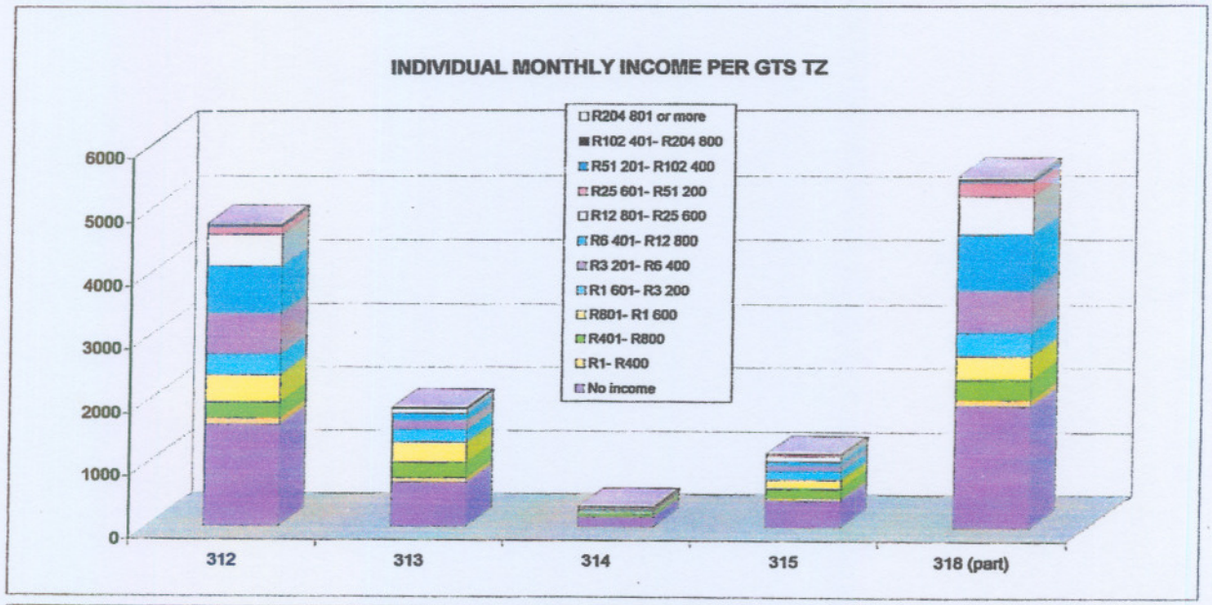
LIST OF DEMOGRAPHIC STATISTICS:

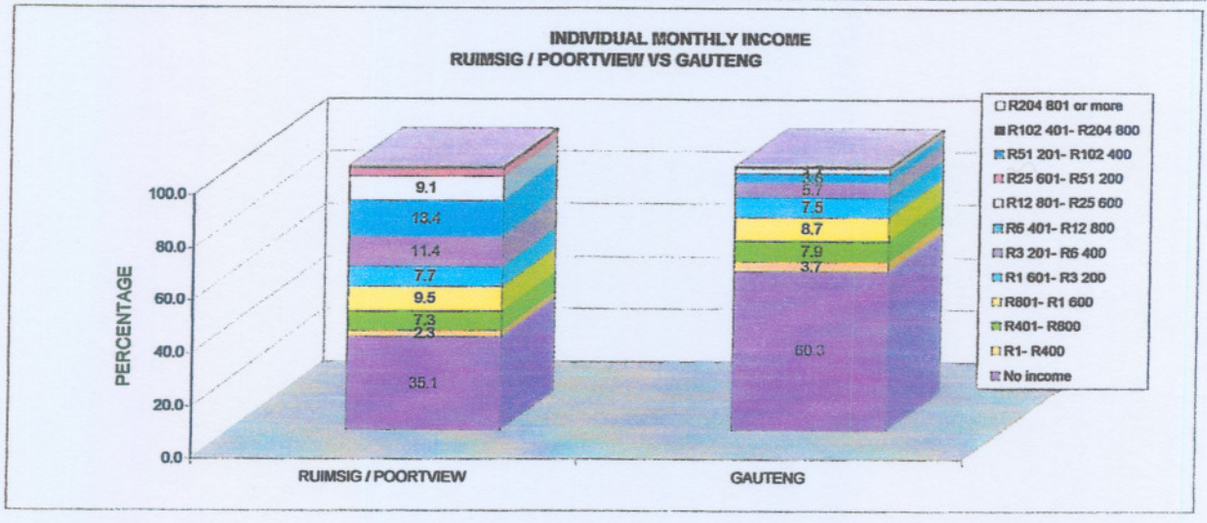
- Individual monthly income
- Type of dwelling
- Mode of transport
- Year moved

WILGESPRUIT CASE STUDY AREA

INDIVIDUAL MONTHLY INCOME - STATISTICS SOUTH AFRICA - CENSUS 2001

GTS	No income	R1-R400	R401-R800	R801-R1 600	R1 601-R3 200	R3 201-R6 400	R6 401-R12 800	R12 801 R25 600	R25 601 R51 200	R51 201-R102 400	R102 401 R204 800	R204 801 or more	Total
312	1611	100	254	425	316	646	751	491	103	33	18	18	4766
313	684	75	242	328	203	141	117	73	14	3	6	0	1885
314	145	14	33	37	29	12	17	15	7	0	6	0	315
315	419	33	154	144	131	81	75	75	36	6	3	0	1157
318 (part)	1926	92	316	364	367	668	870	584	205	44	33	27	5496
RUIMSIG / POORTVIEW	4785	313	998	1298	1047	1548	1831	1238	365	86	66	45	13618
GAUTENG	5666832	343651	744811	819536	700218	531135	333783	165046	56258	19998	12808	5979	9390055
PERCENTAGE													
312	33.8	2.1	5.3	8.9	6.6	13.6	15.8	10.3	2.2	0.7	0.4	0.4	100.0
313	36.3	4.0	12.8	17.4	10.8	7.5	6.2	3.9	0.7	0.2	0.3	0.0	100.0
314	46.1	4.3	10.5	11.7	9.2	3.7	5.5	4.7	2.2	0.0	2.0	0.0	100.0
315	36.2	2.8	13.3	12.5	11.3	7.0	6.5	6.5	3.1	0.5	0.3	0.0	100.0
318 (part)	35.0	1.7	5.7	6.6	6.7	12.2	15.8	10.6	3.7	0.8	0.6	0.5	100.0
RUIMSIG / POORTVIEW	35.1	2.3	7.3	9.5	7.7	11.4	13.4	9.1	2.7	0.6	0.5	0.3	100.0
GAUTENG	60.3	3.7	7.9	8.7	7.5	5.7	3.6	1.7	0.6	0.2	0.1	0.1	100.0

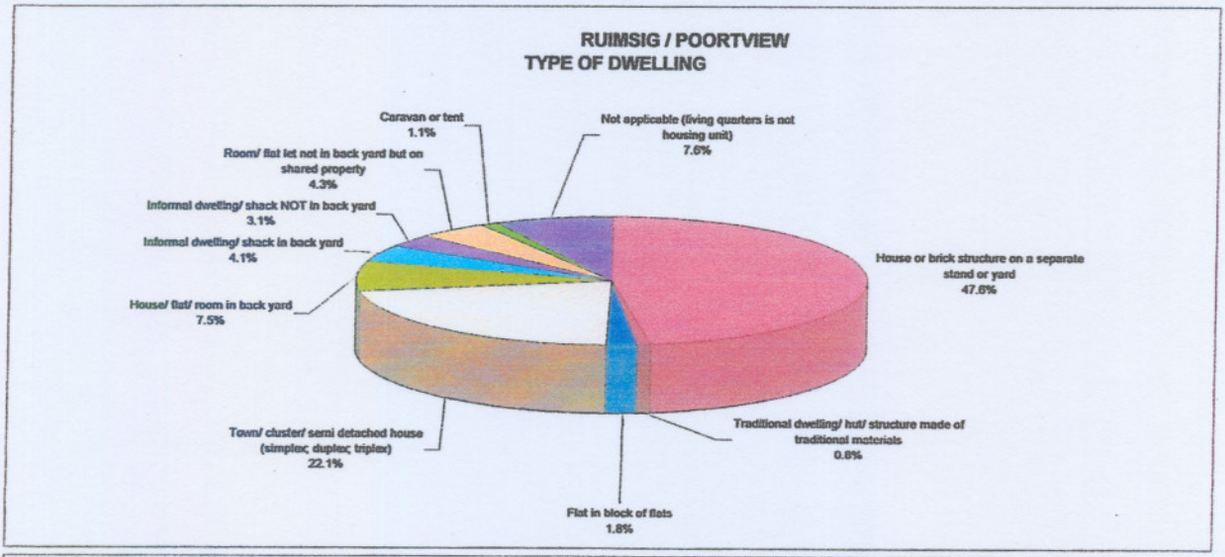


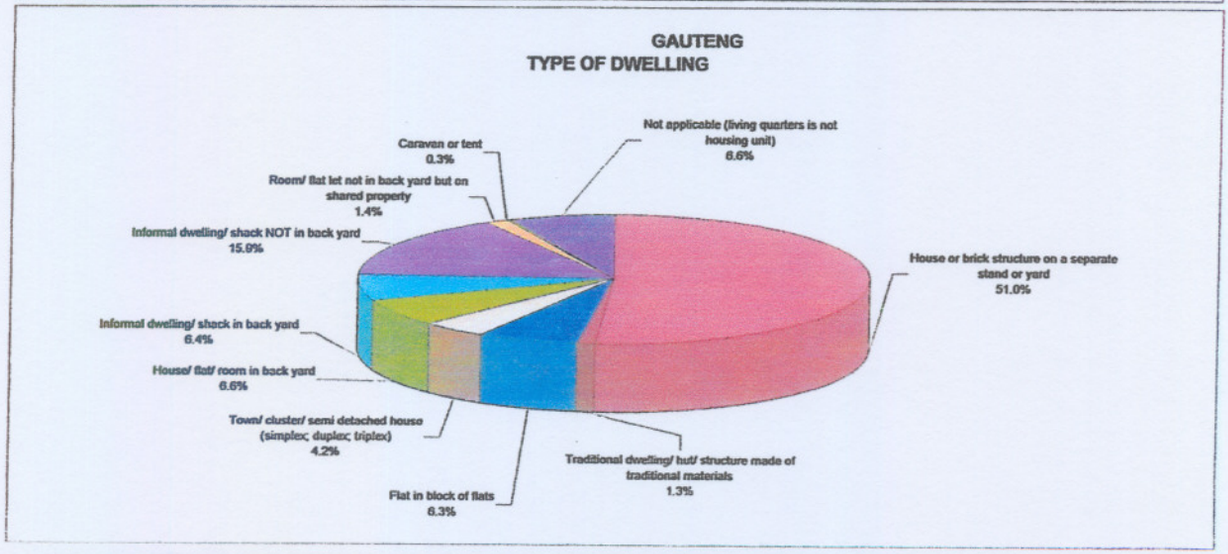


Source: Adapted from Draft Poortview / Ruimsig Development Framework

WILGESPRUIT CASE STUDY AREA
TYPE OF DWELLING - STATISTICS SOUTH AFRICA - CENSUS 2001

GTS	House or brick structure on a separate stand or yard	Traditional dwelling/ hut/ structure made of traditional materials	Flat in block of flats	Town/ cluster/ semi detached house (simplex; duplex; triplex)	House/ flat/ room in back yard	Informal dwelling/ shack in back yard	Informal dwelling/ shack NOT in back yard	Room/ flat let not in back yard but on shared property	Caravan or tent	Not applicable (living quarters is not housing unit)	Total
312	894	22	35	527	112	43	77	125	13	155	2003
313	328	3	3	89	24	160	33	68	0	156	863
314	67	0	0	0	3	0	34	1	3	19	128
315	145	0	3	12	161	0	6	18	6	6	357
318 (part)	1141	19	56	571	107	20	18	23	39	75	2069
RUIMSIG / POORTVIEW	2575	44	97	1199	407	223	168	234	61	411	5419
GAUTENG	1522681	38172	187957	124565	196723	192174	475513	43093	7680	196113	2984671
PERCENTAGE											
312	44.7	1.1	1.7	26.3	5.6	2.1	3.8	6.2	0.7	7.7	100.0
313	38.0	0.3	0.3	10.3	2.7	18.5	3.8	7.9	0.0	18.0	100.0
314	52.4	0.2	0.0	0.0	2.6	0.0	26.6	0.7	2.4	15.0	100.0
315	40.6	0.0	0.8	3.3	45.2	0.0	1.7	5.0	1.7	1.7	100.0
318 (part)	55.1	0.9	2.7	27.6	5.2	1.0	0.9	1.1	1.9	3.6	100.0
RUIMSIG / POORTVIEW	47.6	0.8	1.8	22.1	7.5	4.1	3.1	4.3	1.1	7.6	100.0
GAUTENG	51.0	1.3	6.3	4.2	6.6	6.4	15.9	1.4	0.3	6.6	100.0

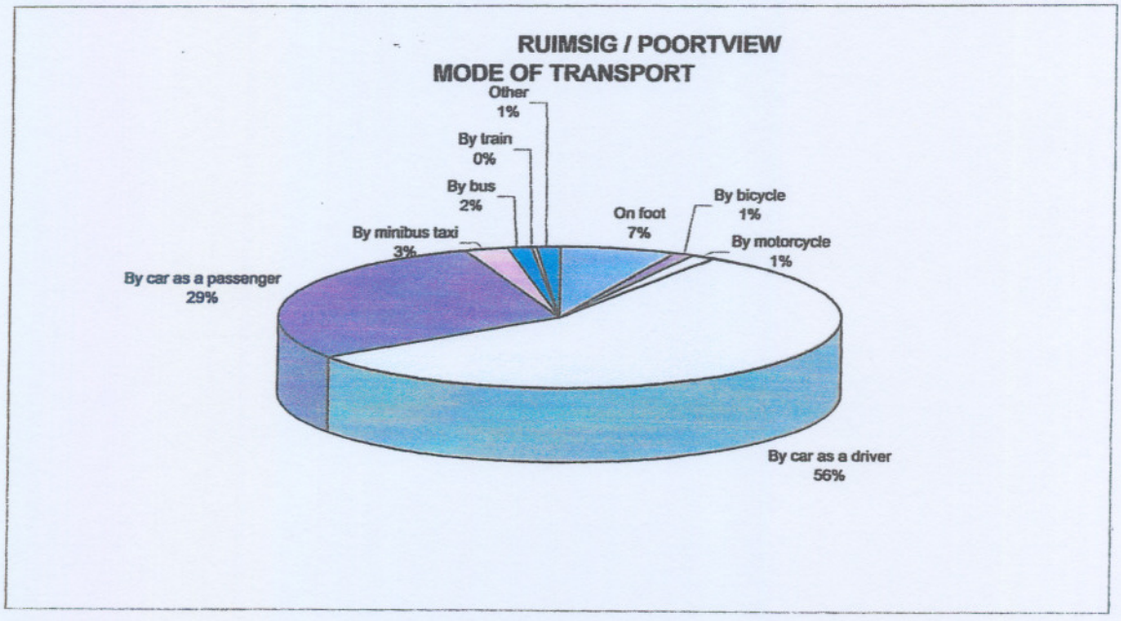


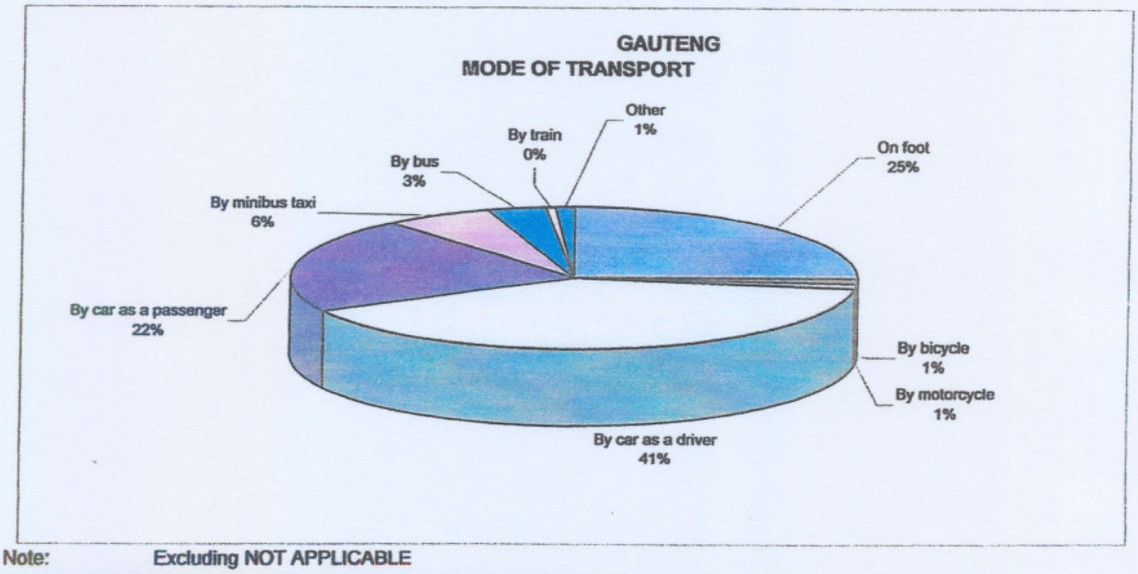


Source: Adapted from Draft Poortview / Ruimsig Development Framework

WILGESPRUIT CASE STUDY AREA
MODE OF TRANSPORT - STATISTICS SOUTH AFRICA - CENSUS 2001

GTS	On foot	By bicycle	By motorcycle	By car as a driver	By car as a passenger	By minibus taxi	By bus	By train	Other	Total
312	515	33	44	1788	920	133	67	14	66	3580
313	530	20	9	281	178	186	65	6	3	1278
314	66	4	0	39	28	26	10	3	0	175
315	360	6	9	224	152	18	53	0	0	821
318 (part)	268	40	57	2253	1173	102	60	12	53	4017
RUIMSIG / POORTVIEW	1471	63	62	2332	1278	362	195	23	69	5855
GAUTENG	1789122	53443	27735	934966	618520	1048819	324021	266537	33427	5096590
PERCENTAGE										
312	14.4	0.9	1.2	49.9	25.7	3.7	1.9	0.4	1.8	100.0
313	41.5	1.6	0.7	22.0	13.9	14.5	5.1	0.5	0.2	100.0
314	37.7	2.1	0.2	22.1	16.0	14.6	5.7	1.7	0.0	100.0
315	43.8	0.7	1.1	27.3	18.5	2.2	6.4	0.0	0.0	100.0
318 (part)	6.7	1.0	1.4	56.1	29.2	2.5	1.5	0.3	1.3	100.0
RUIMSIG / POORTVIEW	6.7	1.0	1.4	56.1	29.2	2.5	1.5	0.3	1.3	100.0
GAUTENG	25.1	1.1	1.1	39.8	21.8	6.2	3.3	0.4	1.2	100.0



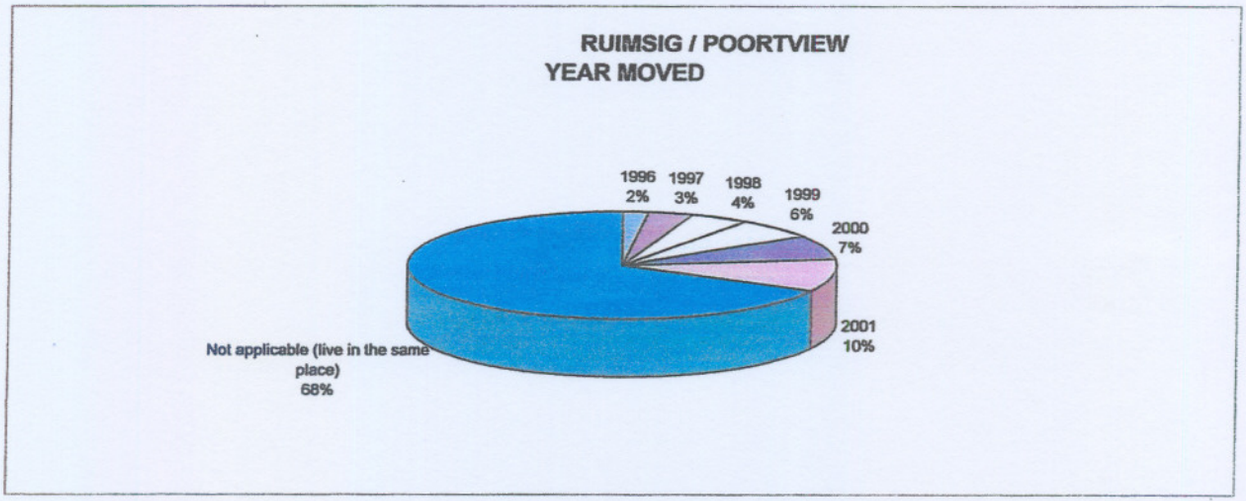


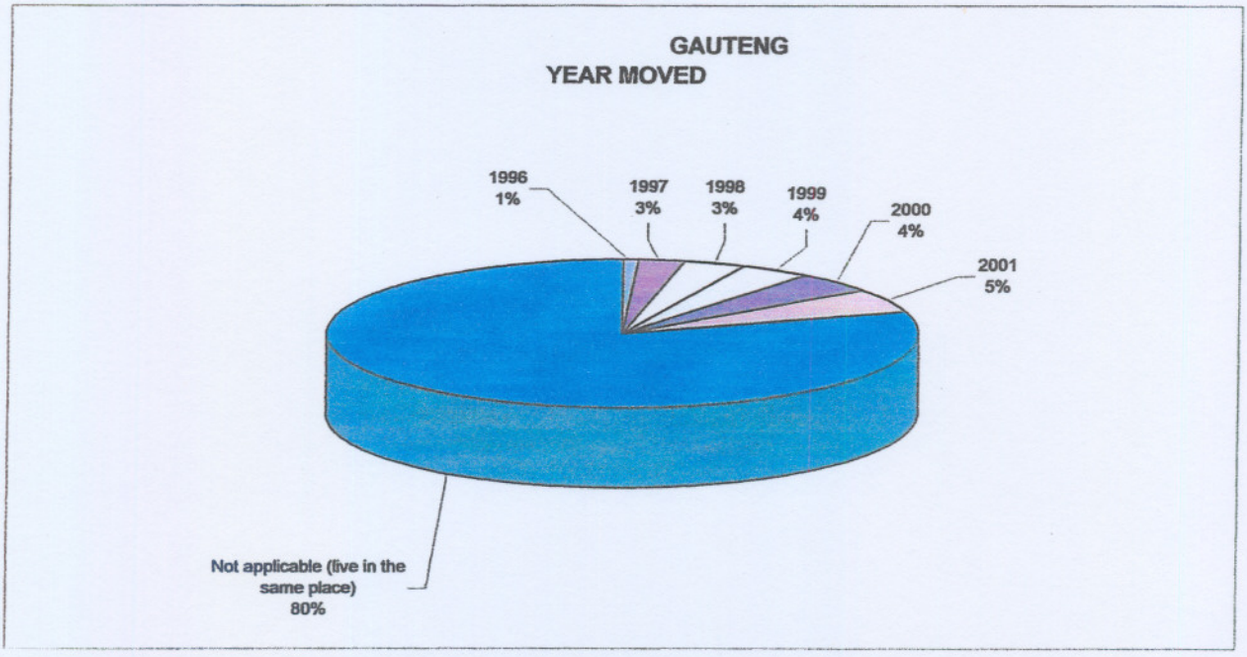
Note: Excluding NOT APPLICABLE

Source: Adapted from Draft Poortview / Ruimsig Development Framework

WILGESPRUIT CASE STUDY AREA
YEAR MOVED - STATISTICS SOUTH AFRICA - CENSUS 2001

GTS	1996	1997	1998	1999	2000	2001	Not applicable (live in the same place)	Total
312	127	220	225	329	412	620	2832	4764
313	18	35	35	79	57	84	1580	1887
314	24	19	26	22	15	16	193	315
315	6	3	27	60	50	41	970	1157
318 (part)	92	185	270	374	448	559	3570	5497
RUIMSIG / POORTVIEW	267	461	582	863	982	1320	9144	13620
GAUTENG	65789	257272	307686	363929	412065	503749	7491758	9402248
				PERCENTAGE				
312	2.7	4.6	4.7	6.9	8.7	13.0	59.4	100.0
313	0.9	1.8	1.8	4.2	3.0	4.5	83.7	100.0
314	7.7	6.1	8.1	7.0	4.7	5.0	61.5	100.0
315	0.5	0.3	2.3	5.2	4.3	3.5	83.9	100.0
318 (part)	1.7	3.4	4.9	6.8	8.1	10.2	64.9	100.0
RUIMSIG / POORTVIEW	2.0	3.4	4.3	6.3	7.2	9.7	67.1	100.0
GAUTENG	0.7	2.7	3.3	3.9	4.4	5.4	79.7	100.0





Source: Adapted from Draft Poortview / Ruimsig Development Framework

ANNEXURE 4
COLLAGE OF PHOTOGRAPHS

COLLAGE OF PHOTOGRAPHS:

1. Scale of high-density residential development
2. Landscape of the compact city
3. Extent of high-density development north of the Ridge
4. High-density residential development allowed by Mogale City, adjacent to the Ruimsig/Poortview area
5. High-density development in the Ruimsig area
6. Entrance to security township
7. Park provided in a security township, accommodating a natural floodline
8. Only floodline areas are still undeveloped
9. Development on a bigger stand, providing more landscaped areas and a variation of building styles
10. In rare instances landscaped areas are provided on the street front
11. New developments in proximity to a nursery/agricultural land
12. Abundance of construction vehicles: Mogale City
13. Four-lane road leading towards Ruimsig Sport Stadium
14. Residential development: small residential dwellings
15. Even small properties are utilised for infill development
16. Landscape of conventional neighbourhood
17. Erf in a conventional neighbourhood
18. Garden area of an erf in a conventional neighbourhood

Annexure 4

Collage of photographs indicating scale of high density residential development / contrast to conventional neighbourhood

1. Scale of high-density residential development

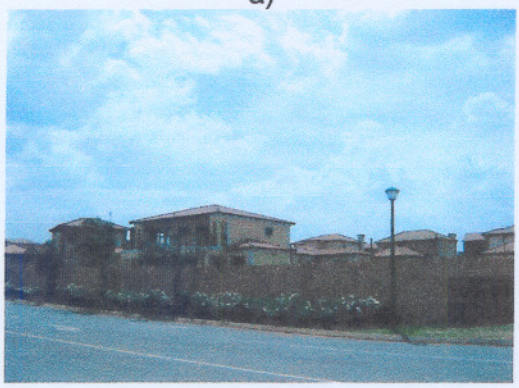


2. Landscape of the compact city



3. Extent of high density development north of the Ridge:

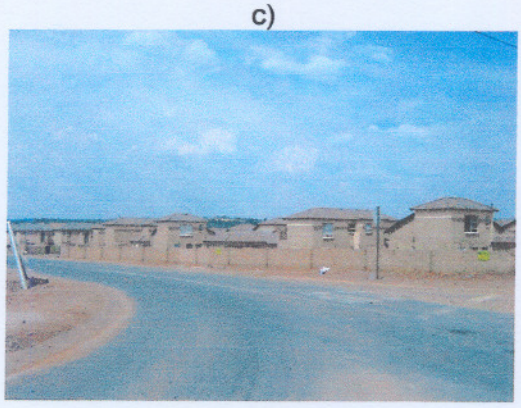
a)



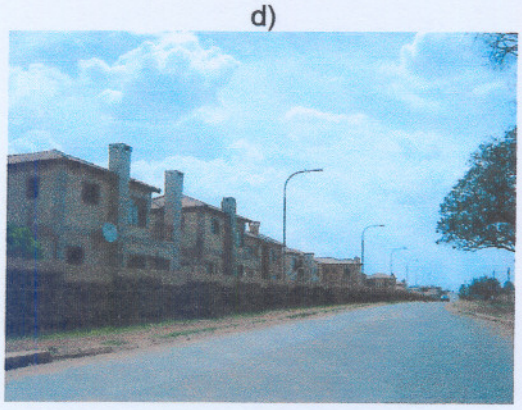
b)



c)



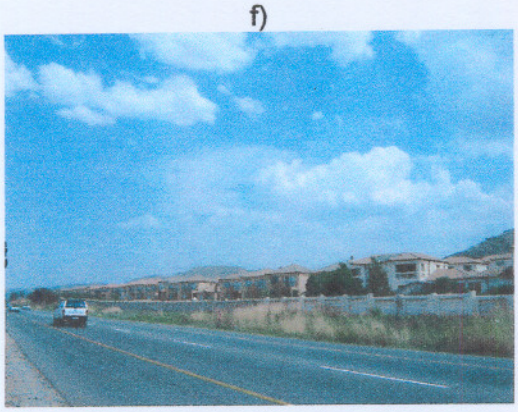
d)



e)

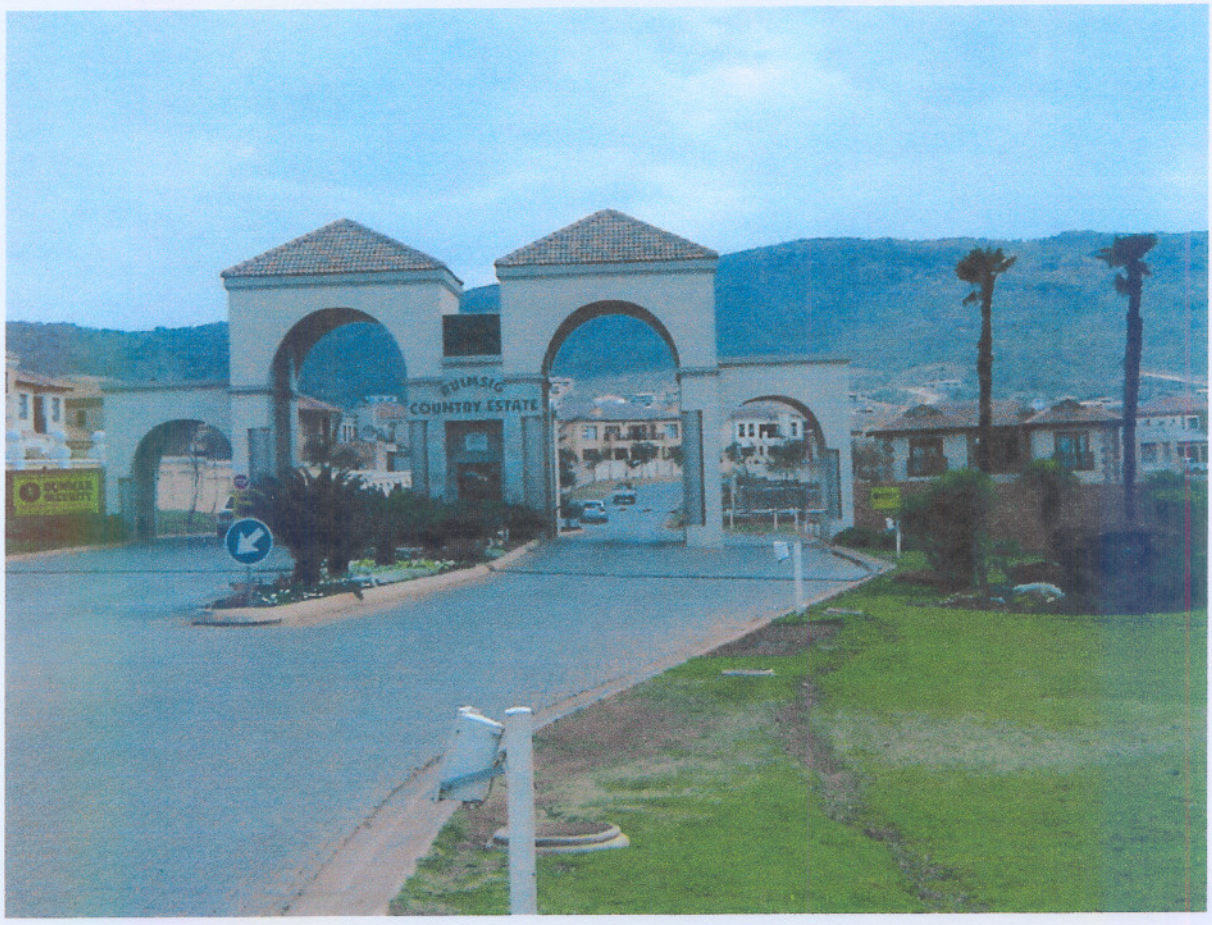


f)



g)

Although this development is labelled a Country Estate, high densities are evident



4. High density residential development allowed by Mogale City, adjacent to the Ruimsig/Poortview area



5. High density development in the Ruimsig area (CoJ considers the area to be outside the Urban Development Boundary)



6. Entrance to security township



7. Park provided in a security township, accommodating a natural flood line



8. Only flood line areas are still undeveloped



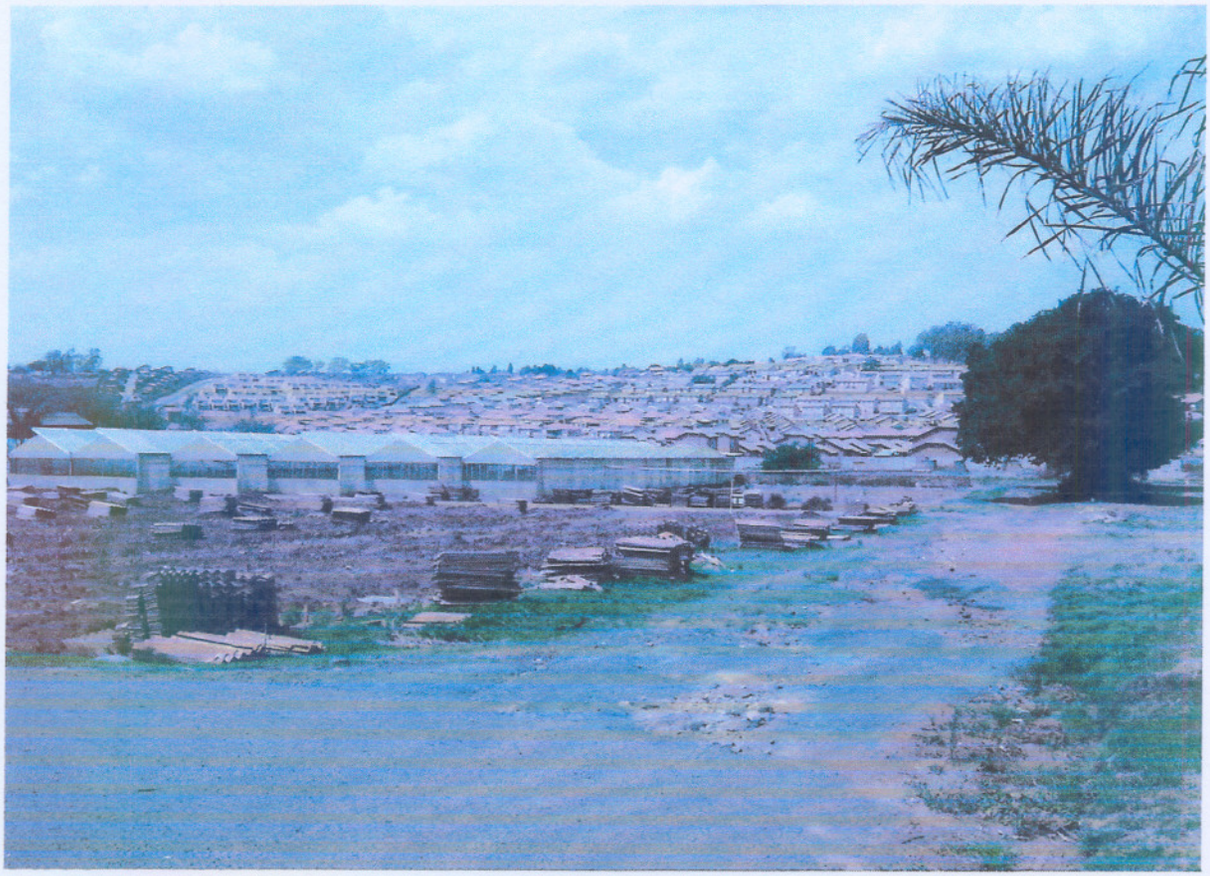
9. Development on a bigger stand, providing more landscaped areas and a variation of building styles



10. In rare instances landscaped areas are provided on the street front

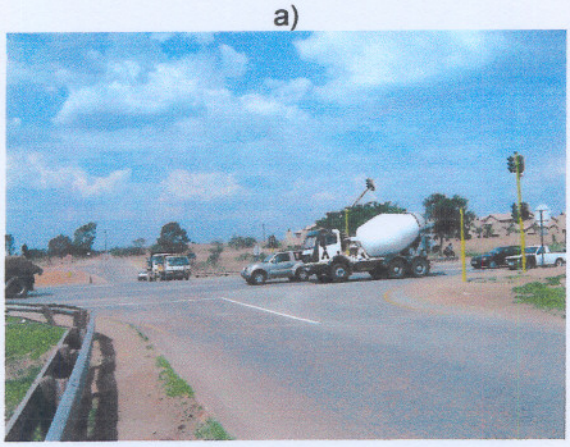


11. New developments in proximity to a nursery / agricultural land

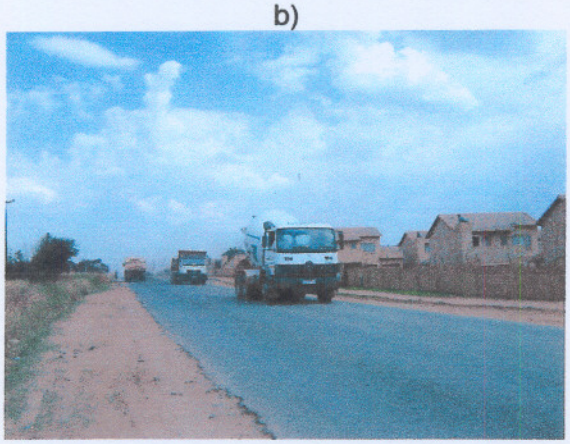


12. Abundance of construction vehicles: Mogale City

a)



b)



13. Four-lane road leading towards Ruimsig Sport Stadium



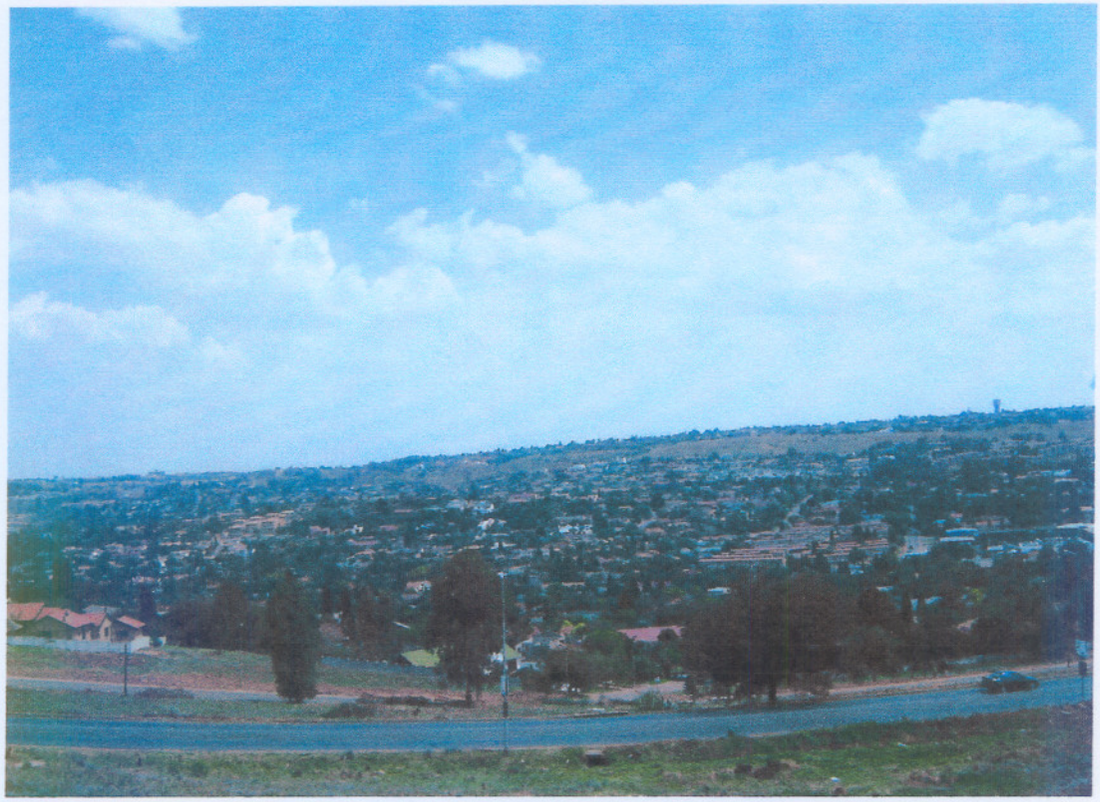
14. Residential development: small residential dwellings



15. Even small properties are utilised for infill development. This provides opportunities for developers targeting smaller projects



16. Landscape of conventional neighbourhood



17. Erf in a conventional neighbourhood



18. Garden area of an erf in a conventional neighbourhood



ANNEXURE 5
GLOSSARY OF TERMS AND ABBREVIATIONS

GLOSSARY OF TERMS

The following is a glossary of terms utilised in the policies of the City of Johannesburg and do not reflect the endorsement of the author.

Accessibility
Good accessibility is being able to reach a wide range of activities, people, resources, opportunities and information with the least effort and cost. This may require a degree of mobility to avoid unnecessary wastage of energy and time in getting from origin to destination along public ways or crowded lines of communication, where long queues may prevail. This may also require overcoming non-physical obstacles such as lack of information (about a good or service) or improving the affordability of goods and services.

Compact
A compact urban form increases efficiency in the way people can use the city and the way in which the city is run. More people live in a smaller area in a compact city and this higher density allows for efficient provision of public transport, social and other services. The antithesis of a compact city is urban sprawl.

Containment
Containment refers to limiting the geographic spread of development, i.e. the horizontal. The city form can be enhanced by guiding spatial development. Containment takes place at two levels:

- Containing development within a defined urban boundary prevents urban sprawl.
- The physical spread of nodes is contained to enhance the performance of the nodes and to protect the surrounding areas from continuous encroachment of land use change.

Density (residential)
Gross residential density is the overall number of dwelling units divided by the total size of the area. Net residential density expresses the number of dwelling units divided by the size of the area that is taken up by residential use only. This is expressed as the number of units per hectare.

Higher residential densities are encouraged along arterials as well as in and around nodes as they make the provision of services and public transport viable.

Greenfield development
Urban development on previously unserviced, vacant land.

Guideline
Guidelines form a framework within which decisions are taken that will support an overall vision or strategy. Guidelines could be presented in a variety of forms, such as neighbourhood development plans and Council policies.

Integrated Development Plan (IDP)
A plan to integrate development and management of municipal areas as stipulated in the Development Facilitation Act, 1995, the Local Government Transition Act, Second Amendment Act, 97 of 1996 and the Municipal Systems Act, 2000.

All metropolitan local councils are required to formulate and implement an Integrated Development Plan incorporating metropolitan land use planning, transportation planning, infrastructure planning and the promotion of economic development, taking cognisance of needs and priorities as determined by the metropolitan council concerned.

Infill
The development of undeveloped or underdeveloped land within a developed urban area with infrastructure (link services) available.

Inner city
An area in Greater Johannesburg comprising the Johannesburg Central Business District and surrounding residential areas.

Intensification
The process of intensifying activities or land use by increasing the floor area, height or number of activities.

Land use
The activities on a defined piece of land such as residential, commercial, industrial or a mixture of these.

Land Development Objective (LDO)
A requirement in terms of the Development Facilitation Act, 65 of 1995. A methodology and end product are given that result in an integrated development plan for an area in which the community have had input. In Gauteng the process has been superseded by the Integrated Development Plans. (See IDP).

Mixed land use
Mixed land use refers to a combination of land uses such as a mix of commercial / industrial / residential / retail / entertainment / institutional uses. It also refers to a mix of uses within a specific use. For example, various types of residential use based on densities.

The advantage of mixed uses is that access and convenience are increased as transportation distances are decreased.

The combination depends on the specific area. A mixed-use building could refer to retail at street level, institutional on the floor above and residential on the top floors. Mixed land use in an industrial area could include industry, commercial and retail uses.

Mobility
Mobility is the degree of free flow movement of vehicles and pedestrians. It is the ability to move at an acceptable speed and travel time without undue interruption and at acceptable levels of comfort, convenience and safety. Mobility and accessibility have an indirectly proportionate relationship whereby restricted or limited access will result in high mobility.

Nodes
A node is a place where both private and public investment tends to concentrate. Nodes are usually associated with major road intersections, or with public transport nodes such as railway stations and taxi ranks. It offers the opportunity to locate a range of activities, from small to large enterprises and is often associated with mixed-use development including high-density residential use. An important element that influences the notion of activity nodes is density. When combined with the diverse activities in a node, densification facilitates the limiting of the node radii to walking distance. An advantage of high-density nodes is that economies of scale can be exploited in terms of public infrastructure provision and private investment. Nodes differ in size, the types of activity that occur within them, the size of the areas served and the significance within the city.

Road hierarchy
The classification of all roads in terms of their level of importance in a transportation network. The roads are classified in terms of the functions performed and the characteristics of each road in the transportation network.

Urban Boundary / Urban Edge
A demarcated line that serves to direct and control the outer limits of urban expansion. Outside the continuous urban development of the metropolitan core area, urban development should only be permitted within small towns and rural nodes, and in areas where the environment and agriculture are not compromised. Also see Containment.

Urban sprawl
An undesirable situation in which the geographical size of the city keeps expanding to include development of new areas. Costs of providing and maintaining services to far flung areas is high, public transportation is not efficient and access to urban opportunities minimal. The antithesis of a compact city.

ABBREVIATIONS

CoJ
City of Johannesburg

CBD
Central Business District

CIF
Capital Investment Framework

DFA
Development Facilitation Act, 65 of 1995

DPTE
Department of Development Planning, Transportation and Environment

DP & F
Development Planning and Facilitation

EIA
Environmental Impact Assessment

EMF
Environmental Management Framework

GDACE
Gauteng Department of Agriculture, Conservation & Environment

GJMC
Greater Johannesburg Metropolitan Council

GOSP
Gauteng Open Space Programme

IDP
Integrated Development Plan

IIP
Integrated Infrastructure Plan

ISF
Interim Strategic Framework

ITP
Integrated Transport Plan

JMOSS
Johannesburg Metropolitan Open Space System

JOMET
Johannesburg Metropolitan Transport Advisory Board

JRA
Johannesburg Roads Agency

JW
Johannesburg Water

LDO
Land Development Objectives

LIDP
Local Integrated Development Plans undertaken for 11 Administrative Regions in the City of Johannesburg.

MEC
Member of the Executive Council of the province designated by the Premier of the Provincial Government.

MLC
Metropolitan Local Council

MOSS
Metropolitan Open Space System

PWV
Pretoria, Witwatersrand, Vereeniging

RSDF
Regional Spatial Development Framework undertaken for 11 Administrative Regions in the City of Johannesburg.

SABC
South African Broadcasting Corporation

SDF
Spatial Development Framework

SMDF
Strategic Metropolitan Development Framework

SPTN – Strategic Public Transport Network

UAC's
Utilities, Agencies and Corporatised Entities e.g. Johannesburg Roads Agency (JRA), City Power, City Parks, Johannesburg Development Agency (JDA), Metropolitan Trading Company (MTC), etc.

UBD
Urban Development Boundary

WCED
World Commission on Environment and Development, commonly known as the Bruntland Report.

WMLC
Western Metropolitan Local Council

WMSS
Western Metropolitan Sub-Structure

WWTW
Waste Water Treatment Works – treatment of sewage water