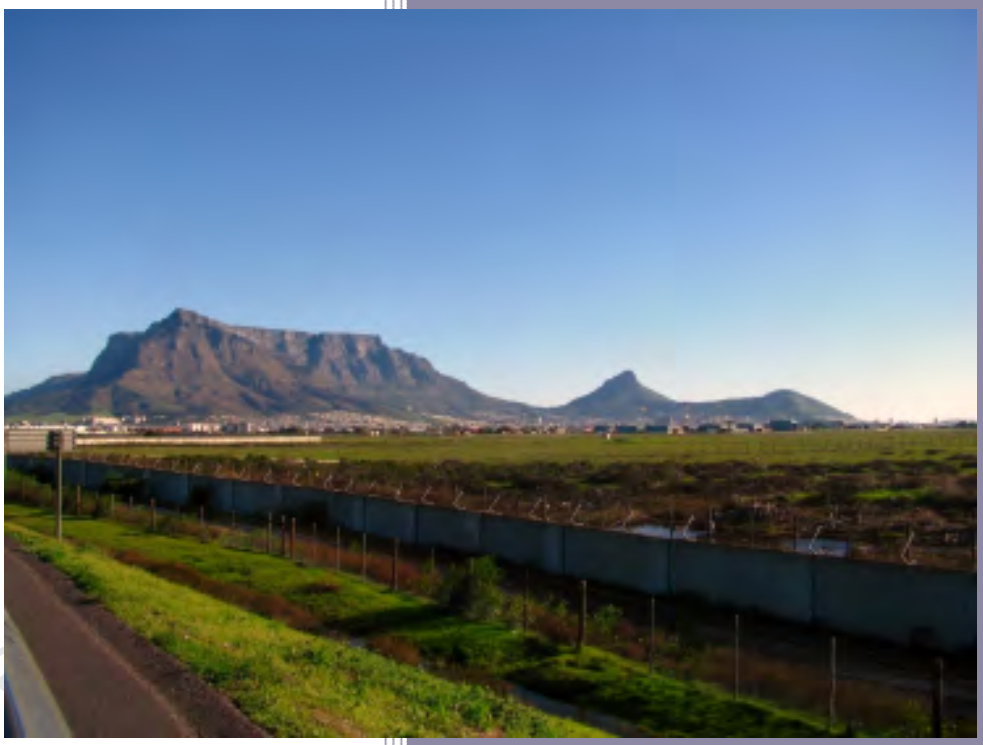
A Spatial Development Framework for the Northern Inner Cape Town Sub-metropolitan District



Dissertation presented as part fulfilment of the degree of
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1. Introduction

1.1. Background

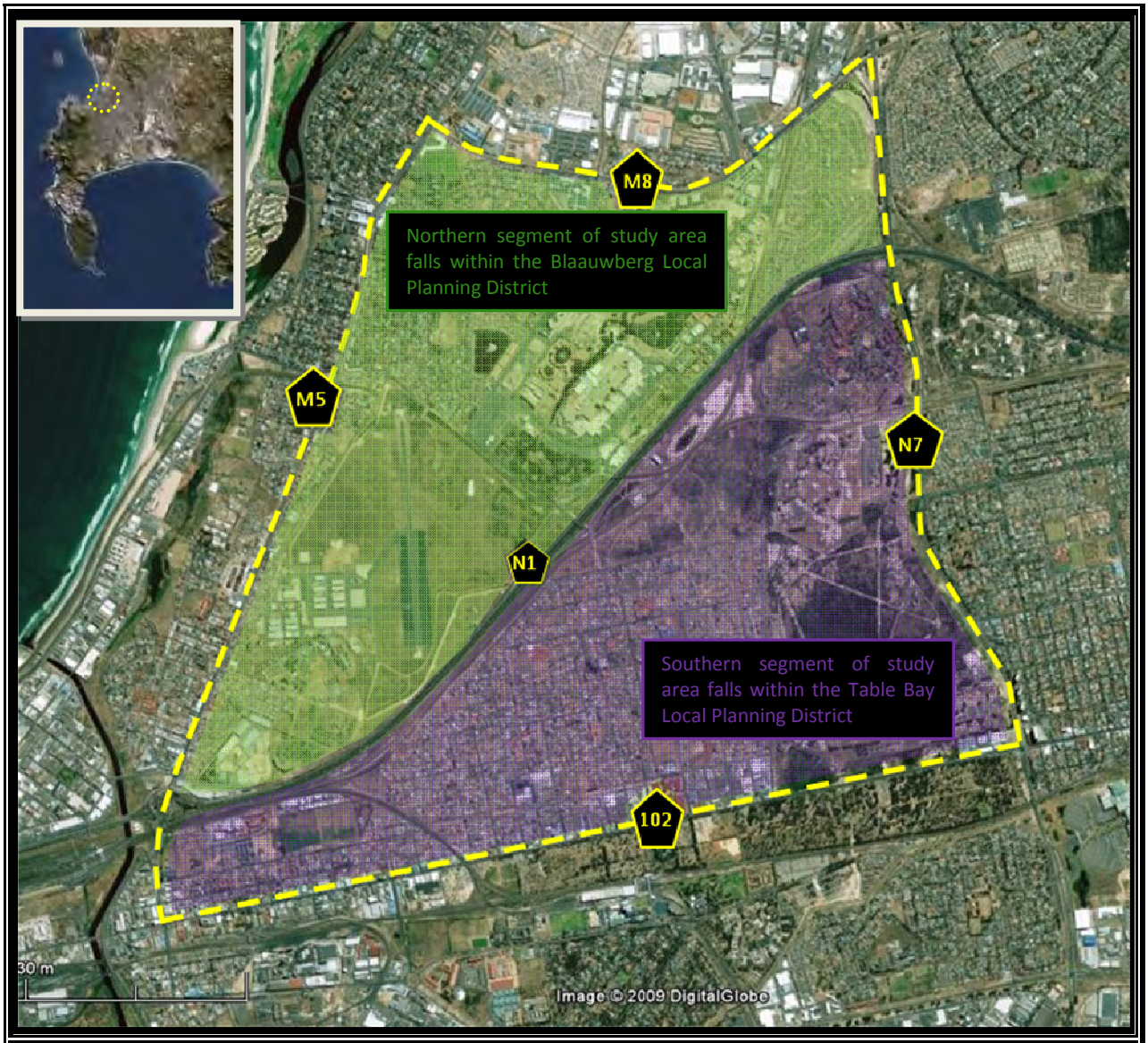
In recent times, against the backdrop of a spatially and socially divided city, private development has flourished across the City of Cape Town (CCT), taking advantage of well-serviced, accessible land to generate upmarket residential and business spaces with picturesque vistas. Consequently, the socio-economic disparities characteristic of South African cities continues to shape the CCT, perpetuating the segregation and spatial distortions that originate in modernist philosophy, ultimately affecting the overall city functioning. With this in mind, it is evident that there are major issues in specifying the nature of future development in the CCT. Additionally, from a planning perspective, it is fundamental to ascertain how to optimize land use and development for the benefit of the city at large.

The 'northern inner' district of the CCT has emerged, in some ways out of necessity, as a location of high development potential. It comprises both private and state-owned land, including that of the commercial Century City development and Ysterplaat Air Force Base, as well as deep-rooted low to middle income residential areas. The proximity of this site to major movement routes (i.e. the N1 and N7) and economic activities elicits a highly sought after parcel of land. However, it currently lacks coherent structure, resulting in the need for a sound development strategy to direct future growth in this locality. Through an assessment of the complexities of the urban system at the metropolitan scale, as well as an analysis and interpretation of local conditions, this dissertation aims to create a strategic spatial development framework (SDF), underlining the role and potential of the northern inner district of the CCT.

1.2. Scope & Study Area

As mentioned, the scope of this dissertation involves the development of a SDF proposal for the northern inner district of the CCT. The northern inner district is herein defined as the area bordered by, and including, Bosmansdam Road (M8) to the north, Vanguard Drive (N7) to the east, Voortrekker Road (102) to the south, and Koeberg Road (M5) to the west (map 1). The designated site straddles two of the eight local planning districts of the CCT, as defined by the Department of Planning

and Building Development Management. These include the Blaauwberg District in the north-west segment, and the Table Bay District in the south-east. Previous metropolitan SDFs fail to clarify the exact role of this site with respect to citywide development, resulting in tension and uncertainty over the future of the area. Through an investigation of local conditions and existing elements (including constraints and opportunities), a strategically focused development framework will be formulated hereinafter so as to direct and coordinate future development in this area, thus addressing the above mentioned point at issue.



1

Northern Inner District SDF

INTRODUCTION

Study Area

Scale: 1 : 25 000 at A3

Source: Google Earth 2009

1.3. Aims & Objectives

By means of an analysis and synthesis of the contextual realities of the city, this dissertation aims to define an SDF that may guide the development in the CCT's northern inner district. The site is situated at what is considered the base of the main growth axis of the city towards the north along the west coast. In addition, it has been considered as a hub for economic activity, with commercial activity along Voortrekker Road (City of Cape Town 2006a), as well as the Century City development. However, there is some debate over this point, as the presence of land parcels with large scale development potential lends this site to other possible uses which should be investigated. Thus, it is intended that the role of the area at metropolitan scale be determined so as to ensure that the district SDF is linked to the overall metropolitan development objectives.

Through a holistic approach, the aim is to identify the key development issues and hence, the development priorities that the SDF should focus on. In addition, this dissertation aims to consider the sectoral dynamics that influence development at the district level so that the SDF may deal with the constraints in an innovative way, while taking full advantage of opportunities. The use of planning tools to manage growth and change, as well as current and potential problems, are key in terms of achieving the goals of SDF. Hence, current development problems may be addressed through an appropriate planning response. In sum, the proposed SDF ultimately aims to maximise land potential, provide opportunities, aid economic growth and social development, maintain the integrity of the environment, and to promote integration of the urban space, thus creating a more efficient and equitable urban system.

1.4. Document Structure

This document comprises a collection of chapters that, together, constitute an SDF aimed at guiding the development of a sub-metropolitan district in the CCT that has particular significance in terms of development potential. The chapters are organised in a logical sequence based on the method used to produce a framework of this nature. Below is a brief outline of the content of this document. It should be noted, however, that a more detailed discussion of the method will follow in *chapter 2*.

The steps taken to produce the SDF comprise four stages: namely (i) analysis (*chapters 3-4*), (ii) synthesis (*chapter 5*), (iii) intervention (*chapter 8*) and (iv)

implementation (*chapter 9*). In order to move towards an SDF for the northern inner district of the CCT, a metropolitan scale (top-down) analysis is initially carried out. This elicits the general characteristics of the CCT in terms of socio-economic and demographic trends, and identifies patterns and elements of importance. The manner in which the trends manifest spatially, with respect to movement and growth within the urban space, are also brought forth. Consequently, the role that the site plays at the city scale may be surmised.

The metropolitan analysis essentially sets the scene for a more detailed, district scale (bottom-up) analysis. At this level, an in-depth contextual analysis of the individual urban sectors (i.e. demography, economy, infrastructure etc.) is carried out. This includes the description and explanation of processes and patterns, the identification of constraints and opportunities, as well as the contribution to sense of place from both biotic and abiotic factors within the site. The synthesis follows whereby the findings of the district analysis are paralleled with those of the metropolitan analysis. At this point a performance evaluation is carried out in terms of the planning values detailed in *section 1.5.* The 'overall' synthesis assists in drawing definitive conclusions regarding the focus of the SDF, as well as determining where investment should be directed and how to bring about citywide improvement.

A strategically focussed intervention is informed by the values that reflect the kinds of qualities that the CCT should embody and the standards of living the city should strive to provide. Using key informants, such as physical structuring elements, the urban space is organised so as to shift the spatial configuration of the city, resulting in more equitable conditions. The final stage comprises the implementation of the intervention, where programmes of action are ordered spatially and temporally. Included in this are the phasing, monitoring, and management of resources (i.e. time and budget). In addition, questions regarding the feasibility of the proposed intervention are also addressed.

Along with the stages as described above, this dissertation is supported with theoretical chapters including an appraisal of the city's existing development frameworks, a literature review and a survey of context specific precedent (*chapters 6-7*). Through a critical review of relevant theoretical and/or case study material, the nature of the plan and appropriate spatial strategies may be derived. Thus, using a

holistic approach to problem framing, a coherent normative framework with the relevant planning principles may be developed in order to direct future growth in the northern inner district of the CCT.

1.5. Values

The values comprise a set of criteria that are used to analyze and evaluate the performance of the CCT, as well as determine whether the capacity of the city's facilities and opportunities are adequate to meet society's current and future needs. Listed in no particular order, the central values which inform the SDF for the northern inner district of the CCT are **integration**, **access**, **efficiency**, **environmental integrity** and **equity**. These five values are described in more detail in the paragraphs below.

Firstly, **integration**, in the urban context, refers to the bringing together of different elements of the urban landscape in order to foster equality across ethnic, religious and social groups. It is necessary for all sectors to operate in synergy in order to create a city that performs positively, generating more opportunities than would otherwise arise should they operate in isolation (Dewar and Uytenbogaardt 2001). The knock-on effect of a positively performing urban system, according to Dewar and Uytenbogaardt, would be that poverty stricken communities would be able to access opportunities generated through the resources of the wealthy. Thus, an important aspect of city planning would be to promote positive relationships between the urban sectors, where mutual support would optimize each of their performance. The concept of integration is not restricted to the six sectors of an urban system. Integration between different government spheres is equally important so as to create a set of common goals which may guide collaborative efforts to improve aspects of the city environment. In this way, resources may be put to use in the most efficient manner, and a wider range of needs may be addressed and supported in order to have the most substantial positive effect on the human settlement (City of Cape Town 2006a).

Access relates strongly to the idea of equity and freedom. Access to economic activities, social services and facilities, natural resources and open space, are all necessary for a positive urban experience. The primary contributing factor of access is the availability, affordability and extensiveness of the public transport system. However, access cannot be restricted to 'access by motorized transport', and

pedestrian/cyclist routes, as well as provisions for the disabled need to be considered. By improving accessibility, we embrace diversity, promote job creation and enable the population to meet their basic needs.

Efficiency essentially entails the maximization of productivity with minimal wastage of time, space, energy and money. To contextualize, urban processes should be confined to a demarcated area (preventing urban sprawl and loss of natural habitat), that has suitable densities and mixed land use. Equally, efficiency is linked to the concept of industrial ecology, which refers to the interactions, energy flows and transformations between industrial and ecological systems (Garner and Keoleian 1995). The methods used in production processes use closed loop systems where waste outputs are reused as inputs, thus eliminating (or at least minimizing) the negative impact on the environment.

It is important to promote sustainable practices in order to maintain **environmental integrity**. According to the Global Footprint Network (2009), humanity is already exceeding planetary limits and ecological assets are becoming more critical. In addition, many countries are running ecological deficits. In other words, cities' ecological footprints[1] are larger than their own biocapacity[2]. "The global effort for sustainability will be won, or lost, in the world's cities". With the use of available technologies, "cities can reduce [the] demand on nature greatly" (id.). Should we continue with unsustainable practices, there could be dire effects for human settlements, such as ecosystem collapse, poverty and famine. Thus, in order to maintain environmental integrity and minimize human pressures on ecosystems, we must ensure that the ecological footprint of cities does not exceed their biocapacity. Therefore, it is important that strategic decision-making is informed by sustainable development principles.

Lastly, the interrelated nature of the urban space calls for a balance between environmental and social justice. Urban development should promote the physical, psychological, economic, developmental, cultural and social interests of the population equitably (National Environmental Management Act 1998). For example, poverty alleviation and the provision of basic services are crucial to achieve social **equity**. Land use and development must be in accordance with planning legislation so that equity is a

[1] The ecological footprint refers to the amount of ecological resources that are consumed in order to sustain a city (Global Footprint Network 2009).
[2] The capacity of the natural resource base to support life, measured in global hectares.

priority, and public interests are promoted over private interests. In addition, good governance is essential for the realization of social equity, with no room for discrimination.

It is from the above described values that one may consider what constitutes a good city. There is evidence that there is substantial spatial fragmentation within the CCT (illustrated, inter alia, by the distribution of wealth amongst citizens), and it is thus essential to cultivate a well functioning city where individuals can live, work and move with ease. To sustain the CCT's socio-economic development, investment decisions and creating opportunities need to be components that inform the district SDF. Taking into account the natural, built and cultural environments that interact within a city, the same values (as used to evaluate performance) will be used to guide an SDF in order to promote a diverse, liveable city. In addition, standard practices related to policy formation are essential to ensure that development initiatives allow the local communities to receive the maximum socio-economic benefit. These include participation, choice and transparency.

2. Research Method

2.1. Introduction

The purpose of this chapter is to detail the method and the particular steps taken in developing the SDF for the northern inner district. Described in this chapter is the approach to spatial planning used, information on the data employed to draw conclusions regarding the development needs of the study area, as well as the sources of material used for the literature review. The chapter concludes with a discussion of the limitations concerning the SDF.

2.2. Planning Approach

In developing the northern inner district SDF, the planning approach applied was that of *strategic spatial planning*. This approach inherently employs the technique of SWOT analysis, whereby the **s**trengths, **w**eaknesses, **o**pportunities and **t**hreats in the urban system are ascertained and subsequently used to guide the planning decisions of the SDF. The aim of strategic spatial plans, which are influenced by governance, is to encourage interactions whereby local actors collaborate to develop a shared vision for the future (Sartorio 2005). The result is context specific interventions aimed at achieving specific goals (id.). Due to development constraints resulting from limited resources, the strategic planning approach focuses on allocating these limited resources so as to achieve positive results in an efficient way. The strategic plan is by no means comprehensive in nature, nor does it create rigid spatial regulations that impose unequivocal restrictions on spatial development. Rather, through this approach, the desirable attributes of an urban space may be communicated to relevant stakeholders in order to encourage and influence private investments so as to create benefits for all socio-economic groups. Lastly, the strategic plan is cognisant of the future and allows a degree of flexibility, ensuring that the urban system is adaptable to changing socio-cultural, economic, environmental and political conditions. Hence, due to its practicality, the strategic approach to planning is herein employed.

2.3. Method & Data Collection

The method follows a systematic approach to urban development whereby the various social, economic, institutional and environmental aspects of the urban system are

considered collectively. Through a top-down/bottom-up approach, the CCT may be dealt with holistically, thus enabling the production of a practical, coherent development framework. As stated in *section 1.4*, the SDF comprises chapters on analysis, synthesis, intervention and implementation. In addition, a review of existing plans for the CCT and of relevant literature is included. Figure 1 below graphically illustrates the steps involved in producing the SDF, as well as their place in relation to one another. As shown, the main elements of each step is highlighted. In the following paragraphs, the key tasks involved in the development of the SDF are specified.

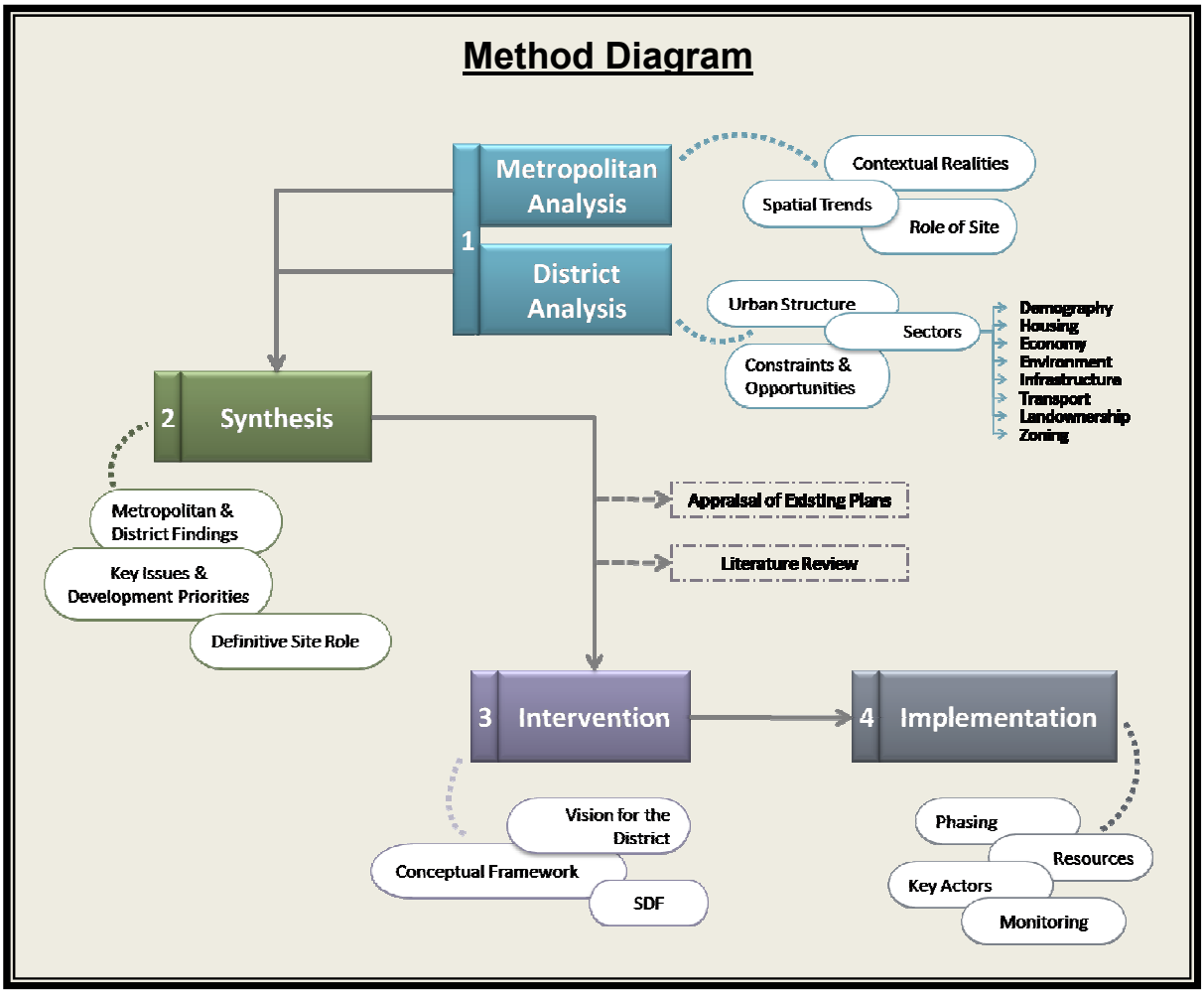


Figure 1: Method Diagram

2.3.1. Analysis & Synthesis

The process to develop the SDF commenced with the metropolitan analysis. This section was primarily carried out in the form of a desk-study, using government reports as a source of information regarding the circumstances within the CCT. Further information regarding demographics was gathered

from the Government Publications branch of the Chancellor Oppenheimer Library on UCT Upper Campus. This data is made available from SA Census 2001. In addition, maps for the metropolitan analysis were generated using Arcview 9.2 GIS (geographical information systems) software using shape files from the ENPAT (Environmental Potential Atlas) digital geographic database, made available to UCT for academic purposes from the Department of Environmental Affairs and Tourism. This section of the SDF was a 'quick and dirty' study of the contextual realities in the CCT which was followed up with the district analysis.

The district analysis is a much more in-depth study of the demographic, social, economic and environmental conditions specific to the study area. In addition, an assessment of the transport, infrastructure, landownership, zoning and land use in the northern inner district was carried out. The first task undertaken in the district analysis was to define the study area. This was done based on the physical characteristics of the area, as well as the development potential of the land. Once the study area was defined, the next step was to visit the site in order to gain an understanding of the dynamics of the area. This was carried out over a series of two days whereby a firsthand experience of the area was ascertained. Driving through the study area, a number of photographs were captured to be used as a visual source for communicating the characteristics of the northern inner district. This assisted in the formation of the visual form map (map 6) found in *chapter 4*.

The majority of the district analysis was carried out, as with the metropolitan analysis, as a desk study using the most recent scientific reports and government publications available (found either in the library or via an internet search) to gain an understanding of the urban system at the district scale. The various sectors of the urban system were examined independently of one another to elicit their respective strengths and weaknesses. Firstly, the natural environment, which consists of a number of biophysical 'layers' was examined. The primary source of information was that of ENPAT, which is used to illustrate the conservation significance of various areas within the northern inner district. Subsequently, the demography of the area was examined. The data used for this section is sourced from both SA Census 1996

and 2001. The use of both databases is beneficial to observe various trends in growth and development. The census data was used to produce bar graphs, population pyramids and pie charts in Microsoft Excel 2007, which were in turn used to illustrate spatial trends on an ENPAT aerial photo. A similar process was carried out in analyzing the housing in the study area.

Analyzing the economic activity in the northern inner district required additional information. Thus, some assistance was provided through both meetings and correspondence with a few government officials from the Department of Spatial Planning and Urban Design and the Department of Economic and Human Development, who provided various reports. The remainder of the analysis of the various sectors was based on ENPAT and Census data. Following the detailed analysis, maps illustrating the opportunities and constraints in the study area were produced using GIS, Microsoft Powerpoint and other graphics software, particularly that of Photoshop 6.0. Subsequently, using the key findings of both analyses, the synthesis was carried out whereby the definitive site role was ascertained. Again, maps were produced using GIS, Microsoft Powerpoint and Photoshop.

2.3.2. Appraisal of Plans & Literature Review

The next step involved reviewing the existing plans developed for the CCT. These plans include the Metropolitan SDF of 1996, the Municipal SDF of 1999, the Cape Town SDF of 2009, as well as the District plans of 2009. While there are other plans previously produced by the CCT, these are seen as the most pertinent in the context of developing the northern inner district SDF. The Metropolitan and Municipal SDFs were available from the Built Environment Library located in Centlivres Building, UCT Upper Campus. The most important images from these two plans used in this dissertation were digitized via scanning. Digital copies of the most recent SDFs (of 2009) were available and downloaded from the official CCT website (i.e. www.capetown.gov.za). Finally, as the boundaries of the CCT's demarcated planning districts cut across the northern inner district, the final spatial plan from each of the three district SDFs relevant to the study area were spliced together using Photoshop to gain a complete image of the spatial interventions proposed in and around the study area.

The literature review was subsequently carried out. The reference material used is primarily sourced from academic journals, textbooks from UCT libraries, conference papers accessed from the internet, NGO and government publications, as well as reports from international organizations such as the UN. More recent material was, in the case of the literature review, favoured over older writings. In particular, journal articles are mostly derived from the last 10 years. A number of key words were used in searching for relevant literature. These key words are listed, in no particular order, in table 1 below. The key words act as reference points from which relevant information was obtained. A number of articles were drawn on from various academic journals including, amongst others, *Urban Forum, Environment and Planning* and *Urban Affairs Review*. These, along with all other reference material utilized in this dissertation, are listed under 'references' using the Harvard system of referencing.

Key Words		
New Urbanism	Integrated development planning	Urban form
Informal trade	Urban agriculture	Housing policy
Sustainable development	Mixed-use	Socio-economic development
Urban open space	Transport orientated development	Land use
Gentrification	Corridor development	Low income housing

Table 1: Key Words used in Research

2.3.3. Intervention & Implementation

In the intervention, the first step was to define a vision for development in the northern inner district. This vision is based on the specified planning values and is influenced by the development potential in the northern inner district itself. Following this, a conceptual framework for the development of the study area is stipulated, whereby the desirable spatial characteristics of the area are described. Subsequently, the values and theoretical knowledge is converted into action through a series of spatial directives. These spatial directives are illustrated through a 'package of plans' (i.e. a series of maps) illustrating the interventions for each area of the urban system (e.g. economy, housing, etc.). These maps were drawn freehand on tracing paper and subsequently scanned and further developed in Photoshop. Each layer forms an overlay which, together, produce the final composite map illustrating the proposed spatial development of the northern inner district.

In order to determine the densities and population numbers that may be accommodated in the northern inner district, the areas where new development will occur have to be measured. Using the 1 : 25 000 aerial photo, Ysterplaat was measured as 260 hectares, and Acacia Park and Wingfield together equal 440 hectares. Thus, the total area available for new development is [260+440] 700 ha. Secondly, a land use budget was specified, allocating 40% as residential, 25% as commercial, 25% for facilities and 10% for access routes. Provided that 40% of the total area is allocated to residential land use, 280 ha [0.4x700] is available for residential development. Using the housing standards derived from the 'plot and block' exercise in *semester 1*, a list of housing typologies that may be used in the northern inner district is specified. These are illustrated by way of a table, together with *gross* densities and anticipated population numbers. The anticipated population is calculated under the assumption that average household size is 3 members per household. Thus, the maximum anticipated population that may be accommodated in new residential development is equal to the maximum population per hectare (by housing typology) multiplied by 280 hectares (total residential area). This is illustrated in the example below.

Using row housing:

Can achieve 30 - 60 dwelling units per hectare with this typology
Multiplied by average household size, **[3 x 30 ; 3 x 60]**
this translates to between 90 – 180 people per hectare
If there are 280 hectares of residential space, the maximum anticipated population is 50 400 **[180 x 280]**

Subsequently, three housing typologies (semi-detached, row housing and four-storey walk-ups) are identified as suitable for the northern inner district. Thus, the final population numbers in the northern inner district will be determined by the split between these typologies according to the specified development plan of the developer.

The final steps in the process of developing the northern inner district SDF are related to the implementation. The implementation is reliant upon a phasing scheme whereby various projects are undertaken at various stages in the development process. This phasing scheme is illustrated via a Gantt chart created in Microsoft Excel, illustrating the project directives relative to time.

Finally, the remaining aspects of the implementation needed to put the plan into action, including resource management, interdepartmental coordination, and monitoring and evaluation, are discussed, drawing from several other plans and publications.

2.4. Limitations

There were a small number of limitations encountered in developing the SDF. While these limitations did not significantly affect the process or outcome of the SDF, it is feasible that certain conclusions (related to qualitative and quantitative data) may be slightly less accurate. In addition to the limitations associated with the available data, this dissertation does not include a fundamental aspect of the planning process, i.e. that of public participation. These limitations are expanded upon below.

2.4.1. Limitations of Data

The first limitation experienced while undertaking the task of district analysis was related to the census data. The most recent census data available through the library was that of 2001. This out-of-date data is seen as a disadvantage in developing the SDF for the northern inner district as socio-economic, demographic etc. conditions in the study area may have changed significantly over the past eight or nine years. Hence, as the best option available for the district analysis, the Census 2001 had to be used. In addition, the reliability of the data is somewhat questionable due to a small number of discrepancies found when comparing various indicators (such as education levels) within the dataset. Another issue with data is related to the GIS. Again, the shape files used to produce maps in GIS are out-of-date and do not accurately show much of the new development that has occurred within the study area in recent years. Nevertheless, the aerial photo made available from the UCT GIS Department was useful in providing an alternative, more up-to-date source to be used in the analysis.

2.4.2. Public Participation

Due to the fact that this is an academic exercise, no provisions have been made to include public participation in the development of the northern inner district SDF. Obviously, consultation with various stakeholders, including community leaders and businesses etc., is crucial in democratic governance. Thus, public

participation should be a fundamental aspect in developing the SDF to ensure a collaborative effort in effecting equitable growth and development. In reality, a public participation forum would be set up at the start of, and at various other stages of the SDF process, so that stakeholders may express their views and concerns, thereby influencing decision-making. In addition, public participation expands collective knowledge as information on local conditions is divulged, thereby improving the objectives and outcomes of the planning initiatives.

2.4.3. Other Limitations

Other relevant information that should play a role in developing the SDF is that of building plans submitted to, and building plans approved by the city council. This information was unfortunately not available for use in this dissertation. Also, an important element relevant to the SDF is that of impact assessments. Whilst an environmental analysis at the district scale is carried out, a supplementary EIA (environmental impact assessment), SIA (social impact assessment) and HIA (heritage impact assessment) are advised in order to determine the likely impacts of the proposed SDF.

2.5. Conclusion

Developing the SDF was done in a methodical and logical manner, drawing on a range of information sources in order to produce a feasible plan to develop to northern inner district. As demonstrated during the course of the discussion, the development of an SDF involves an array of tasks, each of which was systematically approached, taking into account all conceivable aspects relevant to the SDF for the study area. While there are a small number of limitations to the SDF, the method followed has elicited a coherent, plausible plan that may produce positive results and improve the socio-spatial conditions in the northern inner district.

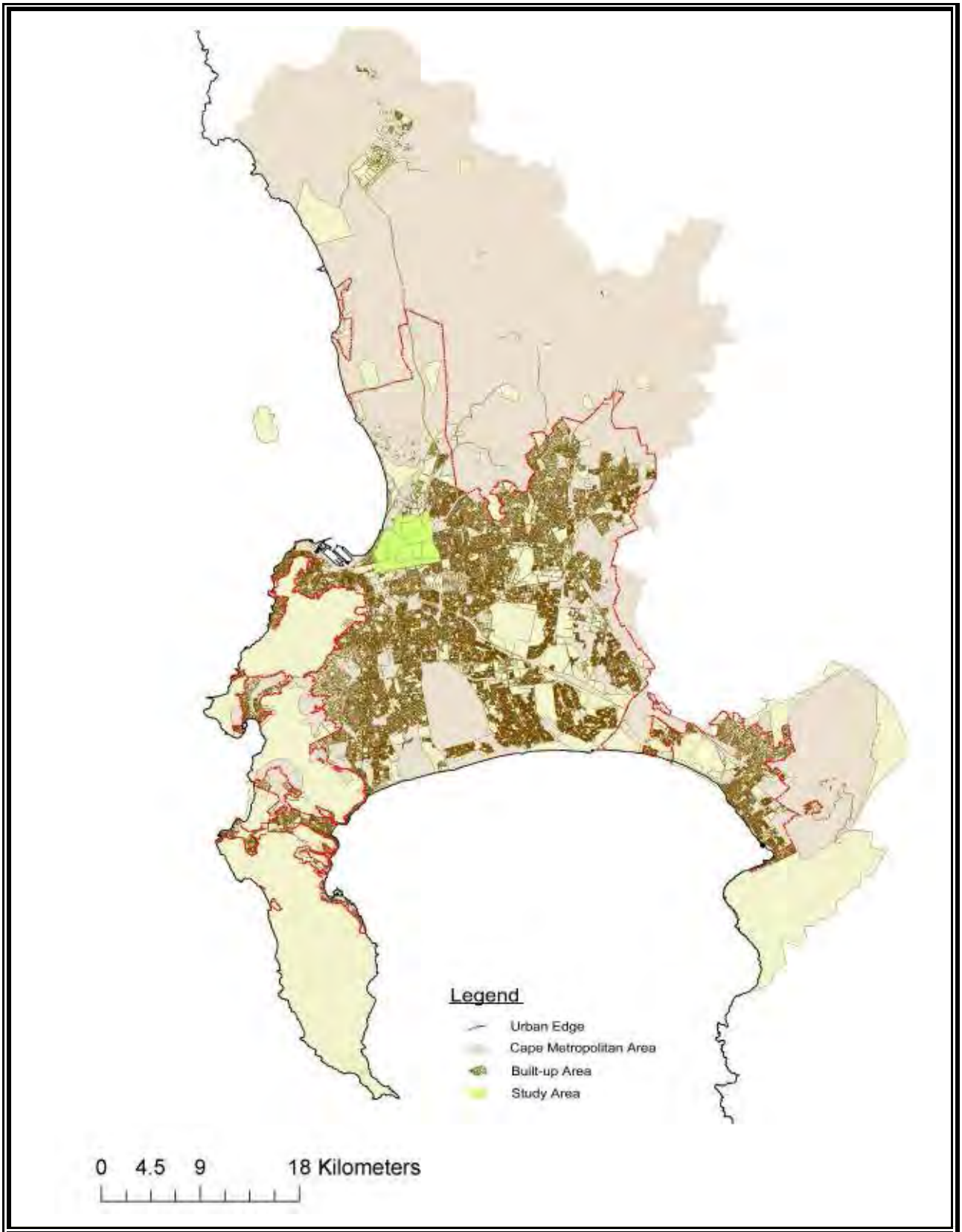
3. Metropolitan Analysis

3.1. Introduction

In keeping with the objectives and method as described in the previous chapters, the first step en route to an SDF is the analysis at the metropolitan scale, followed by the district analysis (*chapter 4*). The metropolitan analysis takes account of the contextual realities and spatial trends that affect the growth and change of the CCT. A systematic analysis of the urban characteristics (both socio-economic and spatial) elicits a general understanding of the development problems that confront the city, and this in turn will allow the formulation of proposed roles for the site from a metropolitan perspective. Ultimately, this chapter aims to recognize the development trends that may influence the kinds of investments that are needed in order to improve the city. In addition, the role of the site at the metropolitan scale is considered so as to ensure that the district SDF contributes to metropolitan development objectives.

3.2. Overview of the City of Cape Town

The CCT (map 2), the legislative capital of South Africa, is a medium sized city with a population of approximately 3.4 million residents, as of 2007 (City of Cape Town 2008a), from a range of demographic and socio-economic backgrounds. It has a relatively diversified economy by international standards, with manufacturing, trade and tourism accounting for almost half of the gross geographic product (GGP). The urban footprint of the CCT has almost doubled since the 1980s, extending inland in northerly and easterly directions, and the population is expected to grow by one million people in the next 15 years (City of Cape Town 2006a). This projected growth has obvious implications for the city's carrying capacity. At present, the CCT is beginning to experience the pressures of increasing demand for energy, water, as well as sanitation services. In addition, the legacy of Apartheid, expressed in the dichotomy of private, upmarket development and run-down, poverty-stricken areas, has generated and fuelled social problems such as crime. The CCT is not facing new or unique problems (Cape Metropolitan Council 1996). However, due to market forces and uncoordinated development initiatives, the spatial disparities in the city have persisted. Thus a differentiated, strategic approach is required in order to rectify socio-spatial distortions, resulting in a more efficient, integrated city.



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Northern Inner District SDF

METRO ANALYSIS

The City of Cape Town & Environs

Scale: 1 : 270 000 at A3

Source: ENPAT DEAT

3.3. Contextual Realities

A 'quick and dirty' analysis of the CCT is carried out so as to gain an initial understanding of the prevailing conditions and trends. Factors relating to demographics, economics, environment and infrastructure are considered and used to communicate the patterns and trends of social development in the city. Firstly, the CCT is characterised by a diverse demographic pattern. As shown in figure 2a, the African and Coloured groups account for 80% of the population, while the remaining 20% is comprised of Whites and Indians[3], with a relatively even split amongst males and females (figure 2b). The social divide in the CCT is shown by the income discrepancies between different population groups. A much higher proportion of the African and Coloured population earn a low income (figure 2c). These circumstances are illustrated spatially in map 3.

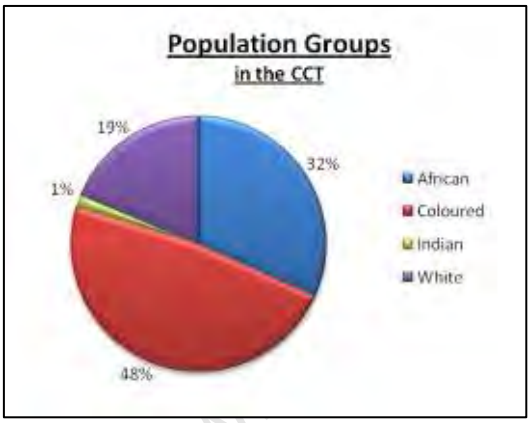


Figure 2a: Population Groups (Census 2001)

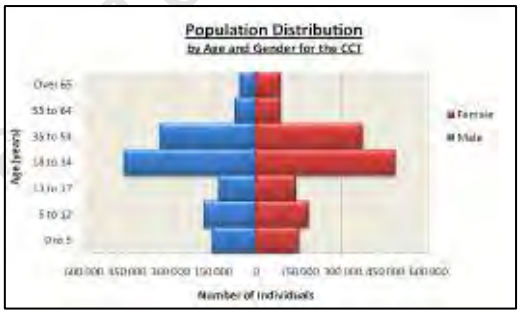


Figure 2b: Population Distribution (Census 2001)

The high level of poverty is also related to rural-urban migration. As with other urban centres in the country, in-migration from rural areas has had noticeable impacts on the city, as workers travel in search of employment opportunities. These are mostly low-skilled workers coming from as far as the Eastern Cape to earn an income in the manufacturing, agriculture and construction industries. However, these sectors have declined while trade, retail and other services dominate the local economic sector. As a result, levels of

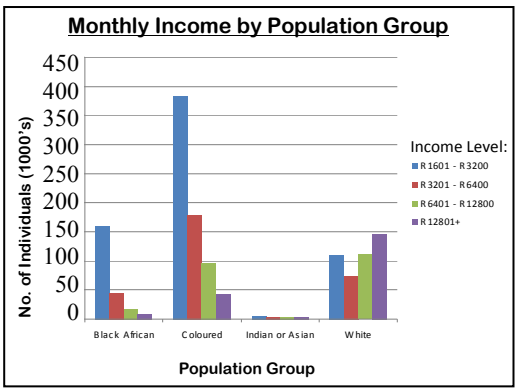
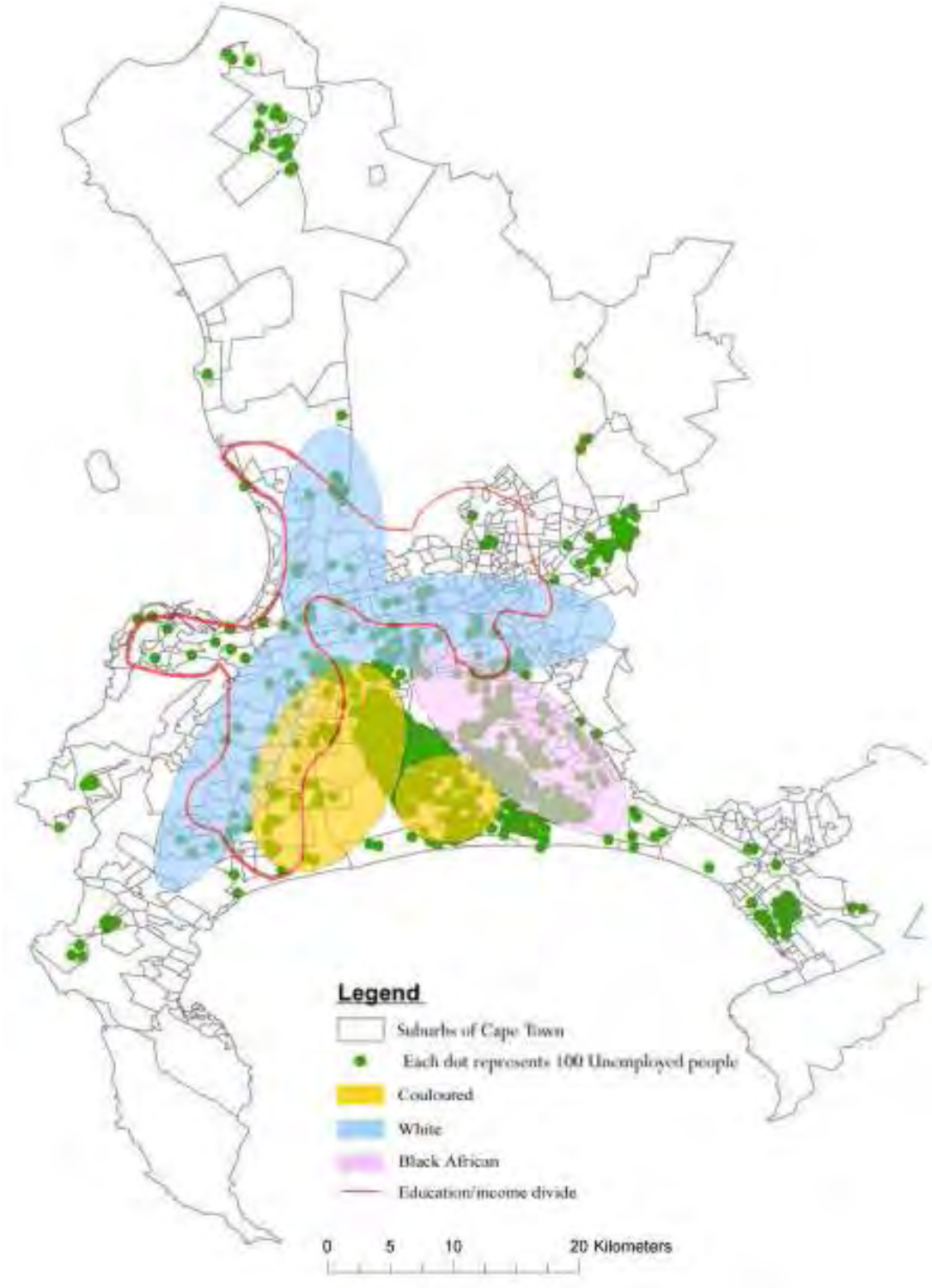


Figure 2c: Monthly Income (Census 2001)

[3] City data extracted from Census 2001.



3

Northern Inner District SDF

METRO ANALYSIS

Demographic Trends

Scale: 1 : 250 000 at A3

Source: Census 2001; ENPAT DEAT

unemployment (~17% in 2007) have increased as the available jobs require more specialized skills (Department of Provincial and Local Government 2004). The current global economic climate has also had a local effect. Layoffs have exacerbated the unemployment levels of late, thus worsening an already considerable rate of roughly 38.5% of the population who live under the international poverty level of R19200 pa (figure 3). The majority of this 38.5% resides in informal settlements.

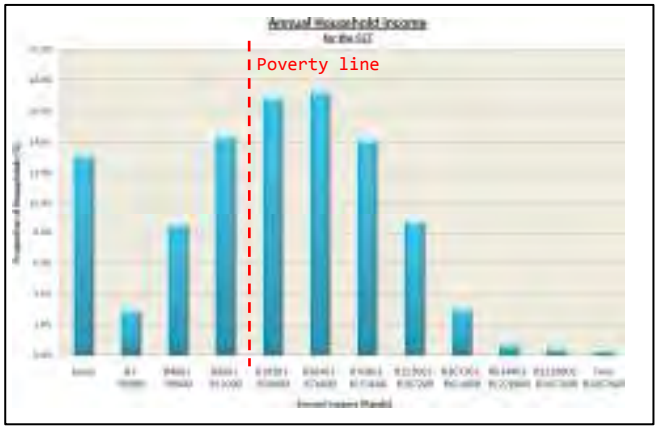


Figure 3: Annual Household Income (Census 2001)

The city's transportation occurs primarily through private automobile or public transport in the form of buses, mini-bus taxis and trains (figure 4). Due to the nature of city development and the eccentric locality of the central business district (CBD), a bottleneck naturally occurs where all routes meet (map 4) when commuters move between their place of residence and place of work. The problems faced by commuters is the reality for both the marginalized poor and the more affluent suburbanites. This affects traffic across the city, especially during peak hours. The increased congestion on the roads impacts on quality of life, wastes productive time, decreases performance and has negative effects on air quality (City of Cape Town 2006a). Transport by rail is also problematic, with overcrowding, infrequency and unreliability of trains often deterring commuters from using this mode of transport. The radial transport network primarily operates to and from the CBD, with less (public) transport access to other parts of the city, another reason for the necessity for private vehicle use. In more recent times, movement has shifted towards a north-south pattern as blue-collar workers from the south-eastern region of the city are accessing opportunities in the rapidly developing areas along the northern development axis. As a result, the N7 route is increasingly taxed by traffic demands.

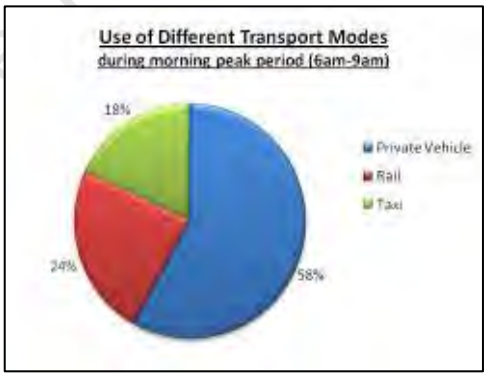
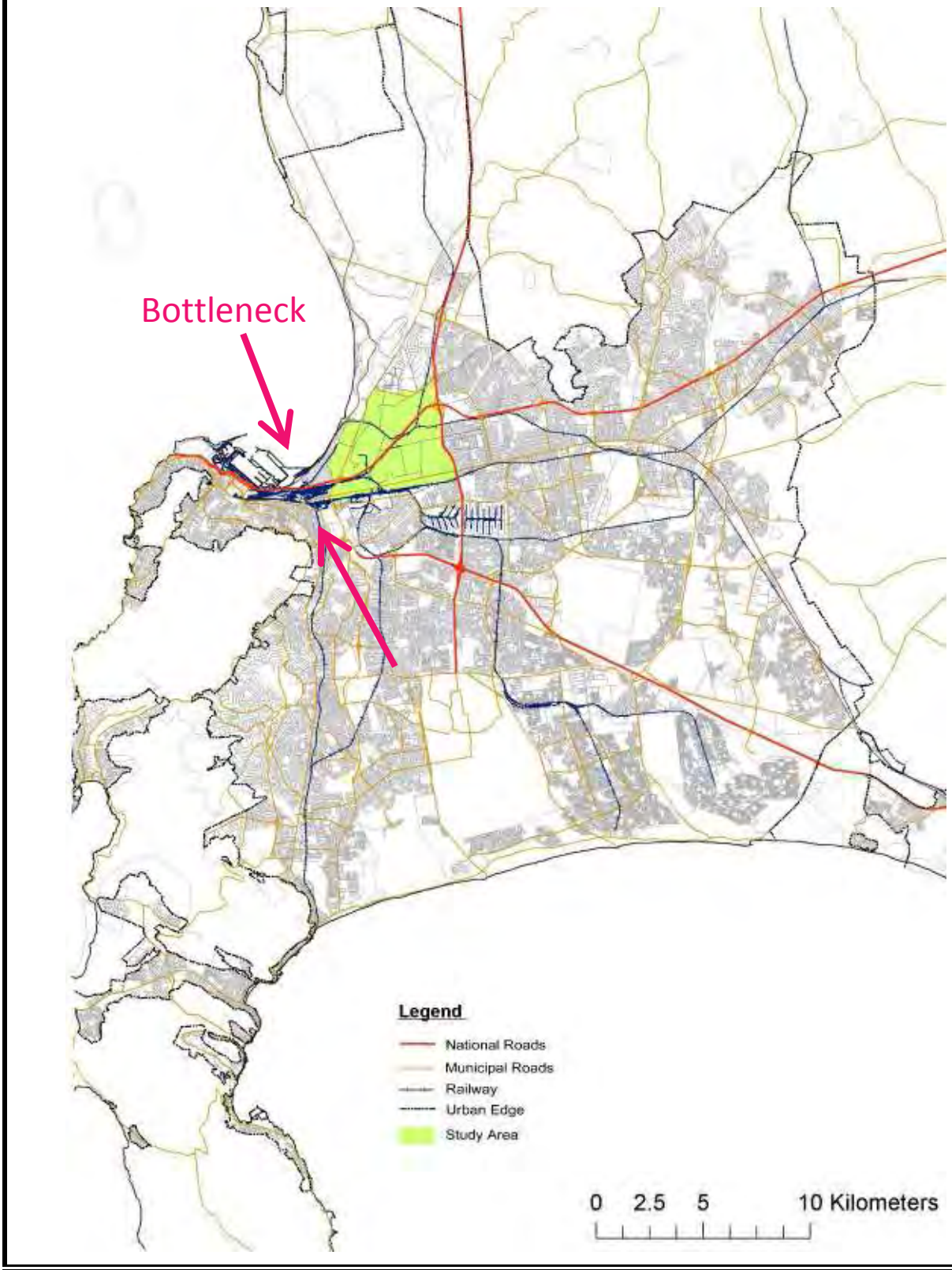


Figure 4: Use of Transport Modes (Census 2001)



4

Northern Inner District SDF

METRO ANALYSIS

Major Transport Routes

Scale: 1 : 148 000 at A3

Source: ENPAT DEAT

In 2004, the proportion of individuals using public transport had decreased to 39%, from the previous 49% in 1991. The use of private transport increased by 4% during the same time period, as did walking, from 7 to 13%. In addition, the use of buses halved in 1991, from 16% to only 7%, and rail usage decreased at a rate of 2.2% pa since 1997. Clearly, the use of public transport has decreased steadily, partly in response to the increasing car culture in the CCT, but also due to inefficient public transport provisions. However, there are plans to reverse this trend and the city aims to decrease private transport from the current 52% to 43% (of commuters), and increase public transport from 48% to 57% by 2020. It is estimated that individuals are also increasingly using non-motorized forms of transport as a result of high fuel costs. With this evidence, it is clear that trends have shown a shift toward private vehicle use. However, this has had increasingly negative impacts on citywide movement as urban sprawl forces more workers to travel long distances to and from their place of work and place of residence. In order to correct these current trends, the spatial reconfiguration, as well as an improved public transit system, is necessary.

There are approximately 904 000 dwellings existing in the CCT. The gross dwelling unit density in the CCT is ~ 1,200 dwelling units/km^2 (City of Cape Town 2008a). The trend in residential developments seen in the city at present is one of very diverse dwelling types with no continuity in urban fabric. 48.9% are free standing houses, 7.4% are flats, 11.8% are town houses and 22.5% are informal dwellings (Census 2001). It is in these informal areas that basic service provisions, such as water, electricity and sanitation are very poor, with about 60% of households having no access to these essentials (Census 2001).

According to the City of Cape Town (2001b), there are no storm water problems in the northern parts of the city (i.e. including the location of the study area). Electricity and sewer lines are widespread, however, bulk infrastructure investment is needed along the northern growth axis to accommodate the growth pressures (City of Cape Town 2006a). One of the primary constraints on urban intensification is the capacity of waste water treatment plants (WWTP). As shown in figure 5, WWTP are overloaded. Due to the location of the study area, the WWTP likely to accommodate new developments in the area are the Athlone and Potsdam WWTP. As a result of the current and potential pressures on sanitation infrastructure, the Potsdam plant

(capacity of 32 Mℓ/day) is currently being extended to 47 Mℓ/day so as cope with demand (City of Cape Town 2001b).

The water in the CCT is supplied by several dams located outside the metropolitan boundary, of which the total storage capacity is just under 900,000 Mℓ. The current water demand by the CCT is around 851 Mℓ/day (or 310,615 Mℓ pa), of which residential usage accounts for 50% (City of Cape Town 2001b). Thus the water storage capacity is currently sufficient, however with long term rainfall variability, as well as an increasing population, water demand will surpass supply sometime between 2020-2030 (City of Cape Town 2001a) unless additional provisions are made. Thus, as can be seen from the above data, the infrastructure problems relate to capacity, and with a growing population and urban footprint, the capacity of infrastructure will need to be carefully considered.

Figure 5: Waste Water Capacity (City of Cape Town 2001b)

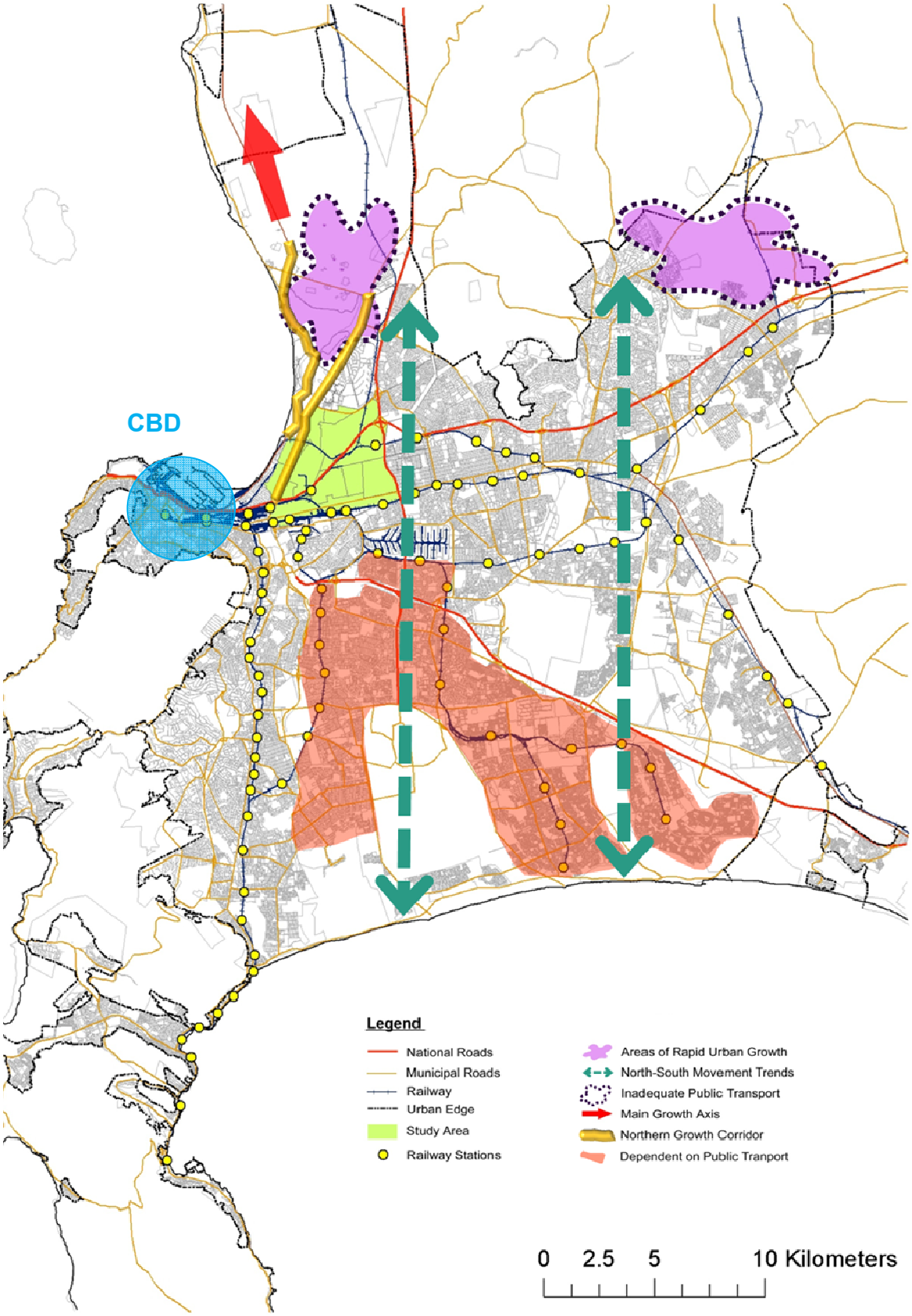
The spatial problems currently seen in the CCT are largely embedded in its historical context. Previously under the Apartheid regime, people of colour were banished from well located areas with access to various urban opportunities, to marginalized areas that lacked education, health, economic and other facilities and services. The spatial distribution of economic activity across the city is such that there are very few opportunities in these poverty-stricken areas. Major activity nodes are located far from the poor, thus a significant portion of their income is spent on transport costs to access urban opportunities. Also, government subsidized low-cost housing is built on the outskirts of the city due to the lack of available land and high land prices. At present, private investment is not being directed into the south eastern region of the CCT. Private development is occurring at a high rate along the west coast (main growth axis), as well as inland towards the Durbanville Hills (map 5). This, along with expanding informal settlements, is contributing to urban sprawl. On the whole, the division between the poor and wealthy has persisted, and even increased due to the historical spatial structure of the CCT. Thus, planning intervention is necessary in order to redress the balance between middle/high income development and that of providing acceptable living standards for the poor.

3.4. Site Role

The contextual realities and trends that are encountered in the CCT present a set of spatial problems that may be mitigated, and possibly corrected in the long term. Through an SDF for the northern inner district, prime parcels of land may be reconfigured so as to address the spatial and social inequalities in the CCT, thus proactively providing a more equitable urban space. The characteristics and location of the northern inner district lends itself to several development potentialities. Firstly, the high level of accessibility increases development potential in the area, thus attracting developers. As a result, the northern inner district could develop, without intervention, as an extension of Century City, creating 'luxury' accommodation accompanied by entertainment, social and economic facilities and services. Conversely, the presence of government owned land opens the possibility of relocating low income households from the Cape Flats closer to economic opportunities. This could potentially have positive impacts on the social development in the city, however there are several issues that need to be considered in order to determine if this is a viable option. For instance, the types of skills that the poor possess may not be adequate to meet the requirements of the available jobs in the area. In addition, the impact on social dynamics would need to be considered, such as the perceptions of worsening crime in the area. A third possibility is to allocate the land to low/middle income housing so as to absorb the residential overflow of surrounding suburbs such as Kensington. Either way, the development that takes place in the designated site should comply with the planning values discussed in *chapter 1*, having sufficient densities and mixed land use. The development options will be further explored subsequent to the district analysis, wherein the constraints and opportunities of the district will be discussed.

3.5. Interpretation

An assessment of the socio-spatial issues that characterize the CCT elicits the following findings: the population is steadily growing, most of which occurs in the poorest communities; the least skilled workers are located in the poorest areas (Cape Flats), while skilled workers settle in more affluent areas, thus contributing to urban sprawl; the main growth of the local economy has been around skilled jobs, thus excluding a large part of the workforce and having no impact on alleviating poverty; private investment has remained in established areas while public investment has not been able to match demand for housing and services, thus perpetuating citywide



Northern Inner District SDF

5 METRO ANALYSIS

Key Spatial Trends

Scale: 1 : 148 000 at A3

Source: Census 2001; ENPAT DEAT; City of Cape Town 2006a

inequality (Department of Provincial and Local Government 2004). The radial rail and road pattern has had the effect of a limited north-south link, thus does not adequately accommodate the multi-directional movement patterns which have emerged with the dispersal of commercial, employment and residential activity (City of Cape Town 2006a). In addition, low density development across the city does not support an efficient metropolitan public transport system and service. Hence, those who are dependent on public transport must rely on the current, unreliable and uncoordinated public transport system to access the majority of economic opportunities that are located towards the rapidly developing areas (id.).

According to the City of Cape Town (2006a), there are "a number of large, state-owned sites that are vacant, underutilised or inappropriately used that could potentially create and/or reinforce opportunities and services in the area" (p. 35). These include Ysterplaat and Wingfield, both of which are located within the study area. With the city's limited expansion potential due to surrounding agricultural land, these sites could potentially be used for intensified, mixed-use development. In addition, the current settlement patterns of uncoordinated private and public sector housing are unsustainable, and with an estimated annual growth rate in excess of 15,000 households, as well as the housing backlog of >260 000 units (id.), the CCT's future development potential will be limited should this trend continue.

The key spatial trends in the CCT are illustrated in map 5 above, and indicate that without intervention, the development path of the city will continue to foster increasing inequalities between the poor and the more wealthy. Thus planning interventions need to address both the *spatial* problems of urban sprawl, low dwelling densities, the pressures on the transport network, and locating the poor on marginalised land, as well as the *developmental* problems of job creation, food security, housing and service provision. Adopting a proactive approach towards creating an equitable urban system (according to the values as discussed in *section 1.5*) is hence essential to the development of an SDF.

The CCT is a divided city characterized by spatial disparities and social exclusion, where the wealthy have ample opportunities and the poor are forced into economically sterile environments. The findings as discussed above indicate that despite public investment in housing and infrastructure, the socio-spatial problems

that the CCT faces have persisted and, in some cases, worsened. In order to alter the current development path of the city and to address both the spatial and development problems that exist, a differentiated, strategic approach is needed. This will promote urban integration and socio-economic development, thus providing better service delivery to ensure that everyone reaches suitable living conditions. The role of the northern inner district, as discussed, should focus on providing better access to urban opportunities. Through appropriate mixed-use development, it is intended that the northern inner district influence the restructuring of the CCT so as to support a more efficient urban system.

3.6. Conclusion

This chapter serves to illustrate the nature of the socio-spatial trends in the CCT and how they may affect the type of development of the northern inner district. The metropolitan analysis of the CCT provides a general understanding of the contextual realities of the city, as well as some insight into the potential for future development. This understanding of the metropolitan as a whole provides the basis on which further evaluation and decisions regarding the study area may be made. Subsequent to the metropolitan analysis, the district analysis looks at the study area in more depth, evaluating the individual sectors at the local scale.

4. District Analysis

4.1. Introduction

Equipped with an understanding of the major trends in the CCT, as discussed in the metropolitan analysis (*chapter 3*), a further, in-depth analysis of the study area is undertaken. Firstly, the structure and form of the northern inner district is examined. Subsequently, the urban sectors, including environment, demography, housing, economy, infrastructure, transport, landownership and zoning are evaluated at the district level. Through this evaluation, the contextual realities and key development concerns of the northern inner district are brought to light, eliciting an understanding of the current trends and patterns of growth and change. The process of 'problem framing' occurs through a systematic analysis of the local circumstances, and thus enables the formation of decisions regarding the direction of future development in the area.

4.2. Defining the Study Area

As mentioned in *section 1.2*, the northern inner district is herein defined as the area contained within Koeberg Road (M5), Bosmansdam Road (M8), Vanguard Drive (N7) and Voortrekker Road (102), inclusive, totalling approximately 1,900ha (19km^2). The designated site has been delineated according to the following rationales. Firstly, the study area is delineated primarily based on the main structuring element, i.e. the major access routes surrounding the site. While set as the boundaries of the study area, these routes (M5, M8, N7, 102) in practice form 'permeable' edges through which material flows continually occur. In addition, the site is strategically selected as it contains within its limits what are considered two important, high-potential parcels of land, namely Ysterplaat and Wingfield. Furthermore, the area is serviced with adequate infrastructure and has a good level of accessibility via the N1, railway, as well as the above mentioned surrounding access routes.

4.3. Urban Structure & Form

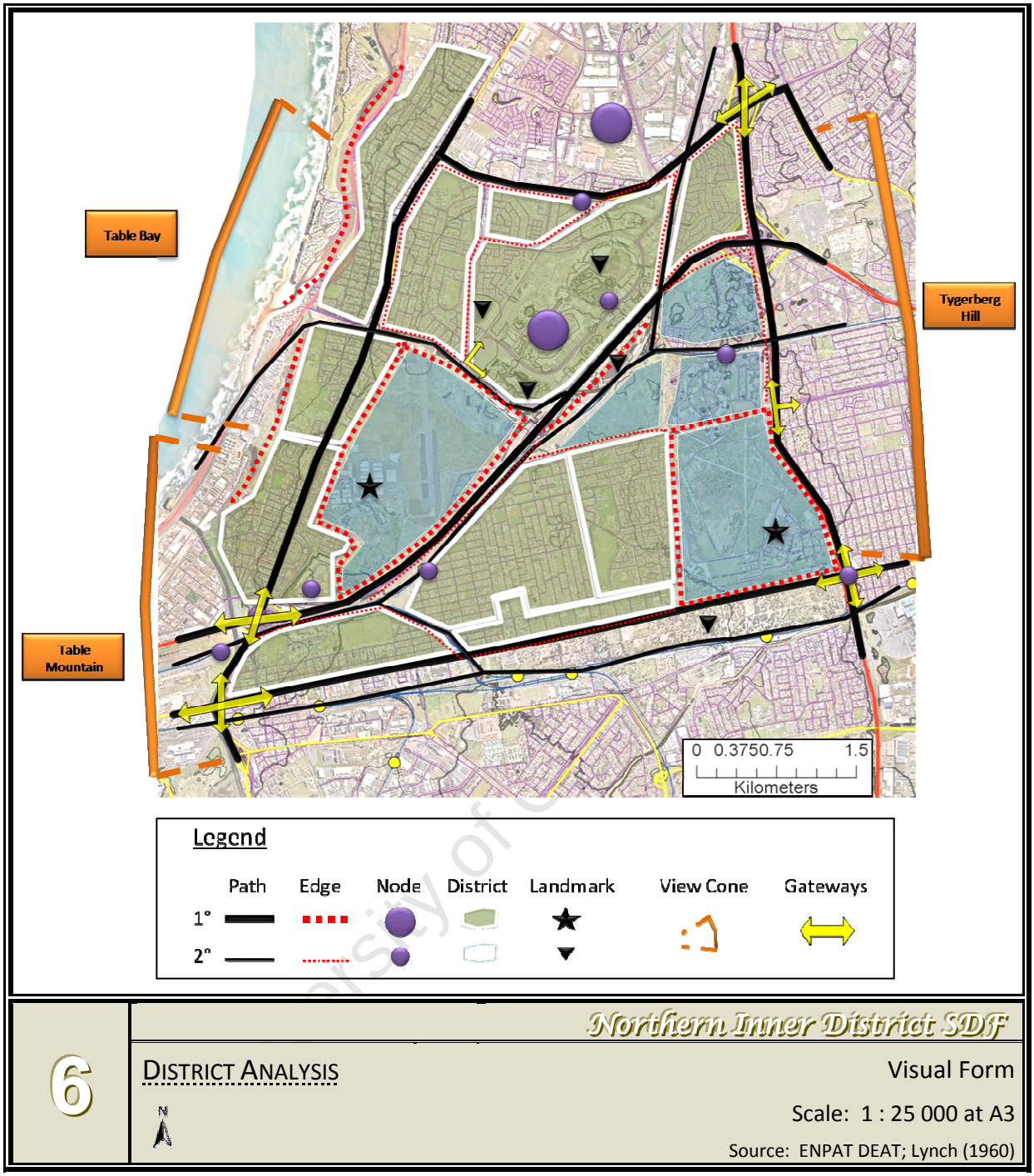
The structure and form of an urban space profoundly affects the accessibility to opportunities. These opportunities manifest as a result of the agglomeration of masses of people (Dewar et al. 1990). Thus structure and form are important factors to consider in the analysis at the district level. According to Bosselman (2008), a

city's structure and form is rooted in its natural history, where the terrain and surface water guide the construction of roads and buildings, and city development. Within the northern inner district, the terrain is quite uniform right through the study area. The slope is approximately 0.5° (1:185) measured across the centre of the site from east to west, towards the coast. The development and orientation of the northern inner district is based on the organization of the primary structuring elements, i.e. the historic Voortrekker Road and N1 routes. The N1 forms the main axis running in an east-west direction, with the N7 and Koeberg Road forming the main north-south axes. While the major movement routes create an irregular figure around the study area, local roads, particularly in the older districts, mostly conform to a grid pattern, with some variation.

As described by Lynch (1960), the physical forms of an urban space can be classified into five categories, namely paths, edges, districts, nodes and landmarks. These elements are the building blocks of urban structure. They may be defined as follows:

- *Paths* – elements that provide routes along which movement regularly, occasionally or potentially occurs. Paths are often predominant elements in the urban space, to which other elements relate.
- *Edges* – less dominant, linear elements that are not regarded as paths in the urban space. They act as boundaries between discrete zones, holding together generalised areas.
- *Districts* – medium to large sections of a city, areas having some common identifying character.
- *Nodes* – strategic (focal) point features into which an observer can enter, focus of to and from where a commuter is travelling. May be junctions between paths or concentrations of some activity.
- *Landmarks* – another point feature, however, they are external and are not entered into. Defined as physical objects that act as clues to identity and structure, acting as clear reference points for orientation.

Map 6 below illustrates the conceptual visual form of the northern inner district, drawing attention to the various elements within the study area. These elements may be classified into first tier (1°) and second tier (2°) elements as a means of categorizing different features. Lynch's definitions, as discussed above, have been



drawn on to define the main road routes as 1° paths, while the railway routes are defined as 2° paths[4]. Edges occur along predominant boundaries, thus separating various districts. For example, 1° edges occur around Ysterplaat and Wingfield, while 2° edges occur adjacent the Maitland cemetery and around Century City's gated communities. 1° districts are found where development, both commercial and residential, has occurred. In contrast, 2° districts are herein defined as the

[4] This classification between roads and railway is based on the fact that more areas are accessible via the road network.

undeveloped, open spaces. 1° nodes are found at Century City and Montague Gardens industrial area, while 2° nodes occur at other, smaller points of commercial concentration, as well as transport junctions. Lastly, several landmarks are visible, including Ysterplaat and Wingfield bases (1°), as well as Maitland Cemetery and various vleis (2°). In addition to the above mentioned elements, gateways and viewpoints may be perceived within the landscape. The major gateways (exit and entry points between districts) are shown in map 6, occurring predominantly at major intersections. Furthermore, the study area has good views of Table Mountain (figure 6a), Tygerberg Hill (figure 6b) and Table Bay, particularly from high-rise buildings.

Figure 6a: View of Table Mountain from the N1

Figure 6b: View of Tygerberg Hill with Factreton in the foreground

4.4. Urban Sectors

At the district level, the urban space is separated into the various sectors which constitute the workings of the area. A desk study analysis of the *environment*, *demography*, *housing*, *economy*, *infrastructure*, *transport*, *landownership* and *zoning*, is undertaken independent of one another in order to gain an understanding of the development trends of each, as well as the major driving forces that influence these trends. Consequently, any issues that have arisen, with respect to development, may be dealt with. In reality, these sectors do not operate in isolation, and people, information, goods and services continually flow across sectoral lines, thus this analysis is somewhat superficial. However, it is through this process that the most pertinent issues within the northern inner district may come to light.

4.4.1. Environment

The analysis of the environment is the first step in the district analysis as environmental constraints and opportunities are the primary guidelines that inform urban development. The analysis includes that of both abiotic and

biotic factors of the landscape in order to determine the attributes significant to urban development. In turn, the suitability[5] of the land may be determined. As with the analysis of all the urban sectors, the environmental analysis follows the method of firstly identifying the prominent patterns and trends within the sector. Furthermore, the analysis aims to determine any local problems, as well as the implications these problems may pose for further development in the northern inner district.

The environment constitutes a complex package of biophysical 'layers' that operate and interact in tandem, and hence produce a specific landscape type. The elements comprising the landscape include geology, topography, soil, hydrology, climate, as well as flora and fauna. Figure 7 alongside diagrammatically illustrates the relationship between the natural elements, where geology and soil types, as well as hydrology, influence the topography. Additionally, macro- and microclimate influence the biota of a given area. The combination of various types of natural elements thus elicits the possible land uses suitable for a particular parcel of land. A discussion of the characteristics of the biophysical environment follows.

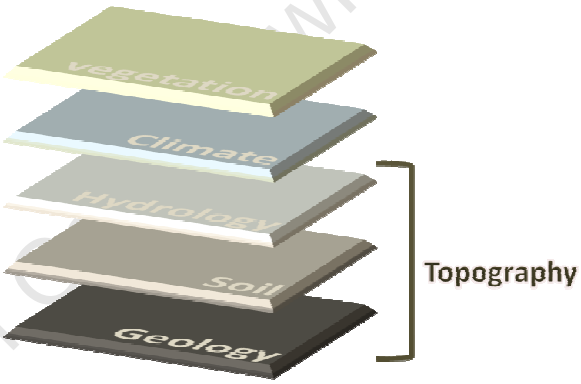


Figure 7: Relationship Between Biophysical Elements

The northern inner district falls within the coastal plains of the Cape Town area. The geology is homogenous within the entire study area. The area is underlain with quaternary aeolian deposits of mainly quartz sedimentary rock (Compton 2004). The weathering of this type of geology results in medium to fine quartzose sands (Theron and Siegfried 1992). The properties of this soil type are illustrated in table 1 below. As described by Stapelberg (2005), soil properties include low-medium expansiveness and low collapse potential. This soil type is slightly acidic, however, a low conductivity measure indicates that

[5] The land suitability is defined as the fitness of a given tract of land for a specified use (Steiner 1991).

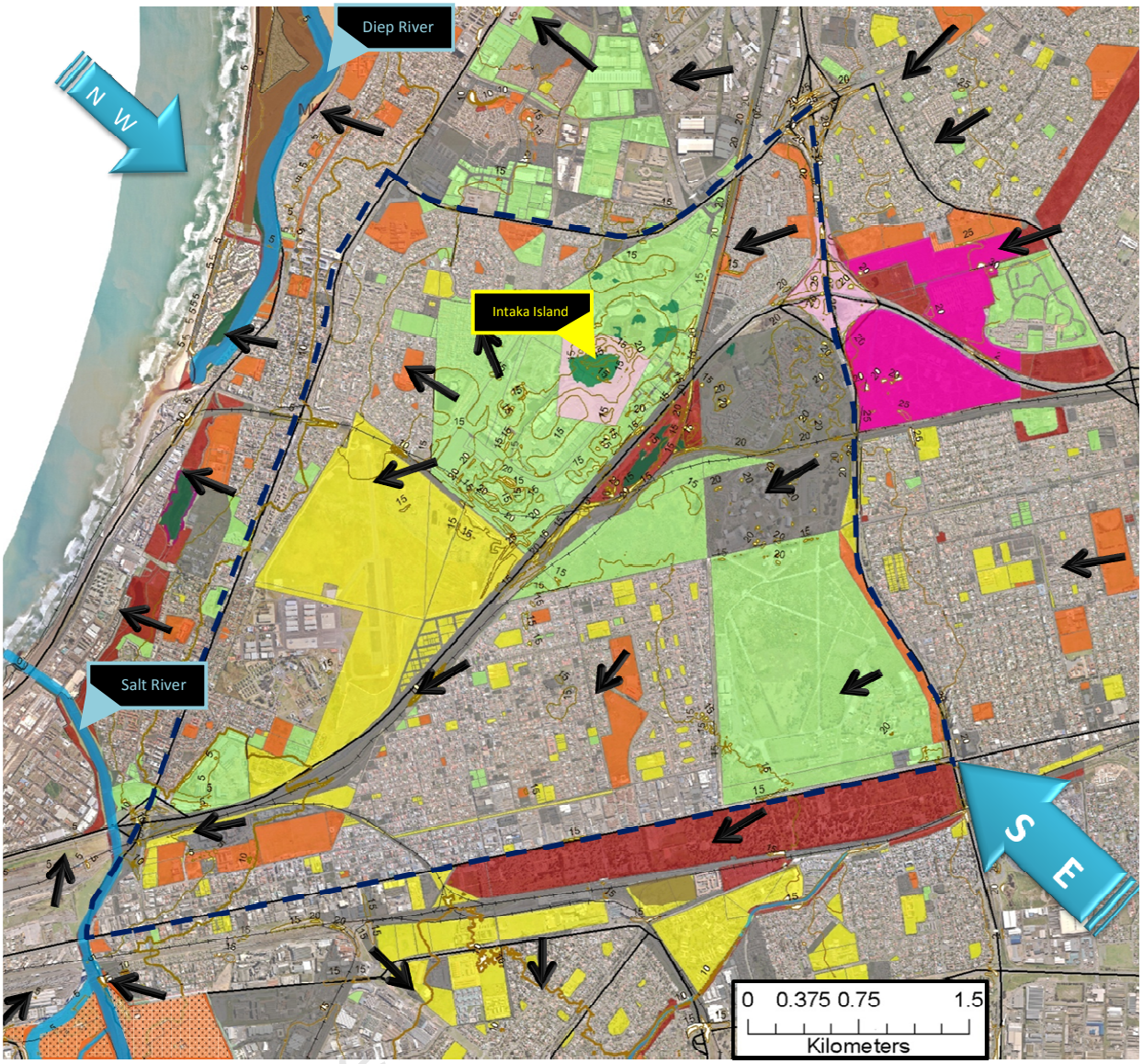
it is non-corrosive. Due to the colluvial nature of this soil, it is highly susceptible to wind erodibility, thus development should take cognisance of this to ensure that existing vegetation is conserved in order to stabilize the surface. In addition, being semi-pervious, it is possible for groundwater to become polluted, thus off-site sanitation is essential.

Soil Type	Expansiveness	pH	Conductivity	Permeability	Collapse	Erodibility
Quartz sands	Low-medium	Slightly acidic	Low Non-corrosive	Semi-pervious	Low potential	High wind erodibility

Table 2: Soil Properties in the Study Area (Stapelberg 2005)

As mentioned, the topography of the area is generally uniform and drainage occurs from Tygerberg Hill towards the waterways and coast as indicated in map 7 below. No natural waterways occur within the study area, however there are some vleis of ecological importance in proximity to the Century City development. In terms of climate, the area falls within the Mediterranean climatic zone of the Cape coastal zone, experiencing dry, warm summers with strong south-easterly winds, and wet, cool winters with north-westerly winds associated with cold fronts. Average precipitation over the coastal plains (~515mm pa), however, varies greatly to that experienced in the mountainous areas (~1,500mm pa) towards the south-west of the city (South African Weather Service 2009). The natural vegetation has unfortunately been largely affected in the area by urban development, having been confined to small parcels of land. In addition, endemic vegetation (i.e. sand plain fynbos adapted for deep, acidic sands) are threatened by alien acacia species, in particular Port Jacksons and Rooikrans (Stapelberg 2005).

Based on the evidence of the characteristics of the land surface, the northern inner district is considered to have a high development potential with regard to the natural environment. The area has the fewest number of problems that may impede urban development, with only wind erosion and ground water pollution as concerns. Nevertheless, the conservation of natural assets, such as endemic vegetation and ecologically valuable areas, must be taken into consideration. This assessment shows that there aren't many significant natural features within the study area. However, Intaka Island (formerly Blouvlei),



Legend

- River & Buffer Zone
- Vlei
- Waterbody
- Core Flora Conservation Site
- Contours (5m)
- Proposed Park
- Protected Natural Environment
- Natural Heritage Site
- Golf Course
- Drainage

CMOSS Priority Level

- NON NEGOTIABLE
- HIGH
- MEDIUM
- PARTIAL MOSS
- OFF

7

DISTRICT ANALYSIS

Northern Inner District SDF

Natural Environment

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

situated within Century City (map 7), represents an area of high conservation value. This 16ha area is an ecologically sensitive, reconstructed wetland for the conservation of birdlife and indigenous flora (Century City 2009). In addition to its value as a nature conservation area, it serves as a controlled eco-tourism attraction. In addition, open space within the Cape Metropolitan open space system (CMOSS) has been classified into priority levels to indicate development potential (map 7). These levels are described as follows:

- *Non-negotiable*: these are core sites where no development is permitted, must be retained 100% as open space for, e.g. biodiversity and nature conservation.
- *High*: these areas must be retained as public open space for recreation and sports, such as golf.
- *Medium*: must be retained as public open space with possible future development in some parts.
- *Partial*: development is allowed, retain 20% of area as public open space.
- *Off*: Development is permitted and possible.

As can be seen in map 7, the open space system is disjointed with little ecological cohesion. Thus priorities for the northern inner district development framework include development in an environmentally conscious way where permitted, as well as the support of areas of high ecological value.

4.4.2. Demography

The analysis of demography will include an assessment of the trends and patterns relating to age and population groups, education and occupation levels, employment and income, as well as crime levels. The designated study area includes government owned land, such as Ysterplaat and Wingfield, older suburbs such as Kensington, Factreton, parts of Rugby and Brooklyn, more recent residential areas such as Tijgerhof, Sandrift and Summer Greens, as well as the new, up-market residential and commercial developments of Century City. In addition to gaining an understanding of how the demographic trends may influence further development, this analysis aims to determine what issues will need to be addressed in the event of an influx of people into the area.

Age and Population Groups

The analyse of age and population group trends in the study area makes use of both Census 1996 and Census 2001 data in order to gain an understanding of the patterns of change and growth. This data is graphed to illustrate and compare trends across suburbs within the district. Firstly, figures 8a and 8b illustrate the general trend with respect to a changing population within the entire northern inner district. According to Census 1996, the population in this area was generally increasing (figure 8a). From 1996 to 2001 this trend weakens slightly as fewer numbers of youth are recorded in the study area (figure 8b). The trend of a mostly decreasing population is backed up by table 2 below, which illustrates the population size and growth rate per suburb for

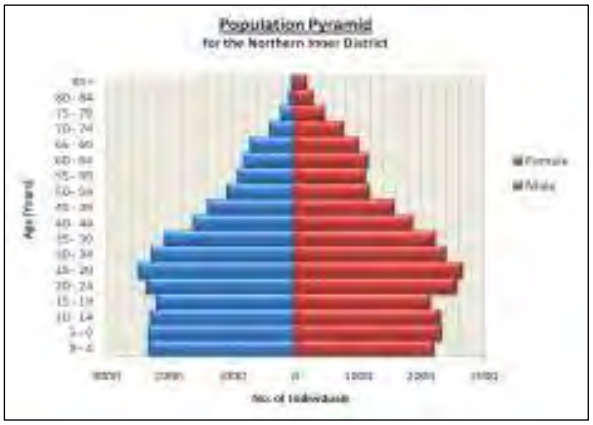


Figure 8a: Population Pyramid 1996 (Census 1996)

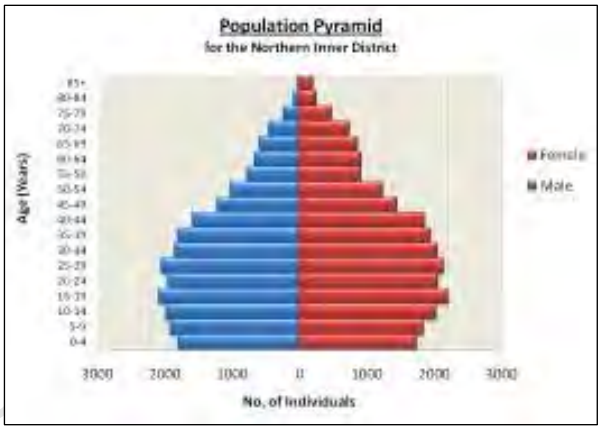


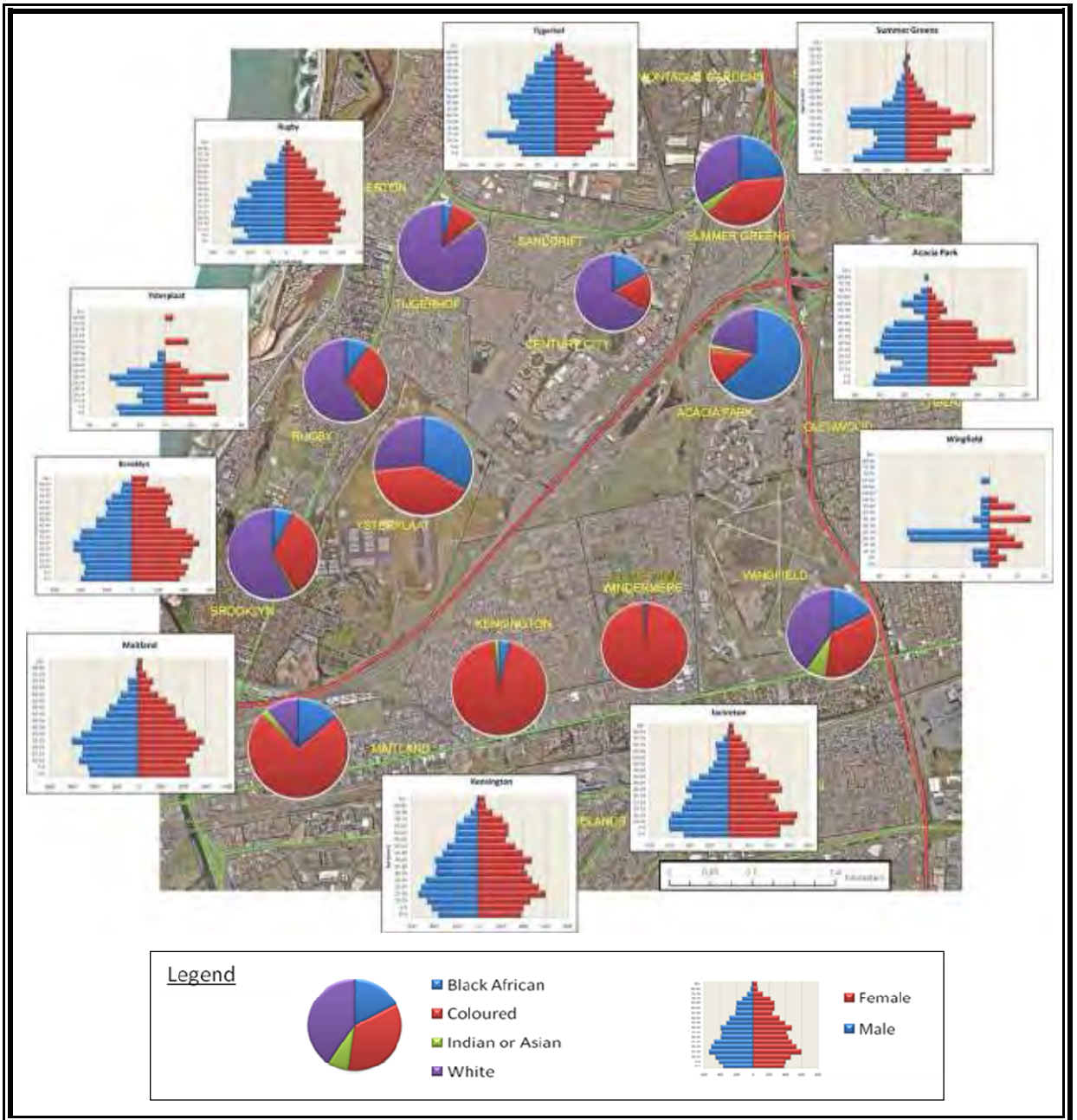
Figure 8b: Population Pyramid 2001 (Census 20010)

Population Size & Growth Rate per Suburb

Suburb	1996 Population	2001 Population	Growth Rate (%)
Acacia Park	767	935	21.9
Brooklyn	6620	5595	- 15.5
Century City	–	18	–
Factreton	12280	11855	- 3.5
Kensington	12994	11455	- 11.8
Maitland	7959	5629	- 29.3
Rugby	3456	3358	- 2.8
Sandrift	–	–	–
Summer Greens	3945	4447	12.7
Tijgerhof	–	3408	–
Ysterplaat	718	273	- 62.0
Wingfield	145	161	11.0
TOTAL	54511	47134	- 13.5

Table 3: Population Size & Growth Rate : 1996 - 2001

the period 1996 – 2001. To reiterate, the graphs (figures 8a and 8b) above depict the trend of the whole northern inner district. Map 8 below spatially illustrates the demographic statistics for each of the suburbs in the study area separately. In addition, the racial composition of these suburbs is illustrated by means of pie graphs.



8

Northern Inner District SDF

DISTRICT ANALYSIS

Demography: Population Groups

Scale: 1 : 25 000 at A3

Source: Census 2001; ENPAT DEAT

As can be seen in map 8, the population makeup differs notable from suburb to suburb within the study area. As with the population pyramids above, the x-axis represents the number of individuals while the y-axis represents the respective age groups. Using the two sets of statistics, the following trends are identified: the data points to a decreasing population of youth in the older, more established, traditionally coloured areas of Maitland, Factreton and Kensington, as well as Brooklyn; there is a shrinking population in Tijgerhof as a whole; the population has grown in Acacia Park, particularly amongst the younger age groups; the population distribution of summer greens has remained constant, with a pinch evident around the age of 20 perhaps due to HIV; the distribution in Rugby has remained constant; a smaller population is found in Ysterplaat, however it has the same distribution; and Wingfield has remained constant. Thus, the pattern points toward an ageing population in the older suburbs and more growth towards the northern part of the study area.

Education and Occupation

As can be seen in map 9 below, a large portion of the residents have no more than some secondary education. This impacts on an individual's skills level and employability. Figure 9 alongside illustrates total distribution of occupations within the northern inner district. In general, most women are employed in clerical position, while the highest proportion of men are employed in crafts and related trade. This data may be compared to the occupation distribution per suburb, as seen in map 9 below. The statistics relating to education and occupation are mapped spatially for each of the suburbs in the northern inner district so as to gain an understanding of the relationship between education and occupation. The general trend is that higher levels of education of associated with more individuals being employed in occupations requiring higher skills levels. For example, in Brooklyn where almost 75% of the residents have some secondary education or less, high levels of manual labour, plant operators, crafts, and

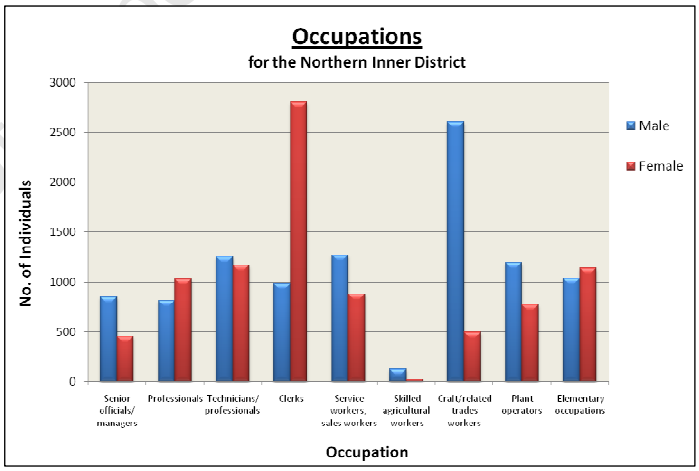
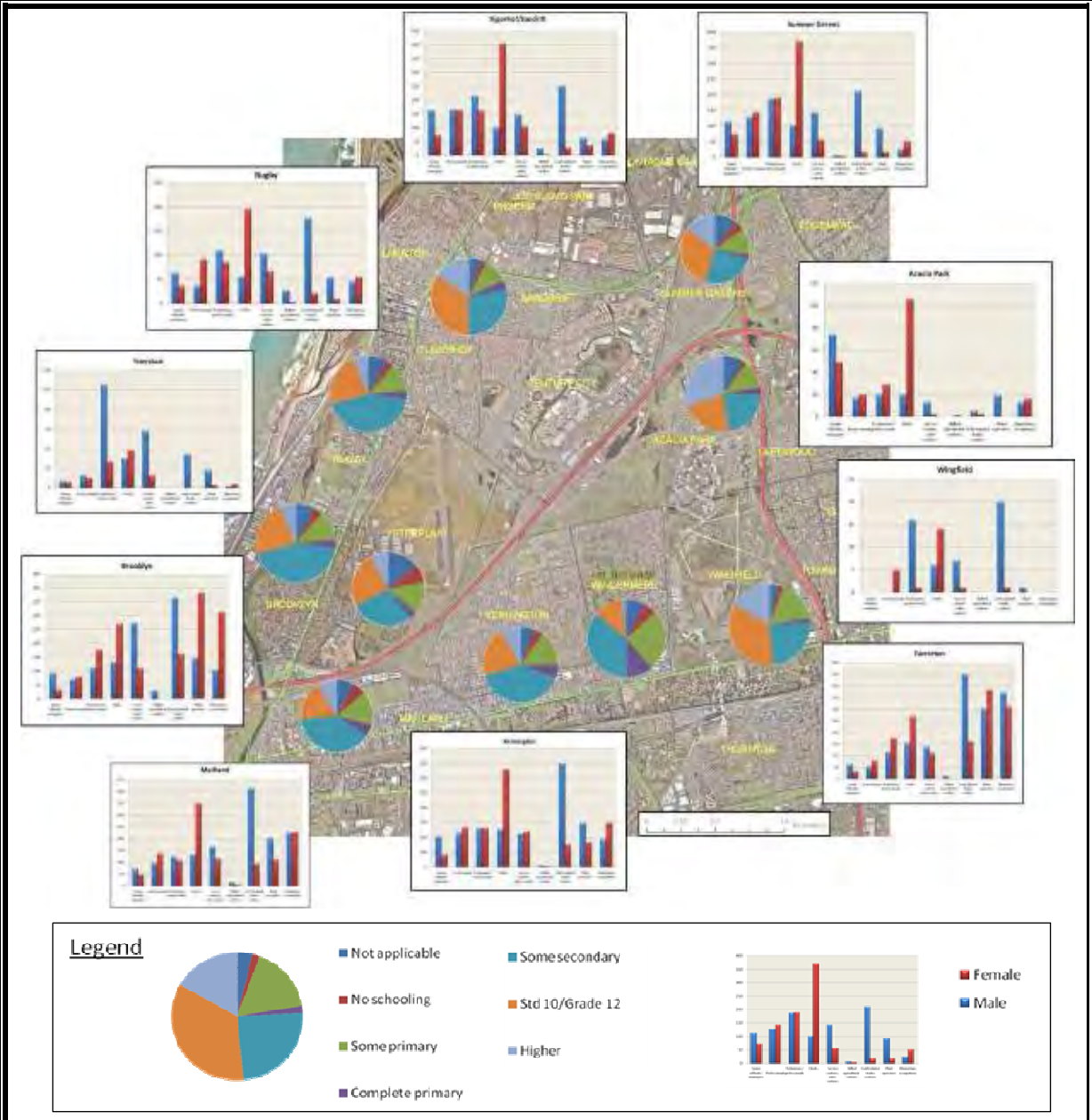


Figure 9: Occupations for the Northern Inner District (Census 2001)

other elementary occupations are found. However, due to the nature of the changing economy, these sorts of skills are becoming more obsolete as more skilled workers are needed in higher skilled positions such as technicians, customer services, sales and management positions. Thus, the changing trends in the overall occupation distribution in the area may have negative impacts on income levels.



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Northern Inner District SDF

DISTRICT ANALYSIS

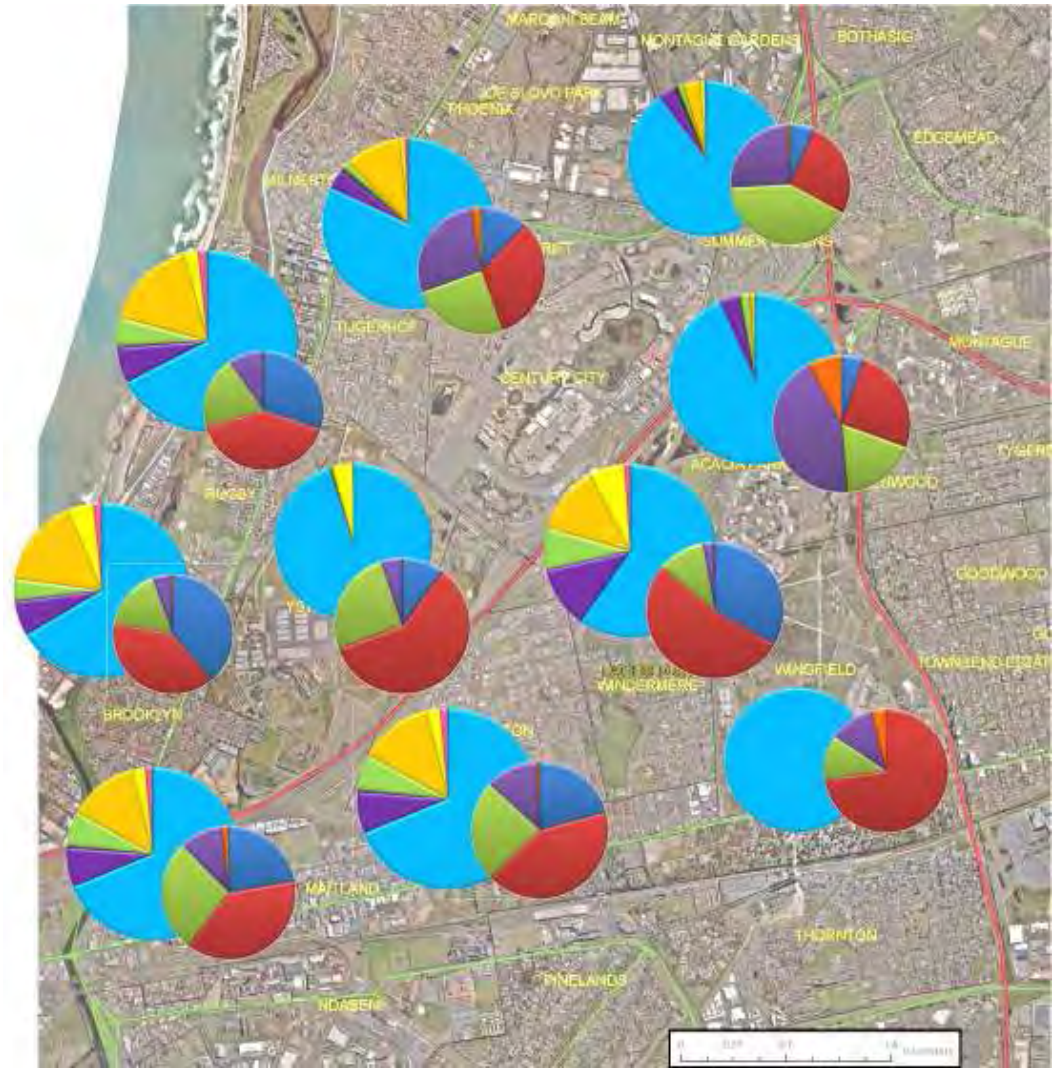
Demography: Education & Occupation

Scale: 1 : 25 000 at A3

Source: Census 2001; ENPAT DEAT

Employment and Income

Map 10 below illustrates the proportion of employment levels, as well as the income groups for each suburb in the study are. Income has herein been defined into five categories representing a specific interval of annual household income. This is depicted in table 3 below, where those living under the poverty datum of R19,200 pa (or R1,600 per month) are classified as



Legend

Income:
- Poverty
- Low income
- Lower middle income
- Upper middle income
- High income

Employment
- Employed
- Pensioner or retired person/too old to work
- Unemployed
- Unable to work
- Scholar or student
- Seasonal worker not working presently
- Home-maker or housewife

Northern Inner District SDF

10 DISTRICT ANALYSIS

Demography: Employment & Income

Scale: 1 : 25 000 at A3

Source: Census 2001; ENPAT DEAT

'Poverty', etc. As illustrated above, it is evident that the highest proportions of people living in poverty occur in the older areas, i.e. Maitland, Factreton, Kensington, Brooklyn and Rugby, which correlates to lower education levels.

Classification of Income Groups	
Annual Household Income	**Income Class**
R0 – R19,200	Poverty
R19,201 – R76,800	Low Income
R76,801 – R153,600	Lower Middle Income
R153,601 – R614,400	Upper Middle Income
R614,401 +	High Income

Table 4: Classification of Income Groups

Crime

A brief look at the crime statistics in the northern inner district and environs aims to illustrate some of the social dynamics in the area. According to Gie (2009), the greater Cape Town area is a crime hotspot, having the highest prevalence of murder and drug crime in the country. The priority crimes in the CCT have been identified as violent crime, property crime and drug-related crime. Figure 10 alongside illustrates the trends of these crime for the period April 2001 – March 2008. As can be seen, while most crime statistics either fluctuate within a certain bracket or are decreasing, there is a definite steady increase in drug-related crime. This is possibly associated with poverty levels.

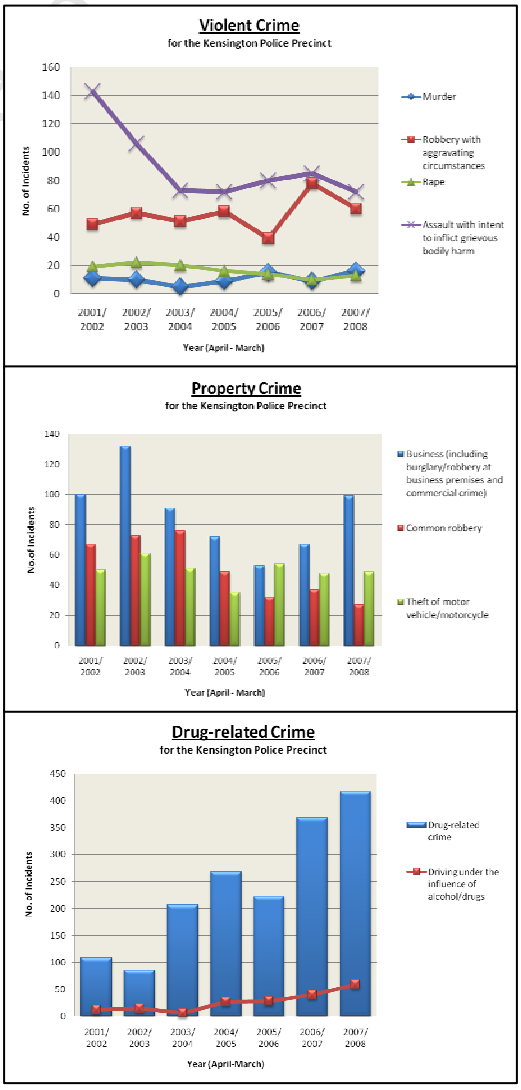
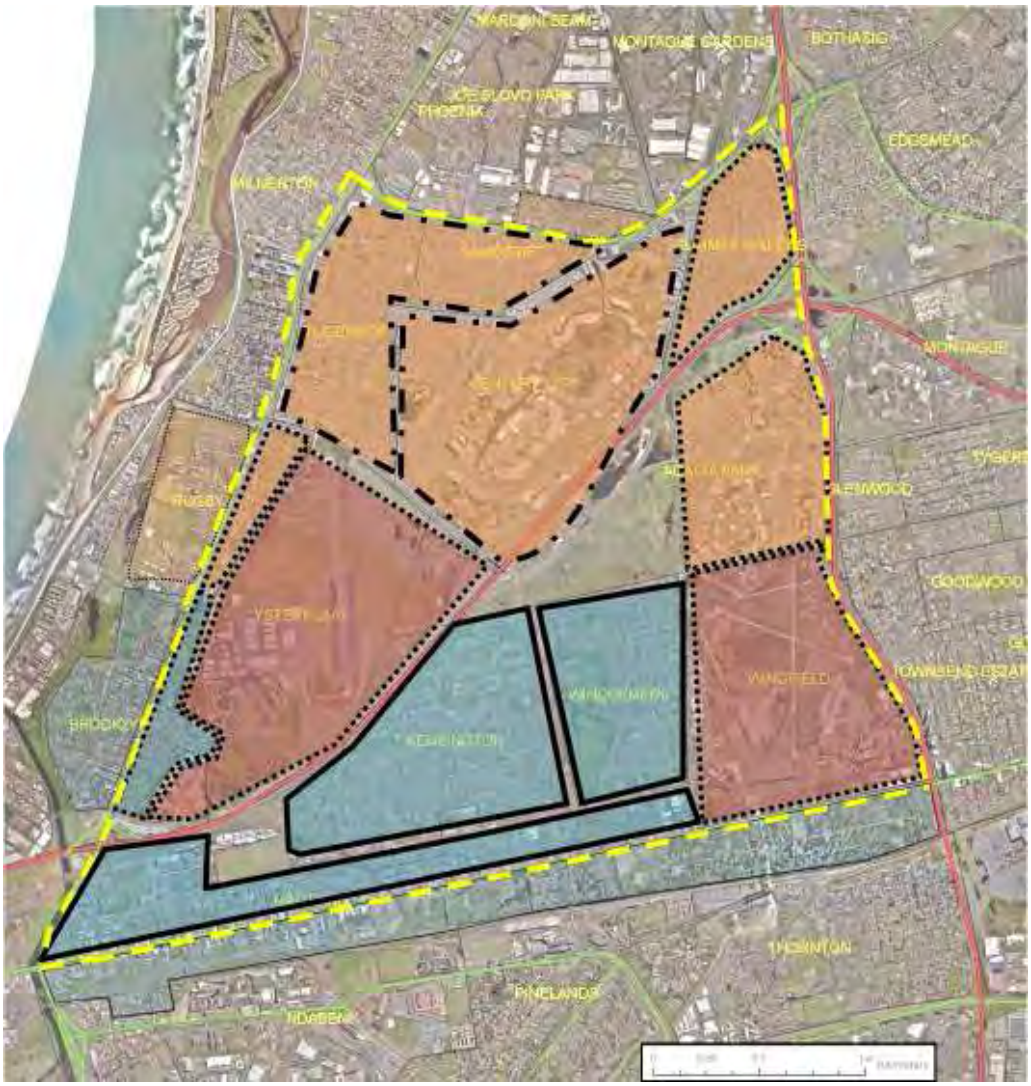


Figure 10: Kensington Precinct Crime Statistics (SAPS 2009)

The analysis of the demographic trends in the district shows a diverse population from a range of socio-economic backgrounds. There are thus implications on how to develop the area while ensuring that equality is promoted. With the evidence provided above, a population profile for each suburb may be derived, as illustrated in map 11 below.



Legend

- Ageing population; Higher levels of unemployment and poverty; Lower levels of education; Lower skilled workers
- Higher levels of education; public service occupations; Higher skilled workers; Middle incomes
- Growing population; Higher education levels; Higher incomes; Higher skills levels
- Predominantly coloured population
- Predominantly white population
- Mixed race

*Note: While some areas are included in the data (i.e. Census), they fall outside of the designated boundary of the study area and are thus shown with lighter shading above

11

Northern Inner District SDF

DISTRICT ANALYSIS

Demography: Population Profiles

Scale: 1 : 25 000 at A3

Source: Census 2001; ENPAT DEAT

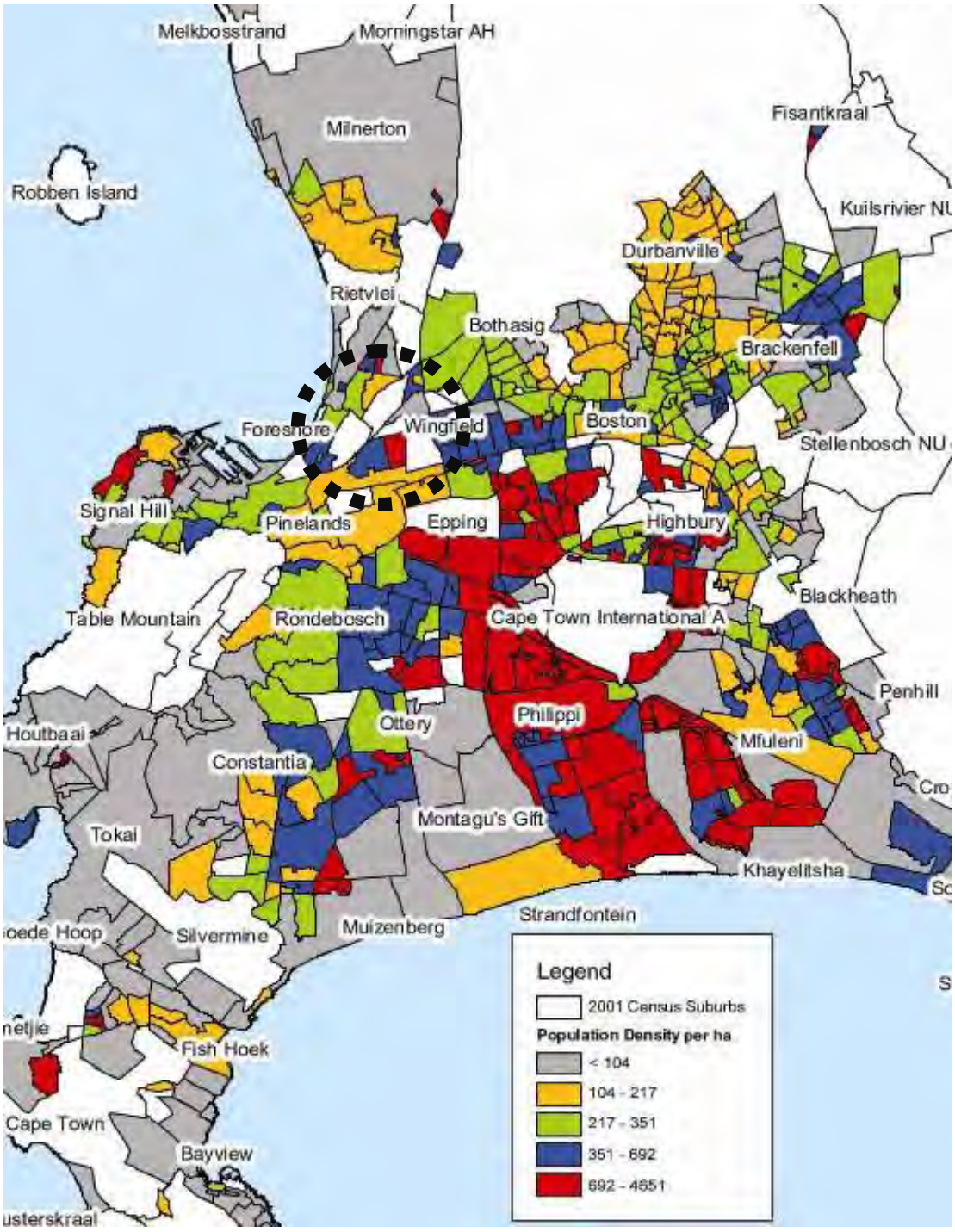
4.4.3. Housing

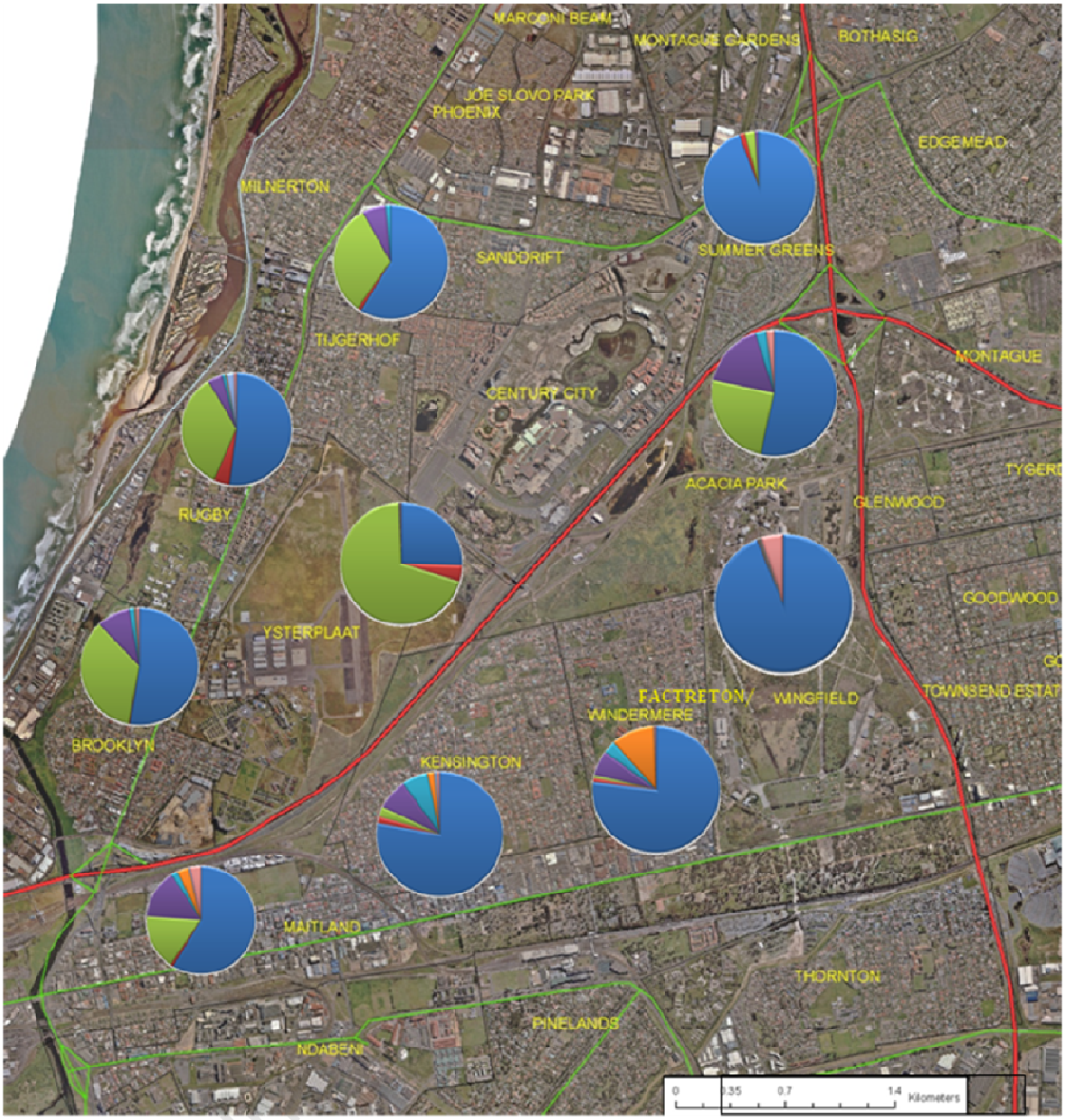
The CCT is a sprawling city with comparatively low densities. The average population density in the city was approximately 265 people/ha in 2001 (van Heyningen 2007). The demand for middle- to high-income housing has resulted in large amounts of valuable agricultural land and biodiversity being consumed. Furthermore, 20% of the housing value in the CCT occupies 40% of developed land, indicating that currently housing developments are unsustainable (id.). In contrast, according to van Heyningen (2007), 30% of households (~ 1,000,000 people) in the CCT live in inadequate housing and depressed physical environments. There are over 120,000 families living in informal settlements and the housing backlog in the city doubled between 1998 and 2007 to 300,000. Apart from the housing problems in the city, there are additional challenges of providing and maintaining the infrastructure needed to accommodate urban growth and development. Thus, it should be a priority to (i) focus on providing housing opportunities in areas that do not have sufficient housing and (ii) ensure housing developments achieve adequate densities. In addition, an incremental approach to development (including the release of land for housing, upgrading informal settlements, provision of services, the development of social housing in the right locations and access to economic opportunity) will ensure the development of integrated settlements (id.).

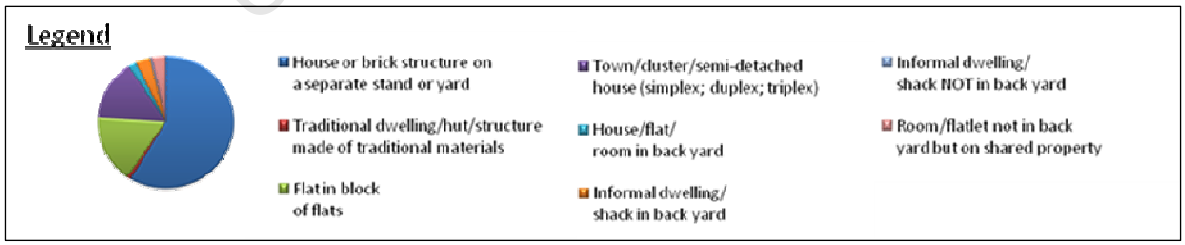
Map 12 below illustrates the citywide range of *net* population densities spatially. As is shown, the northern inner district comprises low and high densities across the respective suburbs. The highest densities (according to the 2001 Census data) are found in the older suburbs of Rugby, Kensington and Factreton, where lower income levels necessitate larger numbers of people sharing the available space. In addition, the areas of higher densities correspond to higher proportions of informal dwellings, backyard shacks and dwellings on shared properties (map 13). Table 4 below gives a more detailed look at the *gross* population (ppl/ha) and dwelling unit (du/ha) densities of each suburb in the northern inner district[6]. No data is available for Century City, however the recent trend in this area is towards higher density developments, such as apartments and town houses, with an emphasis on

[6] Due to a lack of reliable data, exact *net* densities are not available per suburb.

security. While this type of development helps to deter urban sprawl, the seclusion of middle- to high-income groups inhibits urban integration.







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DISTRICT ANALYSIS

Northern Inner District SDF

Housing: Dwelling Types

Scale: 1 : 25 000 at A3

Source: Census 2001; ENPAT DEAT

Suburb	Total Area (ha)	Population (2001)	Gross Population Density (ppl/ha)	No. of Dwellings	Gross Dwelling Unit Density (du/ha)
Acacia Park	112.98	935	8.28	329	2.91
Brooklyn	165.58	5595	33.79	1941	11.72
Century City	–	18	–	–	–
Factreton	120.98	11855	97.99	2500	20.66
Kensington	187.15	11455	61.21	2759	14.74
Maitland	420.31	5629	13.39	1429	3.40
Rugby	108.00	3358	31.09	928	8.59
Sandrift[7]	–	–	–	–	–
Summer Greens	96.40	4447	46.13	1331	13.81
Tijgerhof	136.41	3408	24.98	1160	8.50
Ysterplaat	269.20	273	1.01	70	0.26
Wingfield	350.84	161	0.46	83	0.24

Table 5: Gross Densities

Century City is the focus of much private investment. This market-driven, fast growing, mixed-use development forms a key residential and commercial node (van Heyningen 2007). Thus there is scope for densification in the northern inner district around this node, especially due to the proximity to good access routes and the potential of the open parcels of land (i.e. Acacia Park, Wingfield, Ysterplaat). As more lower-income housing that is near to economic opportunities is needed, releasing this open space for the appropriate development will aid in achieving an equitable pattern of development in the CCT. However, this growth must go hand-in-hand with adequate service infrastructure and public transport provision (id.). The well located land has resulted in Century City being a popular choice for residential and office space development, thus fuelling further development in the area. However, a

Figure 11: Some Housing Typologies in the Northern Inner District

[7] Sandrift data is unavailable, however it should be noted that the urban fabric and densities are similar to that of Tijgerhof.

site visit established a number of vacant premises and stagnating construction, suggesting that the current global economic situation is affecting development. Furthermore, it was noted that parts of the older suburbs were rundown with no formal upgrading occurring, apart from a few private renovations.

When considering the provision of housing, the general household sizes need to be considered so that various needs may be suitably catered for. For example, as has been shown in *section 4.4.2* (demography), the changing demographic profiles (in terms of age/gender composition and household size) of each suburb necessitates different solutions to cater for changing household needs. Figure 12 below illustrates the general household sizes within the Table Bay and Blaauwberg planning districts. According to van Heyningen (2007), a notable proportion of households in this area consist of one or two persons, thus smaller units would be appropriate. Smaller units also enable higher densities and allow people to be located closer to economic and social opportunities. In addition, as mentioned, increasing the urban densities automatically increases the demand on land for facilities.

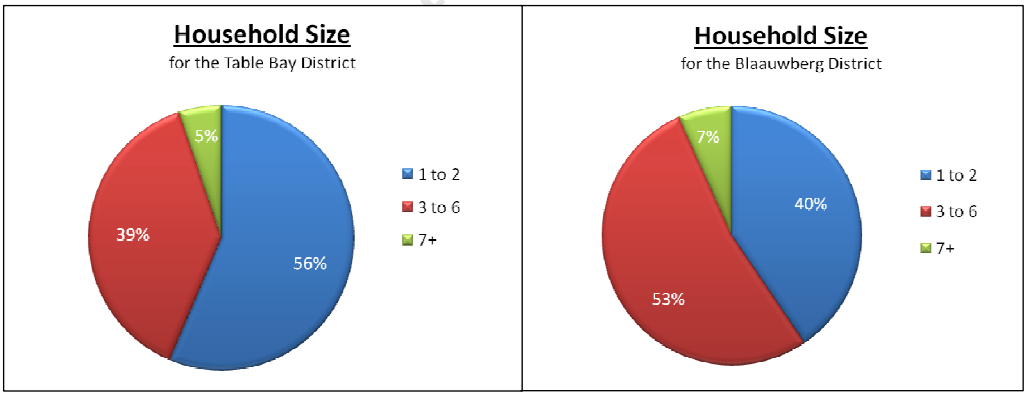


Figure 12: Household Sizes by District (van Heyningen 2007)

Figure 13 alongside illustrates the tenure status by suburb in the northern inner district. As shown, the majority of tenants across-the-board rent accommodation or are in the process of paying their residence off, with the highest proportions of owned homes occurring in

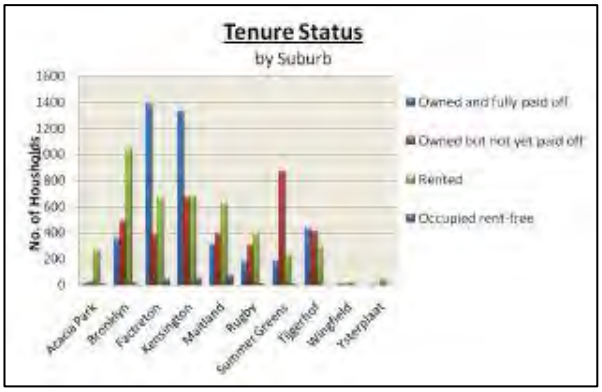


Figure 13: Tenure Status by Suburb (Census 2001)

Kensington and Factreton. While informal dwellings and backyard shacks do occur in some parts of the northern inner district (as previously shown in map 13), it would appear that all households have secure tenure[8] due to shared property arrangements. The prevalence of shared property and overcrowding in the lower-income areas is indicative of the need for lower-income housing. However, the up-market developments aimed at the middle- to high-income groups are not affordable to the less affluent, thus excluding lower-income individuals/households. The challenge comes with balancing state allocation and market distribution of land (Napier 2007). Historical spatial divisions are still apparent in the CCT, resulting in the market failing the less wealthy. Land is an important commodity which may potentially be used to alleviate poverty by locating poorer groups closer to social and economic opportunities (id.). Thus, residential developments in the northern inner district should be aimed at providing mixed housing and mixed-income group communities.

4.4.4. Economy

The trend in economic activity in the CCT has seen a decentralisation from the CBD to other urban nodes, including the development of new office parks, the take up of industrial land, and the suburbanisation of economic activity into smaller business complexes and residences (City of Cape Town 2006a). In addition, there has been significant growth along the northern growth axis, as well as towards the east (id.). According to van Heyginin (2007), the city's economy is distorted, with Cape Town, Bellville, Claremont and Century City being the main generators of commercial investment. "These areas support 46% of total business turnover and contain 42% of formal businesses in the city" (van Heyginin 2007, p.42). Furthermore, commercial development data shows that there is continuing investment in the Table Bay, Blaauwberg and Tygerberg districts (id.), thus opportunities are continually out of reach of the poorest communities that lie to the south and south-east of the city.

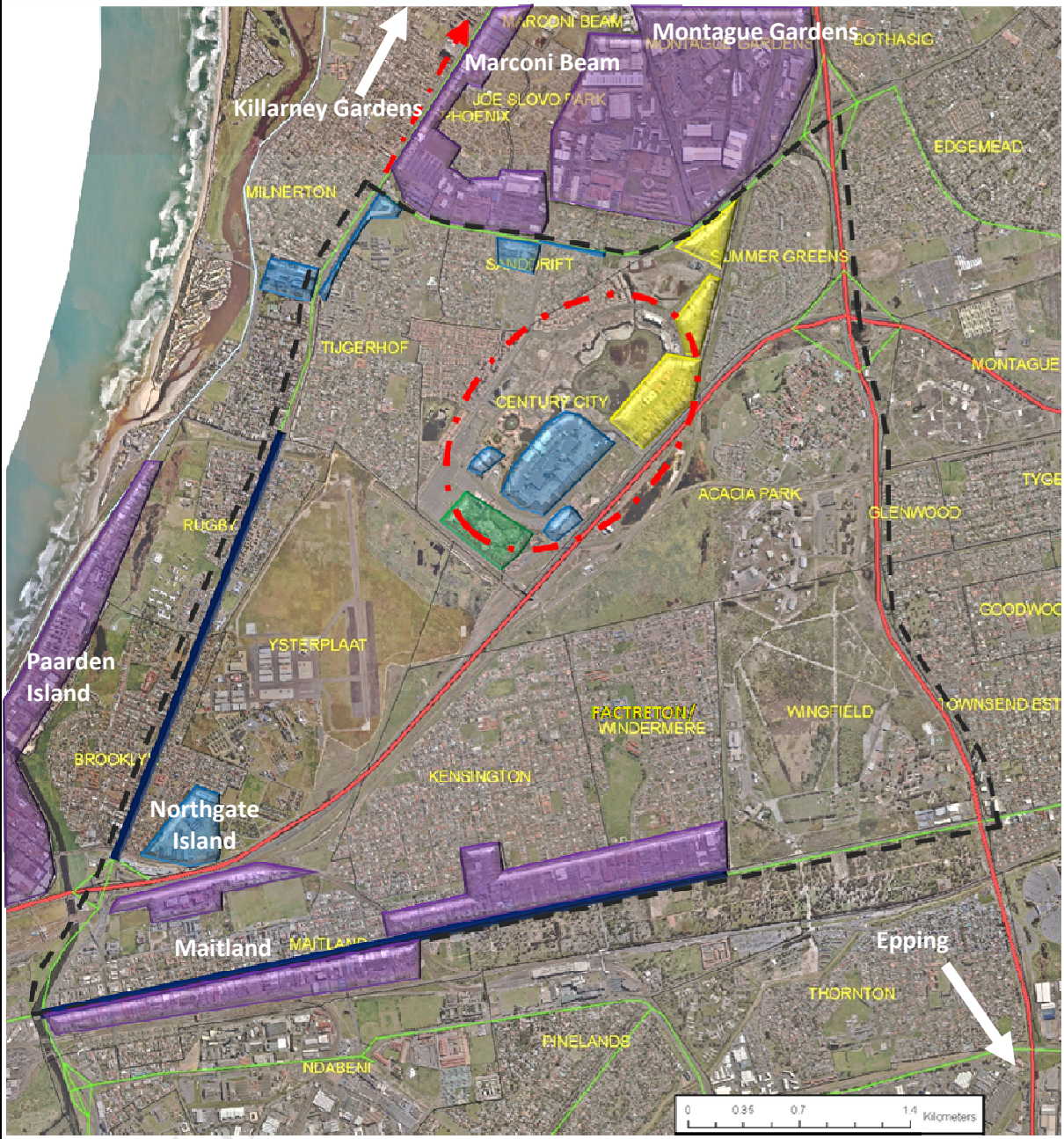
Economic activity in the northern inner district is diverse, ranging from small-scale informal trade to heavy industrial activity (figure 14). There has been a

[8] Defined as households that own or are purchasing their homes, are renting privately, or are in social housing or subtenancy (World Bank 2009).

recent trend towards clustered groups of activities, and away from the traditional activity corridors (such as along Voortrekker Road). This is evidenced by the significant investment that has been injected into the Century City node (which offers a variety of services and activities, including retail, entertainment, business and financial services), retail malls and mega-store developments. In contrast, economic activity has declined along Voortrekker and Koeberg Roads. Some informal trading occurs along Koeberg Road within the poorer areas (i.e. Rugby and Brooklyn). The informal sector is predicted to remain a strong feature in the CCT as people from less affluent communities will increasingly have to turn to alternate means of earning a livelihood due to a lack of jobs in the formal sector (van Heyningen 2007).

Map 14 below illustrates the most significant areas of economic activity in and around the northern inner district. As shown, the northern inner district lies adjacent to one of the city's most important industrial areas, namely Montague Gardens, which has the greatest number of industrial building plans submitted in the city. Other significant commercial and industrial areas include Marconi Beam, Maitland,

Figure 14: Types of Economic Activity

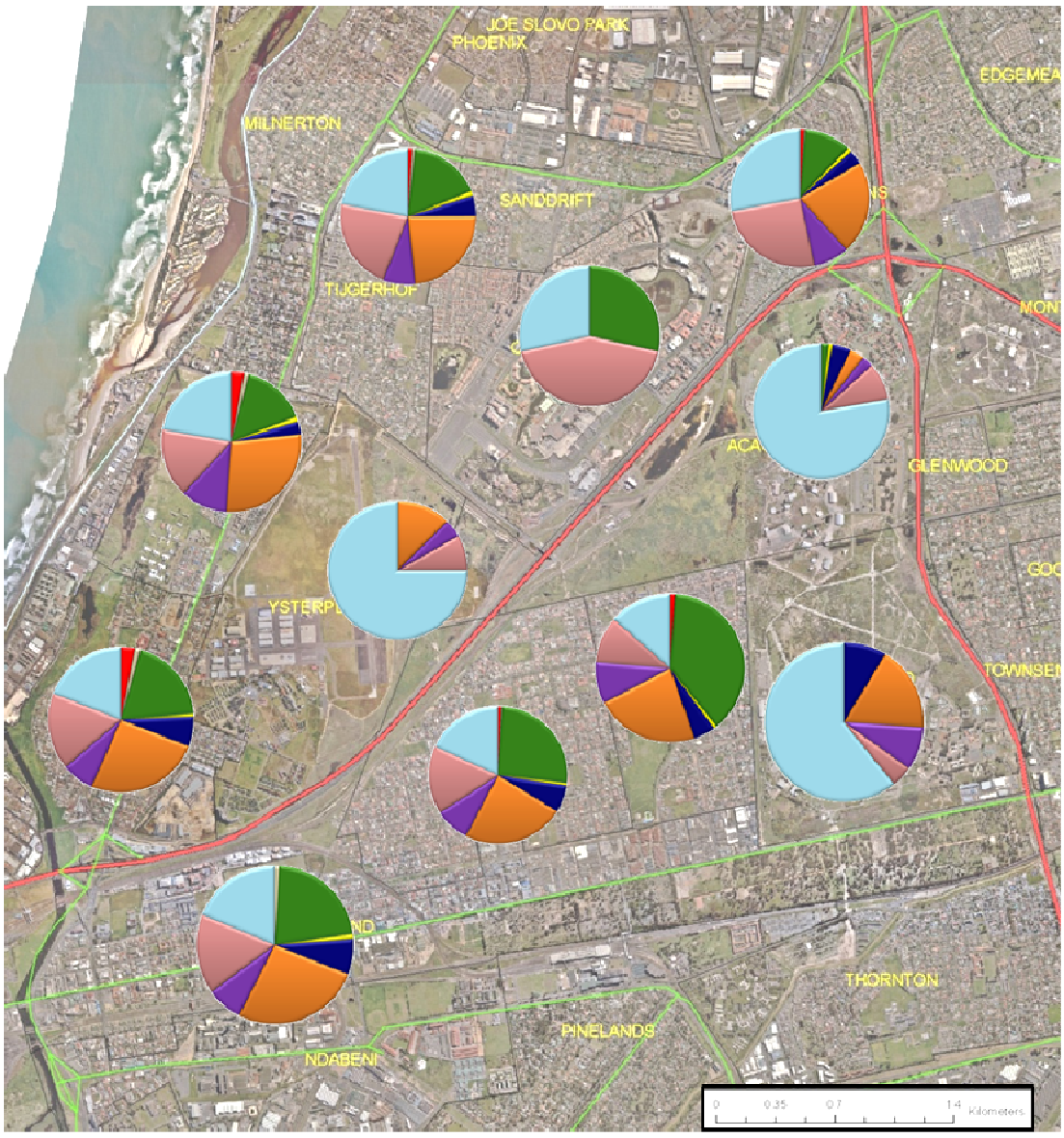


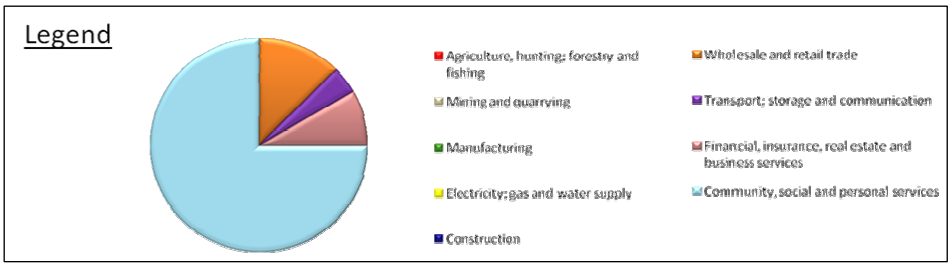
Legend

- Commercial/Retail
- Office Space
- Amusement Park
- Industrial
- Mixed Office/ Light Industry
- Activity Corridor (older business areas)
- Major Investment
- Direction of Growth / Investment

14	DISTRICT ANALYSIS	Northern Inner District SDF
	N	Economic Activity
		Scale: 1 : 25 000 at A3
		Source: ENPAT DEAT

Epping to the south of the study area, and Paarden Island to the west. Furthermore, the major nodes of commercial activity and office space are illustrated. According to Sinclair-Smith (2008), Century City, Montague





15 DISTRICT ANALYSIS

Northern Inner District SDF

Employment by Economic Sector

Scale: 1 : 25 000 at A3

Source: Census 2001; ENPAT DEAT

Gardens and Epping are areas of high employment, each accounting for 7.4%, 3.8% and 3.8% of employment in the CCT respectively. In addition, 4.9% and 1.5% of employment occurs in Milnerton and Killarney Gardens Industrial area to the north of the study area. High value investments have recently been made in the services (Century City and Marconi Beam) and manufacturing (Marconi Beam and Epping) sectors. "The services sector is the dominant sector accounting for 86% of all investment and 73% of all estimated employment" (Sinclair-Smith 2008, p.3). Map 15 above shows the sector of employment by suburb in the northern inner district. While the jobs of the population in these areas range across the various sectors, it is evident that a notable proportion is employed in lower skills level jobs, such as construction, manufacturing and mining.

To determine the trends in the local economy and whether the current employment levels can be maintained, as well as if additional employment opportunities may be provided in the case of an influx of people into the area, the gross geographic product (GGP) of the CCT is considered. The GGP per sector for 2006, according to the City of Cape Town (2008b), indicates that the strongest sectors in the CCT's economy are (ranked from highest to lowest value): finance and insurance; business services; wholesale and retail; community/social services; general government services; and transport. At the lower end of the spectrum are: mining; electrical machinery; agriculture, forestry and fishing; furniture and other manufacturing. In addition, retail trade and manufacturing production have shown signs of decline in recent times (Rode 2009) as external economic factors influence local markets. It is worth noting, however, that the clothing & textile sector provides many jobs, despite the fact that it is considered as a declining industry (Sinclair-Smith 2008).

Figure 15 alongside indicates the past and potential future investments in the CCT. As shown, although lower skills level jobs exist in the

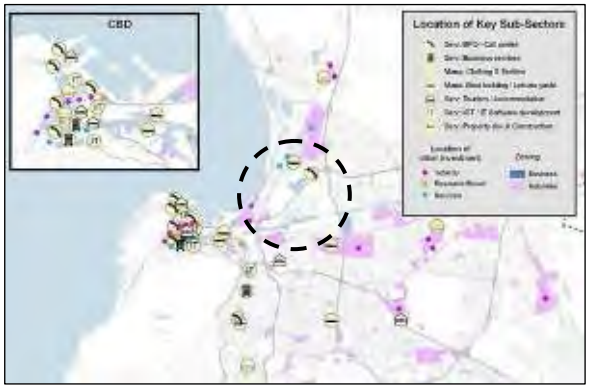


Figure 15: Past & Future Investments (Sinclair-Smith 2008)

manufacturing/industrial areas, the types of investment occurring in and around the northern inner district are mostly service related. Typically, these jobs require higher skills levels, hence, this raises the question of whether releasing the land to low-income households will benefit them economically. It is estimated, however, that relocating closer to urban opportunities will aid socio-economic development through the accessibility of available services and facilities.

From the discussion above, the general trends in the local economy of the northern inner district may be inferred as follows:

- *Industry* - Move away from heavy industry towards 'light' industry that focuses on more advanced technology and innovation; developing along the northern growth corridor.
- *Retail/ Commercial* - Focus on consumer-driven, clustered groups of commercial activity located at high access points, offering convenience and a wider variety; with a decline in smaller businesses in older areas (i.e. Voortrekker/Koeberg Road)
- *Office* - Business services located at the northern corner of the study area; further development around Milnerton and along the northern growth corridor.

The above stated trends speak to the fact that there is a general trend away from manufacturing/industrial type activities in the northern inner district. The increase in of business/financial/customer services and high-skilled, technology orientated trends has implications on planning decisions. A key challenge to be addressed, particularly in the districts with high unemployment, is to implement strategies which will achieve shared growth (van Heyginin 2007). As a result of the age profiles in the CCT, a high number of individuals are dependent on the economically active. Hence, community and skills development, and the creation of job opportunities should be implemented in line with the direction of the economy, thus providing job security. Providing a more secure, enabling business environment for informal trade (City of Cape Town 2006b), and reducing the travel distance, time and cost of workers by creating more local jobs will aid in poverty reduction. Public investments should thus be aimed at improving high-potential locations to stimulate further private investment (id.).

4.4.5. Infrastructure

Apart from the need for greater housing options (including low-income housing), there is a need to provide new infrastructure to accommodate urban growth. According to van Heyningen (2007), the CCT is experiencing bulk infrastructure backlog, as well as backlogs in the provision of basic services. In addition, the existing infrastructure is in poor condition due to poor maintenance (City of Cape Town 2008c). Low density cities, such as the CCT, result in higher costs and less efficient infrastructure and service provision, thus increasing urban densities aid in counteracting the wasteful usage of resources and results in better access to urban opportunities (City of Cape Town 2009a). As infrastructure availability is crucial to city development, capacities (such as of wastewater treatment and bulk water supply) must be carefully considered in planning decisions. Below follows a discussion of the basic services and infrastructure in the northern inner district.

Wastewater Treatment

Table 5 below illustrates the level of access to sanitation facilities in the northern inner district. As shown, the majority of households are connected to the main sewerage system. A number of households in Factreton and some households in Kensington and Maitland, use alternate types of facilities or have no access to facilities. This is, however, a relatively small proportion of households, and this is not related to capacity problems, but rather insufficient infrastructure. At present, the WWTPs that service the area are operating at (or near) full capacity and, while this is currently adequate to cope with demand, further investment in infrastructure capacity is needed to support urban development in the next 5 years (City of Cape Town 2009b).

Type of Facility	Total no. of Households	Proportion of Households
Flush toilet (connected to sewerage system)	12090	96.73%
Flush toilet (with septic tank)	90	0.72%
Chemical toilet	3	0.02%
Pit latrine with ventilation (VIP)	9	0.07%
Pit latrine without ventilation	30	0.24%
Bucket latrine	87	0.70%
None	189	1.51%

Table 6: Access to Sanitation Facilities in the Northern Inner District (Census 2001)

The northern inner district straddles both the Athlone and Potsdam wastewater catchments (figure 16). As of June 2008, the Potsdam WWTP has an increased capacity of 47Mℓ/day (City of Cape Town 2008c) to accommodate the development along the northern growth corridor. However, at this stage, further building submissions in the area have been rejected due to a lack of capacity to cope with additional urban development. The projected development in the area will require additional wastewater infrastructure by 2012 (id.) and currently environmental impact assessments are underway regarding upgrades to either the Potsdam or Melkbos WWTP (City of Cape Town 2009c) in order to provide the additional 20Mℓ/day that is needed by 2012 (City of Cape Town 2008c).

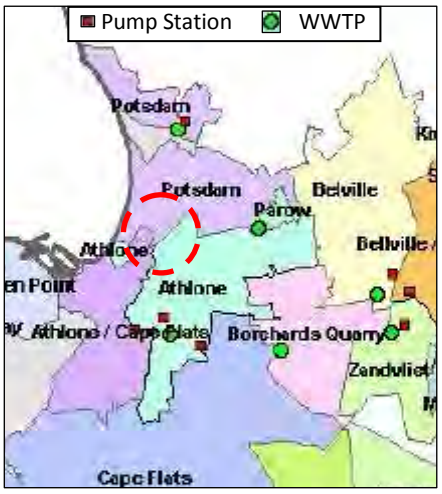


Figure 16: Waste Water Catchments (City of Cape Town 2008c)

The capacity of the Potsdam (which services the northern segment of the study area) and Athlone (which services the southern segment of the study area) WWTPs can support a population of 385,000 and 900,000 respectively. As mentioned, both plants are operating at almost full capacity and are particularly under pressure in wet weather (id.), thus urban development in the northern inner district will be constrained by infrastructure capacity. In addition, Borcherds Quarry WWTP is approaching capacity and excess flow may need to be directed to the Athlone WWTP which, despite being in generally good condition and having some spare capacity, is in need of maintenance (id.). Lastly, some capacity constraints also exist in the sewerage reticulation system, which is generally old and will require maintenance/upgrading in the next 5 years (City of Cape Town 2009b).

In terms of providing services to cope with the demand in the CCT, a WWTP is planned at Fisantekraal (in the north-east of the CCT) and is expected to be on line by 2010/11 (City of Cape Town 2008c). Furthermore, the final phase of the northern area sewer to Langa pump station is required to be completed in order for development at Wingfield, and urban development in the

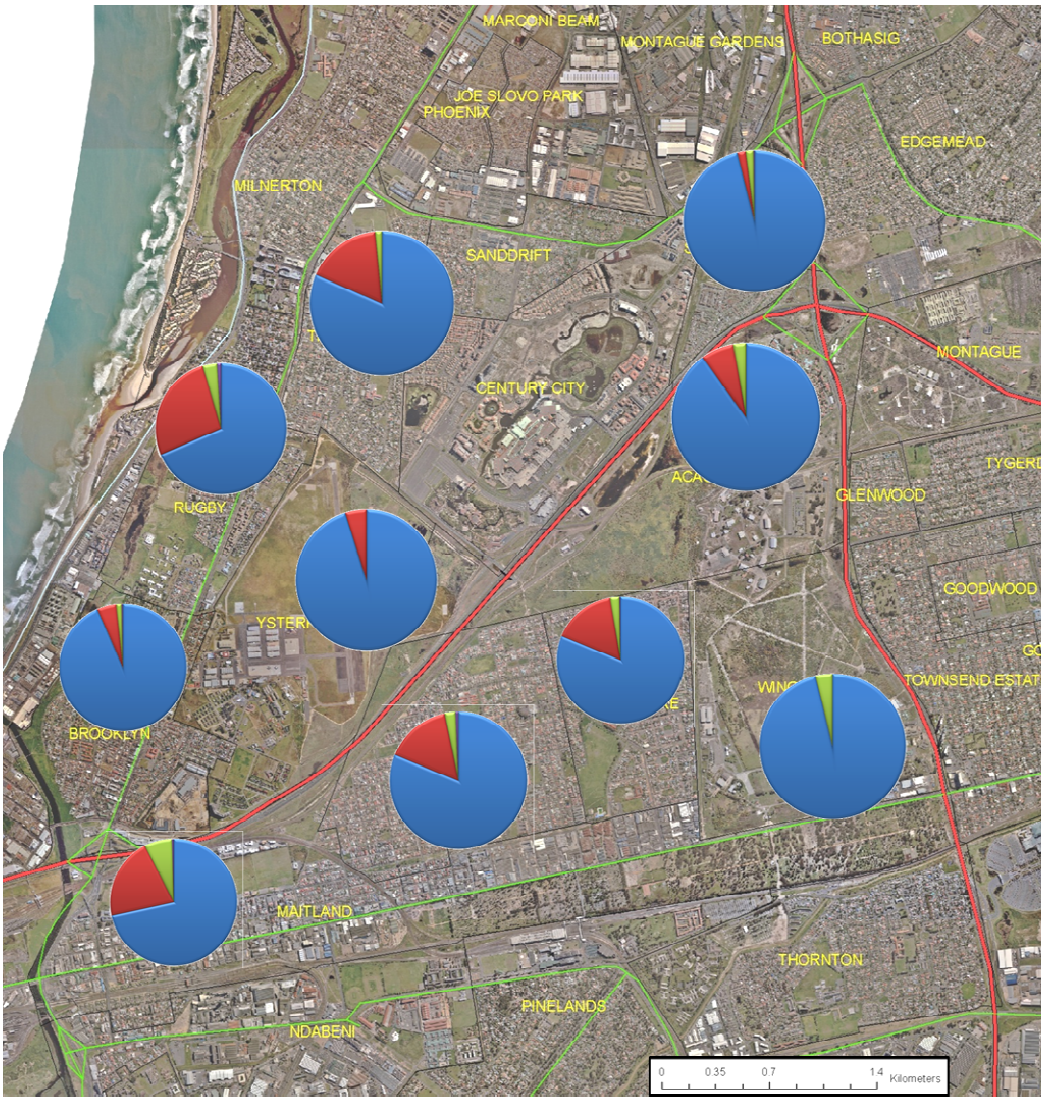
Ysterplaat area will require infrastructure upgrading at Athlone WWTP (id.). In addition, current WWTPs are expected to be operational until sometime after 2020, at which time the infrastructure would require major refurbishment. Thus, an integrated approach to planning is necessary to ensure adequate service provision to a growing population, while taking the costs and time frame of building infrastructure into account.

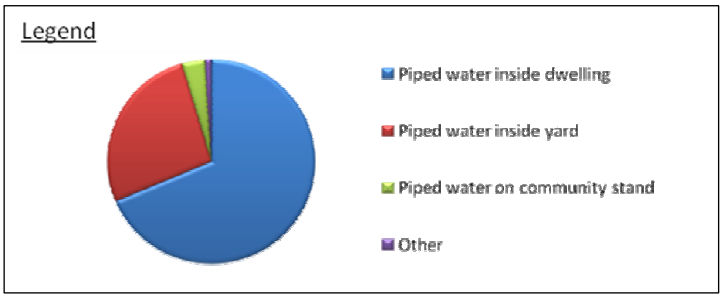
Bulk Water Supply

Water is supplied to the CCT from six dams that have a total capacity of 898,300 Mℓ. This is currently sufficient to cope with demand, however, with high demand from agriculture (accounting for 2/3 of total consumption), pollution of water resources, an increasing population, high levels of wastage, mismanagement of resources, destabilization of climatic patterns, as well as poverty levels, the current level of water consumption is not sustainable. The biggest challenge in the future will be to increase the treatment, conveyance and reservoir storage capacity of the system in order to cope with the demand from additional residential and retail/office blocks which alter the volumes, patterns and peak flows (City of Cape Town 2009b). According to the City of Cape Town (2008c), to conserve the CCT's water supply, the projected water demand should be reduced by 20% by 2012. Thus, in addition to providing and maintaining infrastructure, water demand management strategies are needed to ensure equitable potable water delivery.

The northern inner district is served by the Milnerton and Plattekloof Reservoirs (City of Cape Town 2009c). To cope with demand of development in the area, a larger reservoir and new pipe work will need to be constructed along the N7 near the Voelvlei pipeline. The water reticulation system currently has no immediate infrastructure or supply problems and is performing adequately, however, civil and electrical infrastructure requires ongoing maintenance to ensure the continued functioning of the system (City of Cape Town 2009b). Localised problems may potentially occur due to the pipe diameters of the existing system being too small to convey the volumes needed to satisfy water demands (City of Cape Town 2009c). Map 16 below illustrates the supply of water to the northern inner district. The majority of households have access to piped water, either at their dwelling or through

community stands. A small percentage uses other sources (e.g. boreholes and rainwater tanks) as water sources. With the current, extensive water supply system, additional water supply infrastructure should accommodate growth in the area providing long-term citywide management strategies are employed.





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DISTRICT ANALYSIS

Northern Inner District SDF

Infrastructure: Water Supply

Scale: 1 : 25 000 at A3

Source: Census 2001; ENPAT DEAT

Electricity Supply

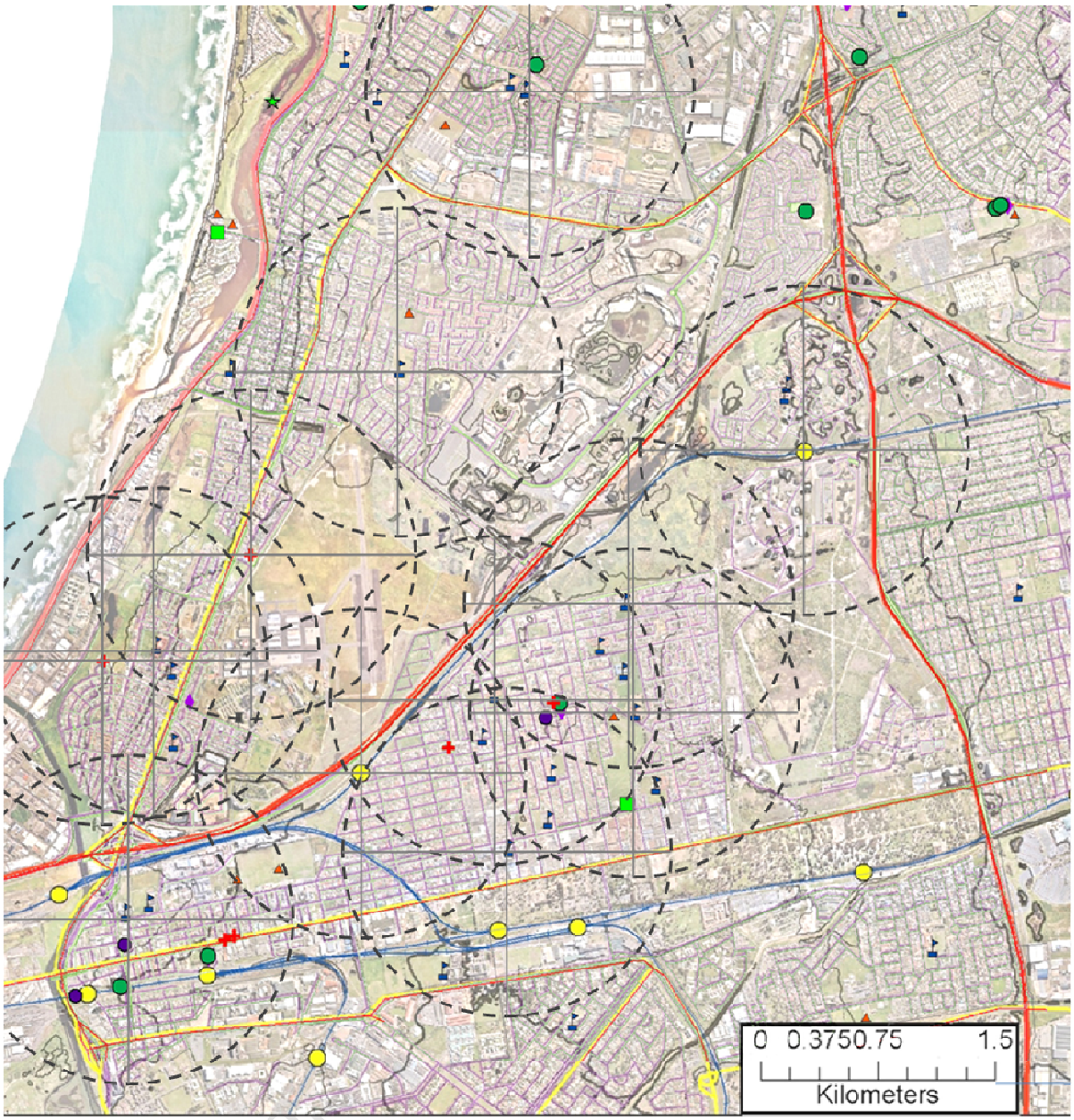
According to the City of Cape Town (2009b), electricity capacity will have to be addressed in certain areas over the next five years. Many of the main substations are almost at full capacity (e.g. the Montague Gardens substation) or are under heavy strain (e.g. Acacia substation) due to high levels of growth and demand. In addition, not only is there a need to replace existing infrastructure, but there is also a need to define plans and budgets to address network constraints (id.). In order to support urban growth, Eskom completed the construction of a gas turbine in Atlantis, and is in the process of investigating further development at the Koeberg power plant (City of Cape Town 2009c). Table 6 below shows the general level of connectivity to the electricity grid in the northern inner district. As shown, the majority of households receive electricity, with approximately 1% using other sources. Again, this small proportion of households are located predominantly in the poorer area of Factreton. The infrastructure to supply electricity is already extensive in the northern inner district and the only possible constraint would be the increased demand from urban development in the area.

Source	Total no. of Households	Proportion of Households
Electricity	12363	98.91%
Gas	30	0.24%
Paraffin	19	0.15%
Candles	66	0.53%
Solar	9	0.07%
Other	12	0.10%

Table 7: Source of Lighting in the Northern Inner District (Census 2001)

Facilities

In the northern inner district the highest concentration of community facilities occurs in the older areas of Kensington and Factreton (map 17). This is due to the higher population densities in these areas (compared to, for example, Tijgerhof or Brooklyn). Certain standards regarding the provision of community facilities must be adhered to in order to ensure that enough facilities are available to cater for the surrounding population. These standards are used as a benchmark to determine how many facilities are needed to support the surrounding population. The community facility standards are illustrated for a number of important facilities below in table 7, along with



Legend

- Cemetries
- museums
- Police Stations
- LBC Libraries
- Government hospitals
- Fire stations
- postoffice
- Private Hospitals
- Clinics
- School
- monuments
- 2km Distance rings
- Ablution Facilities
- Community Halls
- Libraries
- Recreation Facilities
- Sports Facilities

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Northern Inner District SDF

DISTRICT ANALYSIS

Infrastructure: Facilities

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

the recommended area (ha) and distances that each facility can service. In addition, 2km distance[9] rings are overlaid at a few points in map 17 above as an indication of the general accessibility of the facilities in the area.

From map 17, it is evident that most facilities are within a reasonable walking distance and accessible to pedestrians. Despite the fact that fewer community facilities are available in the northern segment of the study area (due to lower densities), there generally seems to be sufficient facilities (such as schools and clinics) available to effectively serve the current surrounding communities. However, Summer Greens is the exception with fewer facilities, thus individuals have to leave the community to access facilities in surrounding areas. Community facilities need to be positioned so as to be as accessible to households as possible (Behrens and Watson 1996), thus additional facilities will need to be provided to support population influxes in the Ysterplaat and Wingfield area, as well as the Century City development (including access to public transport points).

Facility	du / facility	ppl / facility	ha / facility	Distance (m)
Primary School	600	3 300	0.013	1 500
Secondary School	1 200	6 600	1.000	5 000
Clinic	900	5 000	0.200	1 000
Community Hospital	14 500	80 000	1.500	5 000
Library	1 800	10000	0.013	1 500
Community Centre/Hall	4 000	22 000	0.500	1 500
Sports Facility	9 000	50 000	3.000	–
Place of Worship	NA	NA	0.150	1 500
Post Office	2 000	11 000	NA	2 000
Police Station	4 500	25 000	0.300	1 500
Fire Station	11 000	60 000	1.200	–
Information Centre	4 000	22 000	NA	1 000
Sports Field	1 400	7 700	0.600	–
Public Open Space	182	1 000	0.050	–
Public Water Standpipe	25	140	NA	100
Communal Toilets	20	110	NA	75

Table 8: Community Facility Standards (Behrens and Watson 1996)

[9] Maximum distance a pedestrian is expected to travel to access community facilities.

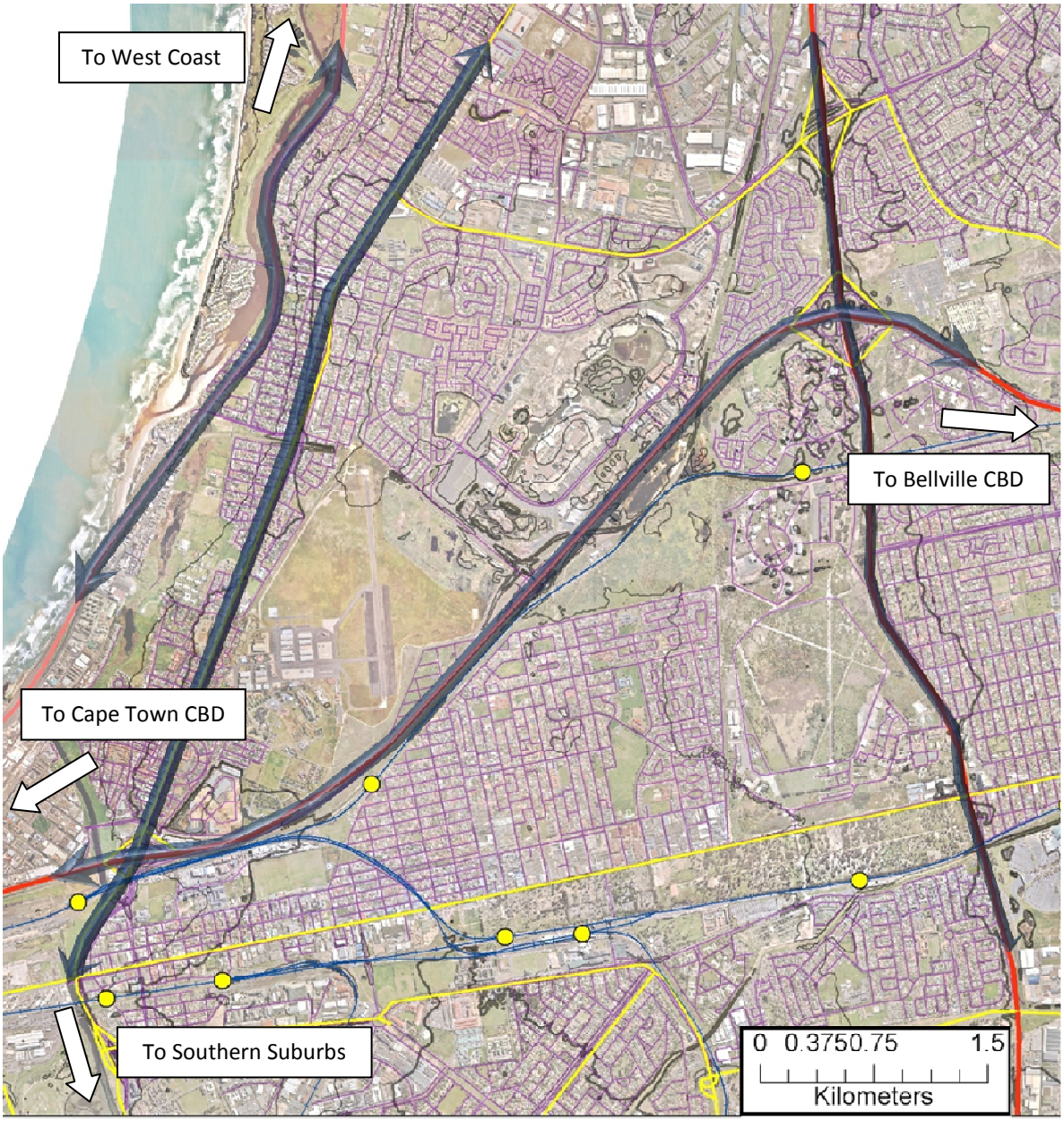
Other Services

Other services to be considered include storm water drainage capacity and solid waste removal. The capacity of the storm water system is satisfactory, however, potential problems may arise, predominantly due to litter and debris clogging gullies and connections. The northern inner district drains towards the west coast via the Diep (westward) and Salt (southwest) rivers (as seen in map 7, *section 4.4.1*) and has a good storm water system in place, but additional storm water infrastructure will be necessary with further urban development. The infrastructure for solid waste removal is adequate, however, the city is in critical shortage of landfill space as existing facilities are rapidly reaching capacity (City of Cape Town 2009c). New landfill sites are needed to accommodate the city's current waste production, as well as to accommodate additional waste associated with urban growth. As a result, the DEADP[10] has approved a site at Kalbaskraal for the development of a landfill (id.).

4.4.6. Transport

The northern inner district is in close proximity to good access routes, including the N1 (east-west) and N7 (north-south) routes, as well as the rail network (map 18). However, due to urban sprawl, east-west transport routes, and increasingly north-south routes, experience growing congestion due to commuters travelling to job opportunities. To illustrate this, while taking road speed into account, Koeberg Road has capacity for approximately 2,100 passenger vehicles per hour. However, in 2000, vehicle count was 3,000 per hour. This number is expected to be close to 4,000 per hour in 2025 (Haiden 2008). As shown in figure 17 below, there is a discrepancy between travel destinations and origins, thus resulting in inefficient road capacity utilization and unidirectional peak traffic flows (Behrens 2009). This road use pattern occurs along both the N1 and N7, as well as Koeberg Road. Private vehicle use had increased from 44 – 48% between 1991 and 2004, whereas public transport use decreased from 49 – 39% for the same period (Behrens 2009). Thus, providing an attractive alternative to private vehicle use in the form of a well-functioning, efficient, safe and reliable public transport system is essential to ensure that transport in the CCT becomes sustainable.

[10] Department of Environmental Affairs and Development Planning.



Legend

- Railway Stations
- Railway Line
- National Road
- Regional Road
- Municipal Road
- Local Streets
- Contours (5m)
- Congestion

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Northern Inner District SDF

DISTRICT ANALYSIS

Transport Routes

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

According to Vanderschuren et al. (2008), the N1 route has enormous development potential. However, there is a need for traffic flow management systems to accommodate extra demand. Furthermore, it is internationally acknowledged that additional capacity is quickly consumed by latent demand along primary movement corridors, with congestion returning shortly after upgrading. Thus congestion may be used as a tool to promote high occupancy alternatives (id.). In response to the citywide traffic congestion, the CCT produced a plan for a bus rapid transit (BRT) route

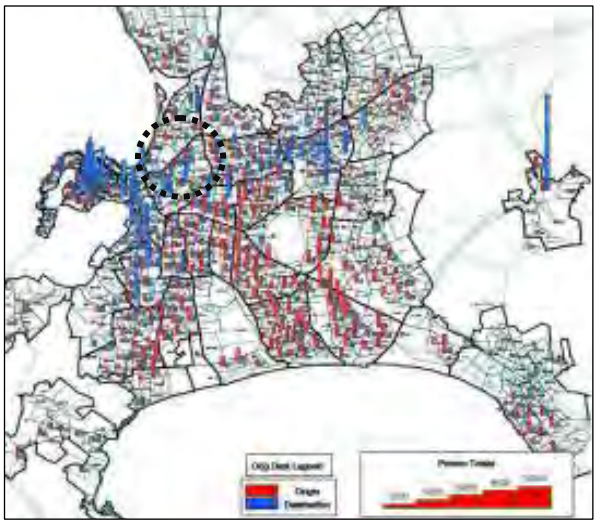


Figure 17: Morning Peak Hour Aggregated by Origin & Destination (Behrens 2009)

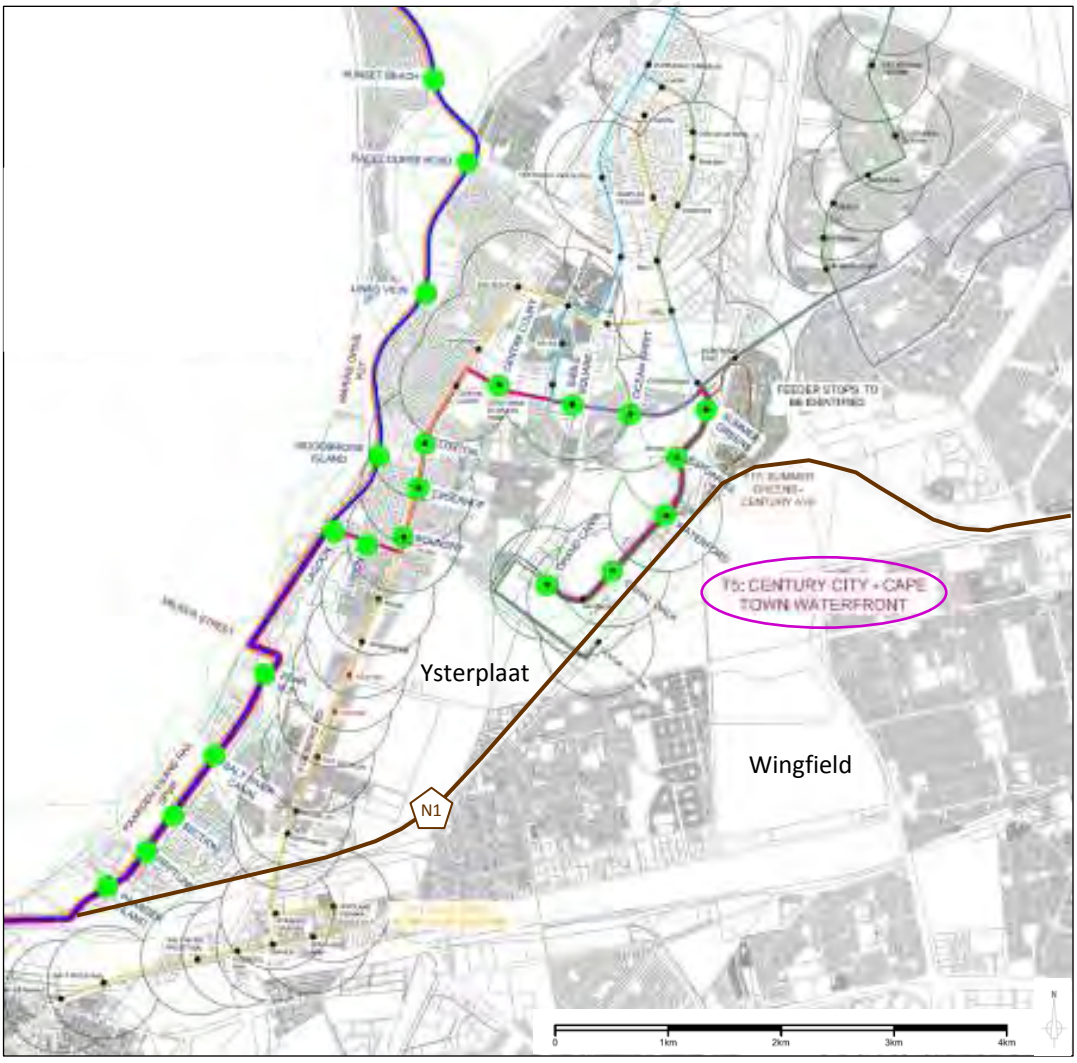


Figure 18: BRT Routes (Wright 2009)

system, of which the proposed phase 1 is alongside the northern inner district (figure 18). Ysterplaat, Wingfield and the N1 are illustrated in figure 18 for orientation. As shown, the BRT route will form an important link from the northern growth corridor southward, to the Cape Town CBD, as well as into the Century City area where a transport interchange is planned (figure 19). In addition, frequent stops are stipulated so as to be readily accessible (note 1km distance rings). This transport plan is factored into the SDF for the northern inner district as part of the CCT's long term development strategy. It will provide as quicker, easier, more affordable mode of transport (due to high petrol costs). However, the areas to the east of the N1 (e.g. Wingfield) will have to be serviced by feeder buses to access the BRT system. In addition, this phase of the BRT route does not encompass the N1, thus alternate means of relieving traffic congestion from the northern suburbs should be explored.

Figure 19: Current Construction of New Station Opposite Century City

According to Frieslaar (2006), peak hour is lengthening due to the pace of development and the N1, which accommodates public transport (mini-bus taxis and buses), freight, business, recreational/tourism and commuter traffic, cannot cope with increasing traffic loads. Current plans for improving these circumstances include the Koeberg interchange upgrade (figure 20). A Sable Road extension is also planned to connect Rugby and Brooklyn, through Century City, to Kensington (City of Cape Town 2009c), also benefitting a potential development in the Ysterplaat area. In addition, previous proposals have been made to upgrade the Atlantis line to a passenger service (id.). This may reduce road congestion in the north-south link by providing a rail connection to commuters.

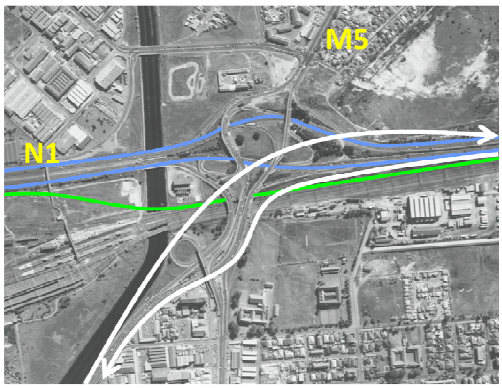
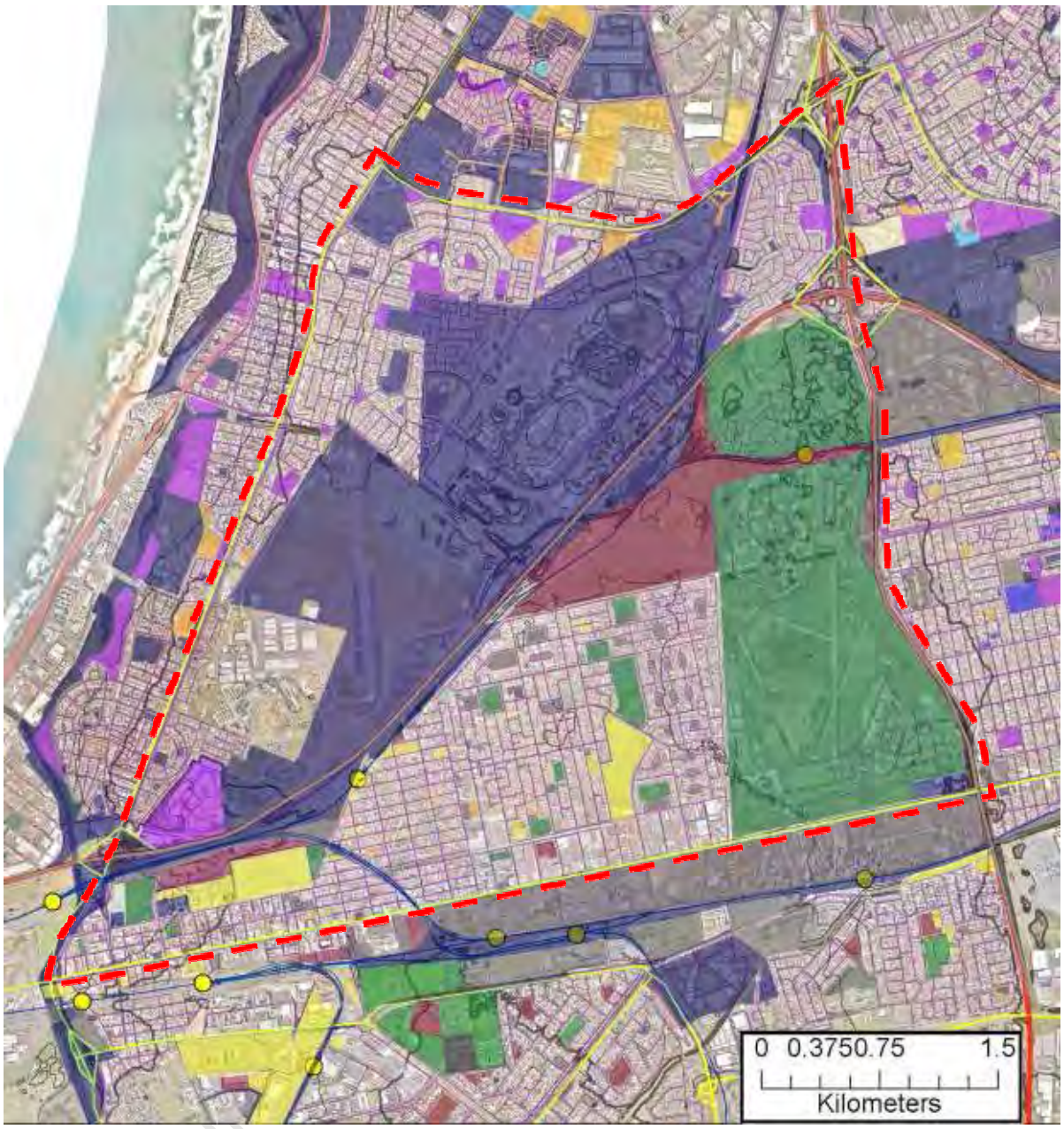


Figure 20: Koeberg Interchange Upgrade (Haiden 2008)

Transport is a vital component to the SDF in the northern inner district as a good transport service aids in accessing urban opportunities. At present transport in the city is not sustainable, thus an intermodal perspective needs to be adopted and efficient road and rail links must be implemented (Frieslaar 2006). The proposed BRT system is a step in the right direction, however it has its limitations in that feeder buses are required, particularly further away from the designated route. Also, there are doubts to the feasibility of a BRT system in the CCT due to low densities (Behrens 2009). In addition, the skills required to operate the BRT system would have to be developed, which would require time and funds. The priorities for transport development should thus be to provide better access to major movement routes, particularly the N1 and N7, in order to facilitate movement, as well as to improve the public transport system to attract commuters, thus reducing car dependency. This will have the additional benefits of being economically viable, reducing pollution and meeting the needs of growing suburbs (Frieslaar 2006).

4.4.7. Landownership

Map 19 below shows landownership, excluding residential property. This is used as a general indication of landownership, however due some parts having 'no info', as well as no differentiation between areas marked as 'other', the data is, to a certain extent, incomplete. Despite the relatively poor graphic representation of landownership, it should be noted that major land parcels of strategic importance, i.e. Ysterplaat and Wingfield/Acacia Park, are owned by the Department of Public Works and occupied by the Department of Defence (City of Cape Town 2009b). Ysterplaat, which is viewed as a strategic site that has significant development opportunities due to its proximity to the city centre and major transport routes, is currently used as an active airport and there are no indications that the military will be terminating operations in the short to medium term (id.). Some parts of Wingfield have also been transferred to the Ndabeni Community Development Trust as a result of land claim agreements. Furthermore, according to the City of Cape Town (2009), some informal settlements are to be relocated to Wingfield and Acacia Park as part of land restitution. Another area with development potential is the area to the west of Acacia Park, which is owned by Transnet (Frieslaar 2006). Also,



Legend

- Business/Organisation
- Central Government
- Government
- Local Authorities
- Parastatal
- Private
- Private Corporate
- Provincial Government
- Municipality
- No Info
- Other

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Northern Inner District SDF

DISTRICT ANALYSIS

Landownership

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

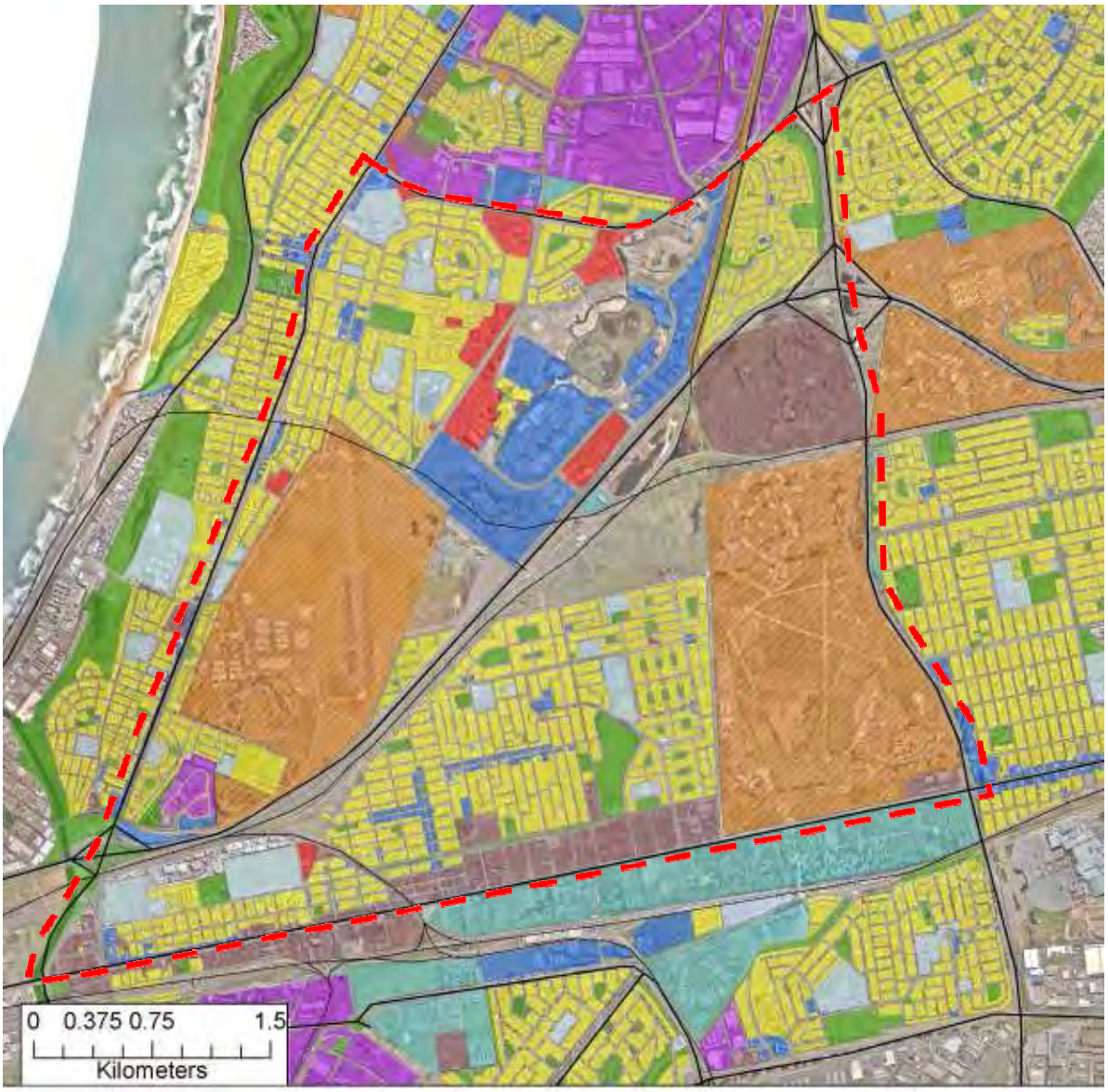
Century City is owned by a private developer (i.e. Rabie Property Group). The ability to provide housing opportunities is limited by the lack of public landownership. Hence, due to this lack of public owned land, it is a priority to acquire land for housing purposes. As can be expected, complicated development processes, such as land claimant agreements and site access, may result from ownership issues and other procedural requirements (id.).

4.4.8. Zoning & Land-use

The pattern of zoning and land-use in the study area appears to be 'reactive', with no apparent functional basis for the spatial distribution of land-uses. The spatial distribution of activities lacks an in-depth understanding of social, environmental and economic elements, all of which are important in order to balance economic growth and development, while facilitating sustainable development. In addition, in reviewing the zoning and land-use schemes it was determined that, although an array of activities is present in and around the northern inner district, there is a lack of mixed land-use. Mixed land-use ensures a more equitable and efficient urban system, thus this will be taken into consideration when developing the SDF.

Maps 20 and 21 below illustrate the general zoning, as well as the land-use within the northern inner district. Again, the data is somewhat incomplete, particularly with regard to more recent developments (i.e. Century City). In addition, the general zoning scheme does not necessarily represent what is happening on the ground. For example, some commercially zoned land appears to be occupied by residential property in Kensington, as seen when comparing the two figures below. Despite the deficiency in the data, for the purposes of the district analysis, it gives a sufficient description of current circumstances.

Commercial land-use is predominantly located along activity corridors, including Voortrekker Road and Koeberg Road (City of Cape Town 2009b), and is surrounded by residential land-use. There are also a number of areas zoned for industrial use in and around the northern inner district. Hence the land-use information gives an indication of the spatial distribution of urban activity, including residential property, commercial activity, open space etc.



Legend

- Business
- Community Facilities
- Community Purposes
- Industrial
- Local Authority
- Municipal Purposes
- Other
- Public Open Space
- Residential

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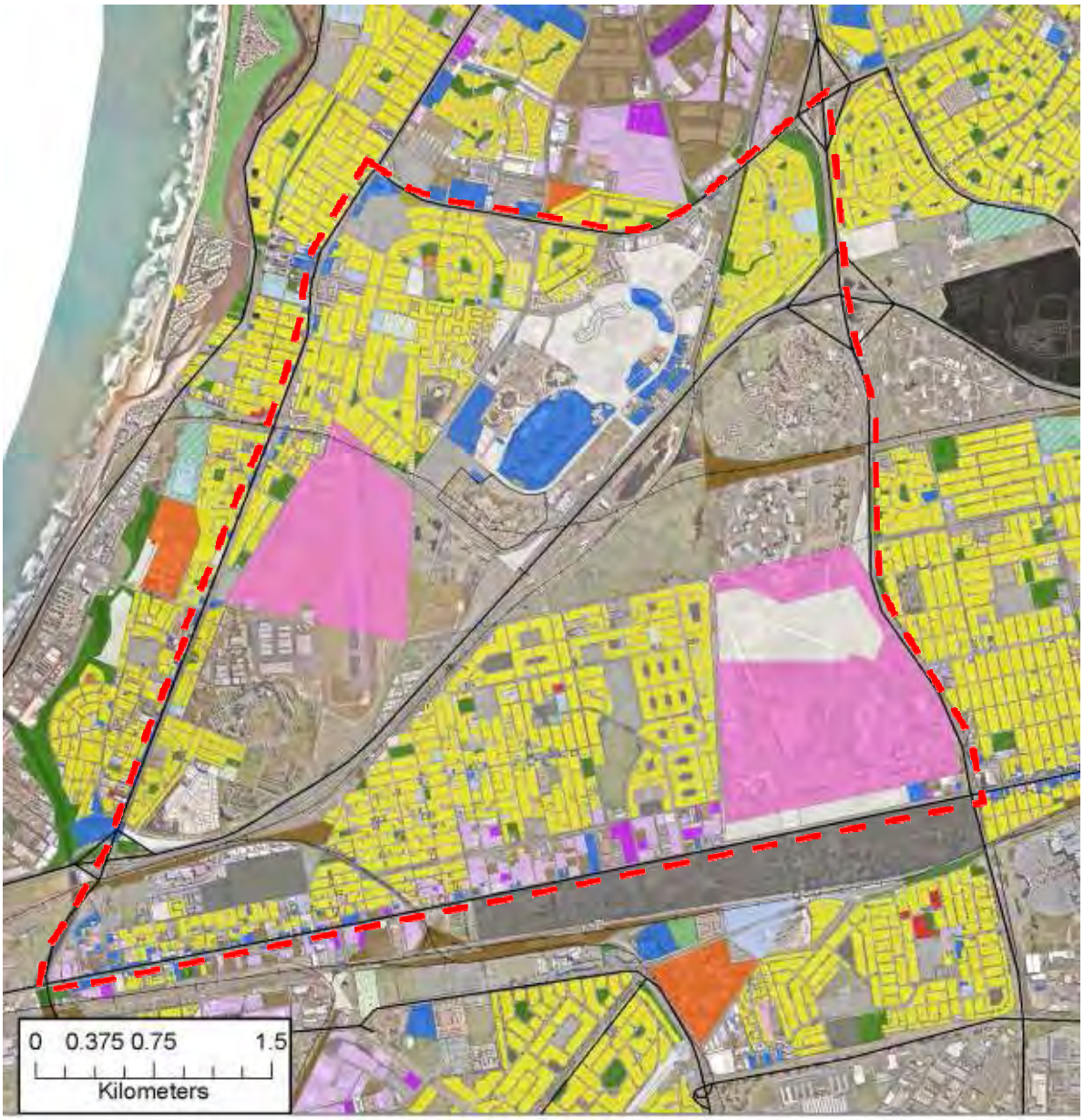
DISTRICT ANALYSIS

Northern Inner District SDF

Zoning

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT



Legend

Railway
Road
Residential
Institutional
Commercial
Civic Centre
Clinic/Medical Suite
Education
Golf Course
Guest House
Heavy Industrial
Light Industrial
Industrial Park
Informal Residential
Leased Land
Library
Hotel
Military Camp
Municipal Depot
Nature Reserve
Mixed Res/Comm
Research Facility
Sports Facility
Sports Field
Telecommunications
Transformer Site
Vacant
Veterinary Clinic
Warehouse/Workshop
Non-residential
Nursery
Old Age/Retirement
Place of Worship
Prison
Public Open Space
Public Park
Railway Facility

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DISTRICT ANALYSIS

Land-use

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

However, according to the City of Cape Town (2009), this information alone is not a good indicator of spatial distribution, as the intensity of land-use is not taken into account. For example, space-extensive activities (e.g. warehouses) tends to be overemphasised, whereas multi-storey buildings are often underemphasised (City of Cape Town 2007a). Intensifying land-use (such as through higher density residential development) is necessary in order to avert the consumption of valuable agricultural, as well as ecologically significant land. However, the implications of densification are that more facilities and services are required to support the community. Thus some degree of rezoning of land may be necessary in order to ensure that sufficient space for facilities, such as sport, education etc., is provided.

4.5. Sense of Place

As described by Nörberg-Schulz (1980), place refers to our surrounding physical environment as well as human perception of that environment, including the aesthetic aspects of colour, texture, form etc. The sense of place refers to the distinct elements (either natural or man-made) of urban areas that make them unique from one another. In addition, orientation, identification, symbolism, land use and hierarchy all contribute to sense of place. In settlement making, building standards and regulations are employed in order to guide development. However, if used incorrectly, the result could be negative impacts on human settlements and the development of 'nowhere places' that are characterized by a lack of structure. This has additional negative impacts on the natural environment, which is inextricably linked to the built environment. Hence, sense of place is an important element of urban spaces.

As can be imagined, the sense of place differs notably across the study area. This is illustrated in figure 21 below through a series of photos taken at different points in the northern inner district. The prominent land features of Table Mountain and Tygerberg Hill give a unique sense of identity to an otherwise monotonous landscape, and serve as reference points for orientation (1,3). At the more local level, the residential areas include a range of housing, from run-down, makeshift backyard shacks (4) to modest, muted housing (8,14) in the established areas, of which many are single dwelling plots. In comparison, the new developments of Century City offer voguish, high density dwellings, with a strong focus on security, landscaping and urban design (5,6). Note the contrast between gated communities and traditional

suburbs (11). Movement is mostly vehicle-orientated (7,13) and there is a conscious decision in new developments to provide space for cyclists and pedestrians (in the form of bicycle lanes and walkways) in order to counteract the strong car-culture in the city. Furthermore, the Canal Walk Shuttle Service, which makes frequent stops in Century City, is promoting a more sustainable, 'greener' means of transport. Lastly, conservation and recreational open space is widespread and has an important role in the urban space (2,10,15). However, it should be properly integrated into the urban space as thicket-concealed areas create unsafe environments (10).

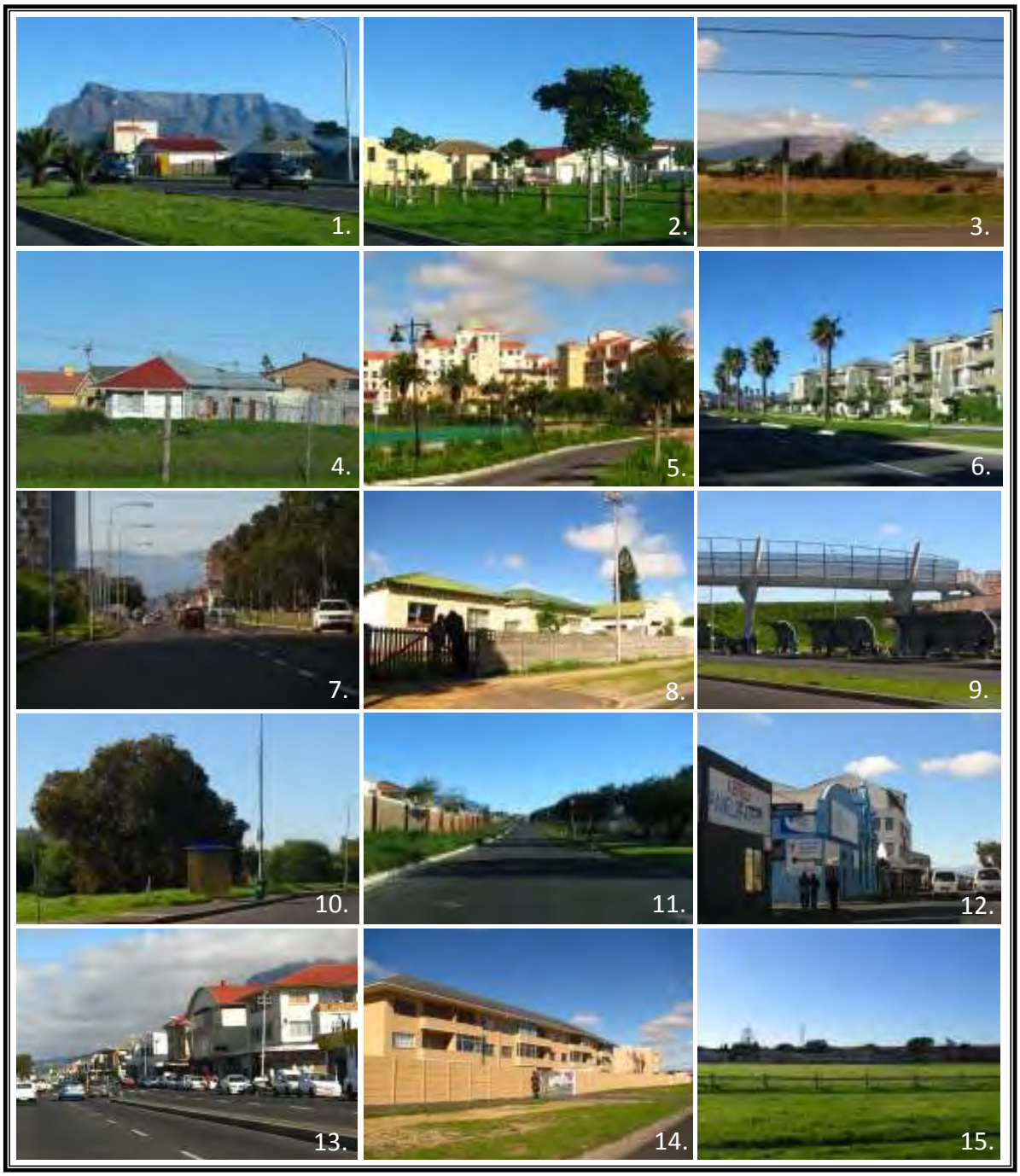

Figure 21: Sense of Place

4.6. Key Development Concerns

From the district analysis, it is evident that the northern inner district offers important development opportunities for urban improvement. The crux comes with trying to balance economic development and social equity, while safeguarding natural assets and promoting sustainable development. The most prominent issue arising from the district analysis is that of the lack of housing. Combined with the increasing number of informal settlement dwellers, this site becomes an important area not only just to house people, but also to locate them closer to urban opportunities. However, the development of housing in this area is contingent upon the release of government owned land to local authorities. Also, the necessary skills are essential in order for individuals to earn a living. Thus, skills development should be taken into consideration in the SDF as an issue of overall socio-economic development.

In terms of residential developments , the traditional single dwelling plot arrangement is not sustainable. Thus future development should take due cognisance of this and respond accordingly to enable higher densities. In addition, gentrification in the established areas that focuses on this point at issue is suggested in order to promote a sense of community and create safer environments (City of Cape Town 2009a). In addition to the housing situation, a sustainable public transport system is essential for the efficient functioning of the urban space and is a primary concern in the SDF. Ultimately, the key development concerns of the northern inner district SDF include meeting the basic requirements of the public; promoting economic development; creating quality, 'green' urban environments; and embracing cultural diversity.

4.7. Opportunities & Constraints

The development opportunities and constraints in the northern inner district, as derived from the sectoral analysis above, are identified below. The physical opportunities and constraints are illustrated spatially in maps 22 and 23. It should be noted that some non-physical opportunities and constraints (such as poor skills levels) also impact on the planning decisions within the study area, and are not graphically depicted. Firstly, as mentioned, the open spaces offer almost limitless opportunities as they form strategic sites that are in close proximity to areas of high employment and are well served by all transport modes and services infrastructure (Frieslaar 2006). The Wingfield site offers significant urban redevelopment opportunities, where a mixed-use area with a high residential density that contributes to a liveable

environment is envisioned. (City of Cape Town 2009b). According to Frieslaar (2006), there is space for at least 3050 dwelling units (DU) with a total of 61.5 ha of floor area (FA). Furthermore, there are additional opportunities for 300, 1560 and 3050 dwelling units with a total of 114.2 ha of gross leasable area (GLA) as shown in map 22. Where possible, mixed-use development should be facilitated, where residential, commercial, retail and community facilities are a part of the development proposal, thus creating a 'compact' urban space. Also, it is possible to improve densities through incremental densification in the 'single dwelling per plot' areas.

There are opportunities for further development and densification along the activity corridors, i.e. Koeberg and Voortrekker Roads. The impending Century City transport interchange offers an opportunity for an activity node with, for example, a market, public square, or commercial activities that may act as a focal point for the surrounding communities. Furthermore, improving integration across the various suburbs by providing more access routes (particularly connecting to the N1 and N7), would result in easier movement and allow better access to job opportunities. As shown in map 22, the BRT system offers opportunities for development along the BRT routes. While some lower order activity would occur at all of the stops, three of the BRT stops, namely Aerodrome (A), Centre Court (C) and Estuaries (E), have been identified as having particular development potential. This is due to the vacant land adjacent these stops. The result is that activity nodes can develop at these locations. Lastly, in terms of transport, to integrate the urban spaces, there is an opportunity to construct new road links where continuities in the road network exist (map 22). These links would provide an additional level of mobility to the people in the suburbs in the northern inner district, as well as across the N7 towards the east along Frans Conradie Drive and Milton Road (Goodwood area).

Another opportunity exists with the potential for a conservation area adjacent the N1 opposite Century City, where biodiversity can be incorporated into the metropolitan open space system (MOSS). An existing wetland could be rehabilitated and serve as a sanctuary for birdlife as well as provide ecosystem services, such as flood attenuation and contaminant filtering/water purification (City of Cape Town 2009b). This will also provide employment opportunities in the environment and tourism sector.

Legend

- Opportunity for Corridor Development
- Opportunities for Development
- Dependent on Release of Land for Development
- BRT Routes
- Location of New Century City Interchange
- Integrate Spaces Through Access Routes
- Potential Activity Nodes
- BRT Stops of Particular Potential
- New Road Links

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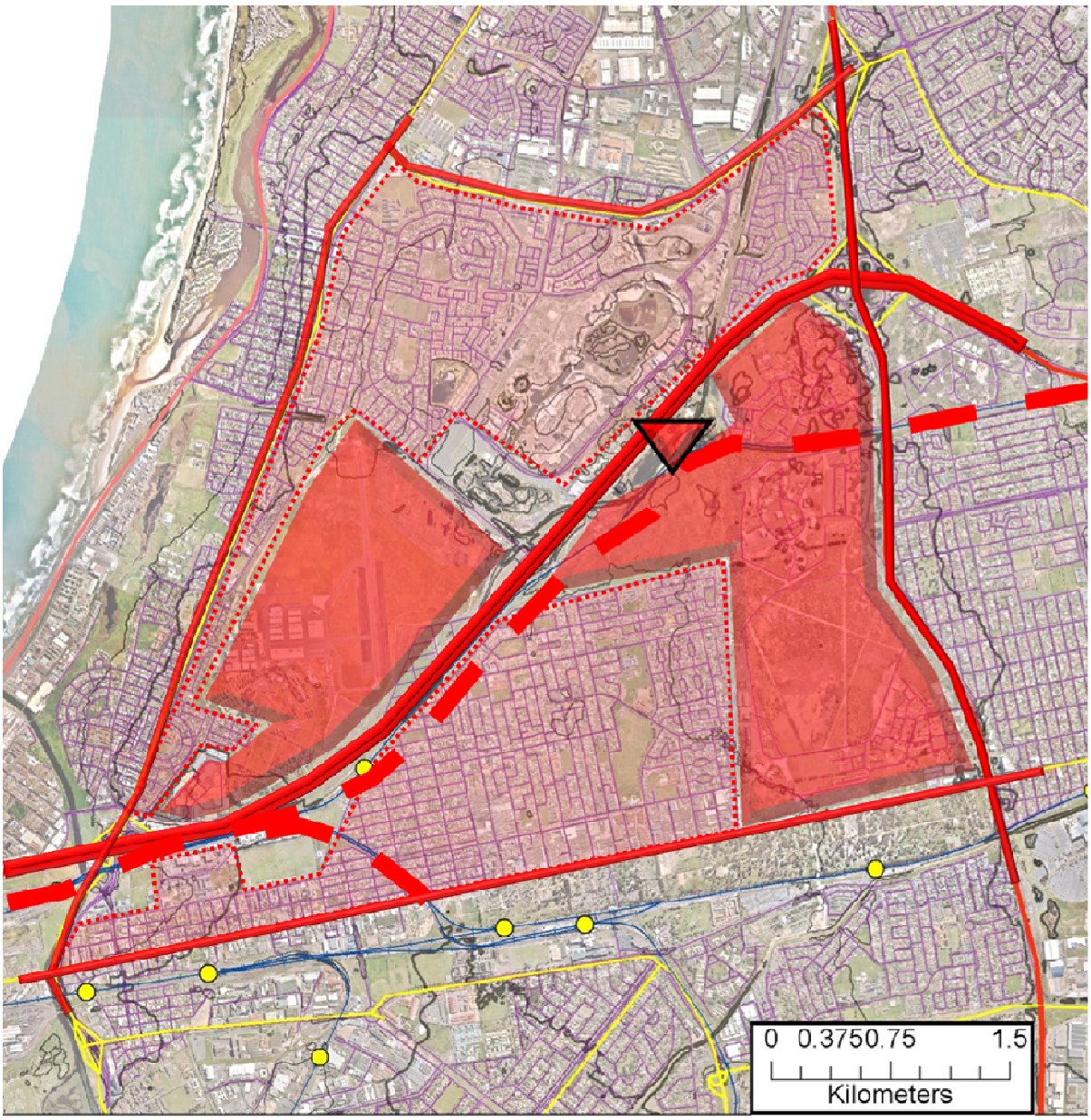
Northern Inner District SDF

DISTRICT ANALYSIS

Opportunities

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT; Frieslaar 2006



Legend

- Existing Developments
- Environmentally Significant Area
- Lack of Publicly Owned Land
- Roads
- Railway

23

Northern Inner District SDF

DISTRICT ANALYSIS

Constraints

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

The most prominent constraints to development in the area are the physical structuring elements, i.e. roads and railway infrastructure (map 23). Thus development should integrate existing transport networks and allow for more efficient movement. As mentioned, a second constraint is the lack of publicly owned land. The various landholdings currently result in a complicated spatial configuration and a co-ordinated attempt to development is needed. According to the City of Cape Town (2009b), a detailed feasibility study is needed in order to guide the acceptance of development proposals. Also, the study area, as with other older parts of the CCT, is facing increasing urban infrastructure constraints. The extent of this is not easily quantifiable in respect of all services, nevertheless, it is expected that increased infrastructure spending will be necessary during development (id). The provision of access and services infrastructure (such as water and sanitation) to the sites in question (i.e. Ysterplaat, Wingfield and Acacia Park) has to be specified so as to ensure that further development may be accommodated. A bulk services plan is thus necessary before development may commence (id.). In addition, an influx of people into the area will inevitably put added pressure on traffic, hence, further development is, to a degree, dependent on an effective public transport system. It should be noted that all infrastructure related issues are also dependent on funding in order to implement development schemes.

The existing development and current residents offer a constraint as to the types of activities that may be introduced into these existing areas as public participation allows for communities to have a say in the future of development proposals. Also, the demographic and socio-economic characteristics of Capetonians has to be considered. As the northern inner district is situated on prime land, it may be too costly for a large portion of households to occupy. In addition, the level of skills across the city is generally poor with growing skills shortages in the tertiary sector (City of Cape Town 2009c), thus skills development programmes will be essential in order to equip individuals with the necessary tools to access employment opportunities. Lastly, in addition to forming an opportunity, the existing wetland is a constraint as no development is permitted in this area. Thus, it should be used only as a nature conservation site. Furthermore, power lines are in place at several locations, particularly at Wingfield (figure 22). Hence, a green buffer zone of approximately 30 metres should be adhered to during development.

Figure 22: Power Lines at Wingfield

4.8. Interpretation

The district analysis elicits a number of important aspects of the urban space that need to be considered in the formulation of a district SDF, including social dynamics and cultural identity, socio-economic standing and economic development, environmental conditions, infrastructure capacity, land availability and public funds. All of these affect the nature of the plan and have implications for spatial planning, establishing development goals, as well as the execution of policies. This is further discussed below.

4.8.1. Implications for Spatial Planning

The current functioning of the urban system is unsustainable, economically unproductive and prevents spatial, racial and economic integration (van Heyningen 2007). Thus the goal of spatial planning is to shape growth and change, and direct development in a manner so as to produce the best outcome for the city. This is achieved through interpreting the economic forces of the northern inner district and initiating opportunities that will encourage private investment to further boost the development in the given area. The challenge for spatial planning is (i) to do this in an equitable way so that everyone may benefit from development schemes, and (ii) to ensure that urban opportunities are readily accessible to enable socio-economic uplift. A second challenge is to integrate city and nature, so as to create quality urban spaces that have a minimum impact on the environment.

The historical layout of the city has perpetuated 15 years after the inception of democracy and there is a need for a change in strategy to address the development problems. Seeing as the northern inner district offers a number of opportunities as a prime parcel of land with good access, there is potential for an SDF to reorganise the urban structure to create a more equitable, efficient city as a whole. In order to achieve this, a collaborative attempt by all departments and stakeholders will be necessary to realise development goals. Thus, in relation to the northern inner district, spatial planning should address the broad issues of development within the northern inner district while keeping with the planning principles as discussed in *chapter 1*.

4.8.2. Goals, Objectives & Policies

As stated by the City of Cape Town (2009b), the main goal should be infrastructure-led economic growth to promote job creation. This entails the provision of bulk water supply, sanitation, electricity, information and communications, as well as good access routes and an efficient, reliable public transport system. To achieve this, a services provision plan is necessary to identify where and when additional capacity is needed as, in essence, infrastructure provision has to be systematic (based on which areas are under greatest pressure) due to budget constraints. Included in this should be optimization mechanisms to ensure ecologically sustainable use of resources by, for example, reducing resource flows and lowering pollution levels. Also, demand management strategies would relieve pressure on infrastructure (van Heyningen 2007). Ultimately, this would contribute to healthier ecosystems, as well as improved living environments. In addition to infrastructure development, economic and social policy drives growth and development. Understanding these factors will aid in addressing the asymmetric growth and regional disparities (UN Habitat 2008). Addressing the socio-spatial disparities in the city also calls for effective governance, as issues cut across all spheres of government and civil society (van Heyningen 2007). Dealing with challenges through partnerships and community participation will aid in establishing shared growth and integrated human settlements, as well as promote safety and social development. In addition, support for small business enterprise and skills development will enable economic development.

Transport corridors improve access to community facilities and economic opportunities (id.), thus coordinated land-use planning and transport planning is needed to provide more efficient transport services that do not hinder the development of communities (Frieslaar 2006). Again, demand management strategies can be implemented to discourage private passenger vehicle use (Behrens 2009). To reduce the length and number of trips, densification and mixed-use developments are necessary, locating housing nearer to jobs. To promote densification, municipal departments must incorporate specific policies into planning and implementation processes (van Heyningen 2007). Thus, to sum up, planning and policy tools are required to direct investment and outline key areas of intervention (City of Cape Town 2009b) in order to

achieve the overall development goals of economic growth; densification; provision of infrastructure, such as sanitation and water supply; management of the environment and sustainable development; good governance; improving safety and security; creating a sense of community and maintaining cultural heritage; and creating a reliable, efficient transport system.

4.9. Conclusion

In this chapter, the contextual realities of the northern inner district were brought to light through an analysis of the various urban sectors. The most important development issues, as well as the opportunities and constraints to development, were derived, illustrating that although the current circumstances in the areas are not sustainable, there are prospects for improvement. While in reality the social, environmental and economic systems transcend the conceptual district boundaries, this focussed analysis identifies and considers the study area as a strategic area wherein urban development could have potential positive impacts at the city scale. The combined sectoral issues produce a unique set of conditions within which planning interventions must operate in order to produce the best possible outcome for the district, as well as the city at large. This, together with the findings of the metropolitan analysis, will be further discussed in the following chapter in order to come to a definitive conclusion about the role of the site. Subsequently, a development vision for the site may be established.

5. Synthesis

5.1. Introduction

In this chapter, the findings of the district analysis (*chapter 4*) are synthesized. The socio-economic and spatial trends, as well as the resultant development problems in the northern inner district, are discussed. Consequently, the key strategic development priorities that the intervention should focus on are brought to light. In addition to this, an overall synthesis is carried out. This combines the findings of the metropolitan analysis (*chapter 3*) with that of the district analysis in order to gain a holistic view of the dynamics and functioning of the site. The result is a top-down/bottom-up approach to making decisions regarding the development of the site. Through this process, the categorical role of the site is specified.

5.2. District Synthesis

By means of the analysis at the district scale it was possible to gain an in-depth understanding of the urban structure, social, economic and environmental conditions. It is evident that, when considered in isolation, the northern inner district forms an archetypal urban space that is representative of the CCT and the totality of its socio-spatial issues. The study area is spatially fragmented with a poorly integrated transport network. The wealthy are located in the northern part of the site and have better access to urban opportunities, while the poorer communities are located in older, often run-down areas in the southern part of the site. There is a disparity between where investments are being directed, and where they are actually needed. In addition, a certain degree of urban decay is apparent in Factreton. This is also true for parts of Koeberg Road due to the fact that investments are being directed into high-end commercial developments, such as Canal Walk. A discussion of the contextual realities of the northern inner district follows. From this, a statement regarding the role of the site may be presented.

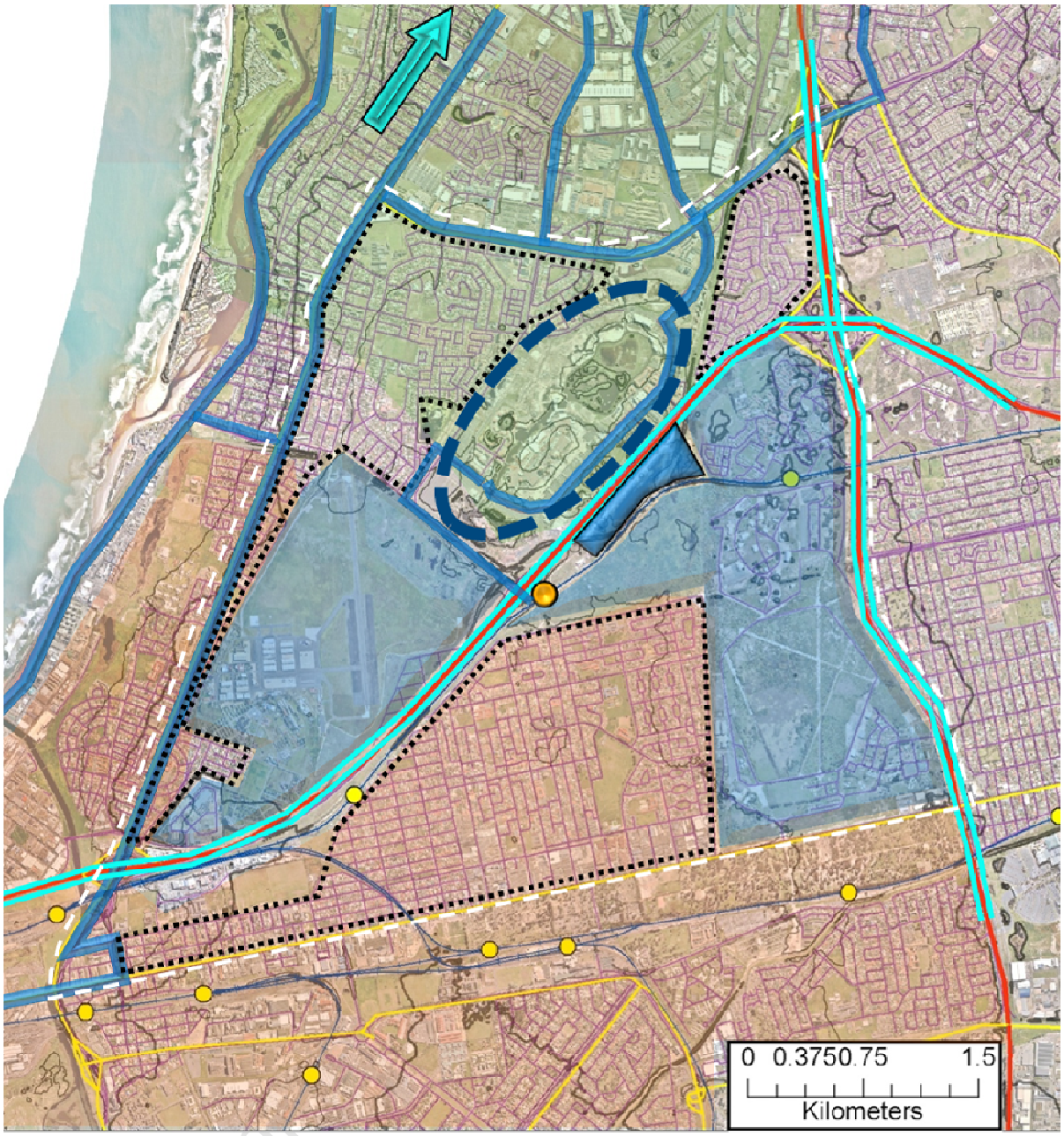
5.2.1. Performance & Development Priorities

According to the urban performance criteria (i.e. integration, access, efficiency, environmental integrity and equity), the northern inner district has some inadequacies. It is evident from the district analysis that through planning intervention, all of these aspects within the study area can be

improved. Map 24 below illustrates the synthesis of the district analysis spatially. The most pertinent features are highlighted as these are identified as being the most strategically salient to development. These pertain to the environment, the transport system and urban restructuring. Through strategic interventions aimed at improving these three aspects, environmental assets may be protected and enhanced, a more efficient transport system may be achieve, and more integrated, equitable areas may be created, all of which would contribute to a well-functioning urban space.

Firstly, in terms of the natural environment, few areas of ecological importance were identified. Urban development has already had negative impacts on the endemic vegetation in the study area and, as a result, no cohesive green system exists. Thus, further development should include a 'green programme' that would aid in prioritizing the open space system and creating quality urban environments. Incorporating natural features into urban development also promotes conservation and the proliferation of endemic flora. The areas where development is, and is not, permitted is illustrated in map 24. The only place where urban development is not permitted is the wetland adjacent Acacia Park. In addition, assuming that the government owned land becomes available to local government for development, certain development guidelines have to be adhered to. As discussed in *section 4.4.1*, at least 20% of Wingfield must remain open space. Furthermore, as Ysterplaat and Acacia Park are largely undeveloped, there are great prospects to establish a well integrated green system within the urban development so as to increase the aesthetics and liveability of the areas. Thus, the first issue to deal with in the intervention is integrating a well organized green network in the northern inner district. This will contribute to the environmental quality in the area and enable equitable access to green spaces.

From the district analysis, it is evident that the northern inner district is serviced by a good transport network with a strong east-west route (N1) and north-south route (N7), as well as the rail network. However, the problem with the transport network is that it is lacking cohesion. Access to the above mentioned movement routes is clearly limited, with few access points to the



Legend

- Potential for New Development
- Possible Improvement Through Incremental Upgrading
- Focus of Investment & Rapid Development
- Direction of Growth & Investment
- BRT Routes
- General Decline in Growth
- Barriers to Integrating Urban Spaces
- General Increase in Investment
- No Development Zone / Conservation Only
- Location of New Century City Interchange

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Northern Inner District SDF

SYNTHESIS

District Synthesis

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

freeways, and the rail network is quite inaccessible to the areas north of the N1. In addition, the freeways act as barriers, disrupting the continuity of the urban space to a degree. Thus, it is important to restructure the northern inner district in order to create more unified spaces. The construction of the Century City interchange with the proposed BRT system is a positive step towards a more integrated transport network (map 24). It will provide accessibility, not only within the site, but will also provide a crucial access route along the northern growth axis, where public transport is mainly provided by the informal taxi industry. Thus, the link created through the Century City interchange will provide easier access to the urban opportunities for the people located in the generally declining areas. Further ways to improve the movement network and integrate the urban space, thereby enhancing efficiency, is the second issue to be dealt with in the intervention.

The last issue that has been pulled from the analysis is that of the types of development suitable for the northern inner district. As previously stated, due to the high degree of accessibility and the improving transport system, the area has a significant amount of development potential. In order to influence the overall functioning of the city, it is necessary to have mixed-use development in the areas that have potential for new development (map 24). 'Mixed-use' essentially entails providing variety and convenience (Bosselman 2008). The population should be afforded the opportunity to exercise their preference in how they move, work, live and play. For example, while some may favour a vibrant, urban public square, others may prefer a more tranquil, profusely landscaped open space. Hence, the emphasis should be on place making, where natural and urban elements are combined to create vitality, liveability and sense of place (id.). In addition, sufficient densities should be planned for, thus promoting a more compact city. More compact urban areas result in more efficient infrastructure and transport systems that are less costly to maintain (Lynch 1981). Finally, the development in the northern inner district should embody all of the planning principles (*section 1.4*). This includes support for informal economic activity, the preservation of the cultural identity of the area, as well as the restitution of land claims in Wingfield. The final issue to be dealt with in the intervention is thus the creation of quality, equitable urban spaces that allow access to urban opportunities to all socio-economic groups.

5.2.2. Site Role

Due to the amount of open space in the study area, the site may assume several roles in addition to the existing commercial and residential functions etc. At the district scale, it is evident that although there is potential in the northern inner district, there are a number of spatial and developmental issues that must be considered. These include the need for lower income housing and more employment opportunities. Hence, the possible site roles are guided by the needs of the local communities. Assuming land is available for development, a possible role may be to relocate some of the population overflow from surrounding areas (particularly Factreton). This would entail the development of government subsidized low cost housing and gap housing. Furthermore, as determined in *section 4.4.2*, skills levels are not adequate to compete in the changing economy in the northern inner district. Adult education is a viable option to deliver hands-on skills to low skilled individuals, thus ultimately promoting socio-economic development. Some small scale subsistence farming is also a possibility, and although the surface conditions (sandy soils and general water scarcity) are not perfect for agriculture, an irrigation system and the use of fertilizers etc. could make this possible. Hence, skills development and 'self-help' initiatives are proposed for the Wingfield and Acacia Park areas.

In contrast, the role of Ysterplaat is envisioned to be more commercially driven due to its proximity to the N1 and the already established Century City development. That's not to say that lower income individuals will be excluded from this area, however a large portion of this area may be assigned to office space and business services etc. Due to the traffic congestion, largely owing to the fact that a considerable number of jobs are located in the Cape Town CBD, positioning more offices in this area may result in a more 'distributed' use of the transport network. Finally, the role of the existing

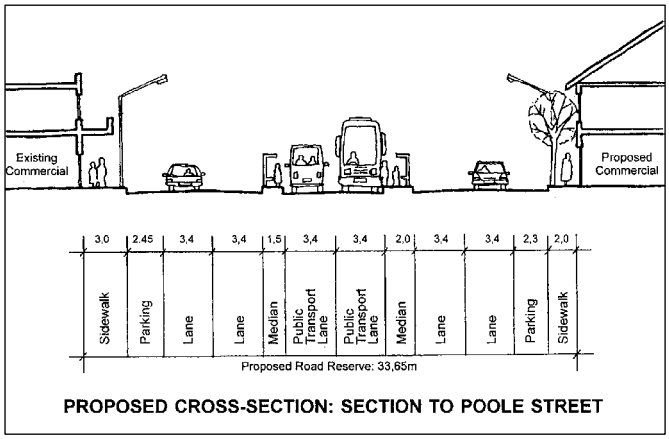


Figure 23: Cross-section of Koeberg Road with BRT Lane (Haiden 2008)

urban developments should be reinforced by increasing dwelling densities in the residential areas (e.g. Tijgerhof and Sandrift) where appropriate, as well as the creating more pedestrian friendly environments along the activity corridors (i.e. Koeberg Road and Voortrekker Road). The BRT route is projected to be particularly conducive to this along Koeberg Road as it has the potential to decrease the number of private vehicles in this vicinity.

Examining the study area at the district scale elicits more specific possibilities for the role of the site than that of the metropolitan analysis (*chapter 3*). To reiterate, the conclusions regarding the role of the site derived through the metropolitan analysis primarily focuses on a crucial issue in the CCT, namely that of the housing crisis. It is recognised that there is need to provide secure tenure in a stable, safe environment for lower income households, as well as the need for socio-economic development. This is achievable through locating people from the Cape Flats closer to urban opportunities in order for them to participate in urban activities, thereby improving their standard of living. In addition, the individuals/households that are located closer to economic activities can in turn send financial support to extended family that may still be located in impoverished areas, thereby adding to economic uplift.

The site role elicited through the district analysis and synthesis, on the other hand, considers development at a much more local scale, identifying long term strategies to improve the urban structure and functioning in this area. The district scale site role is focussed on improving the living standards of the population through proactive measures, as opposed to merely relocating people. Relocation does not automatically solve issues of social and economic disparities. Thus, in a sense, the district scale site role focuses more on social aspects than spatial aspects. Through smaller scale initiatives, the aim is to allow people to become more self-sufficient by creating not only living spaces, but also spaces where they can earn livelihoods and improve their standard of living. In the following section, the overall synthesis combines the findings of the metropolitan and district analyses in order to come to a definitive conclusion regarding the role of the site.

5.3. Key Development Issues

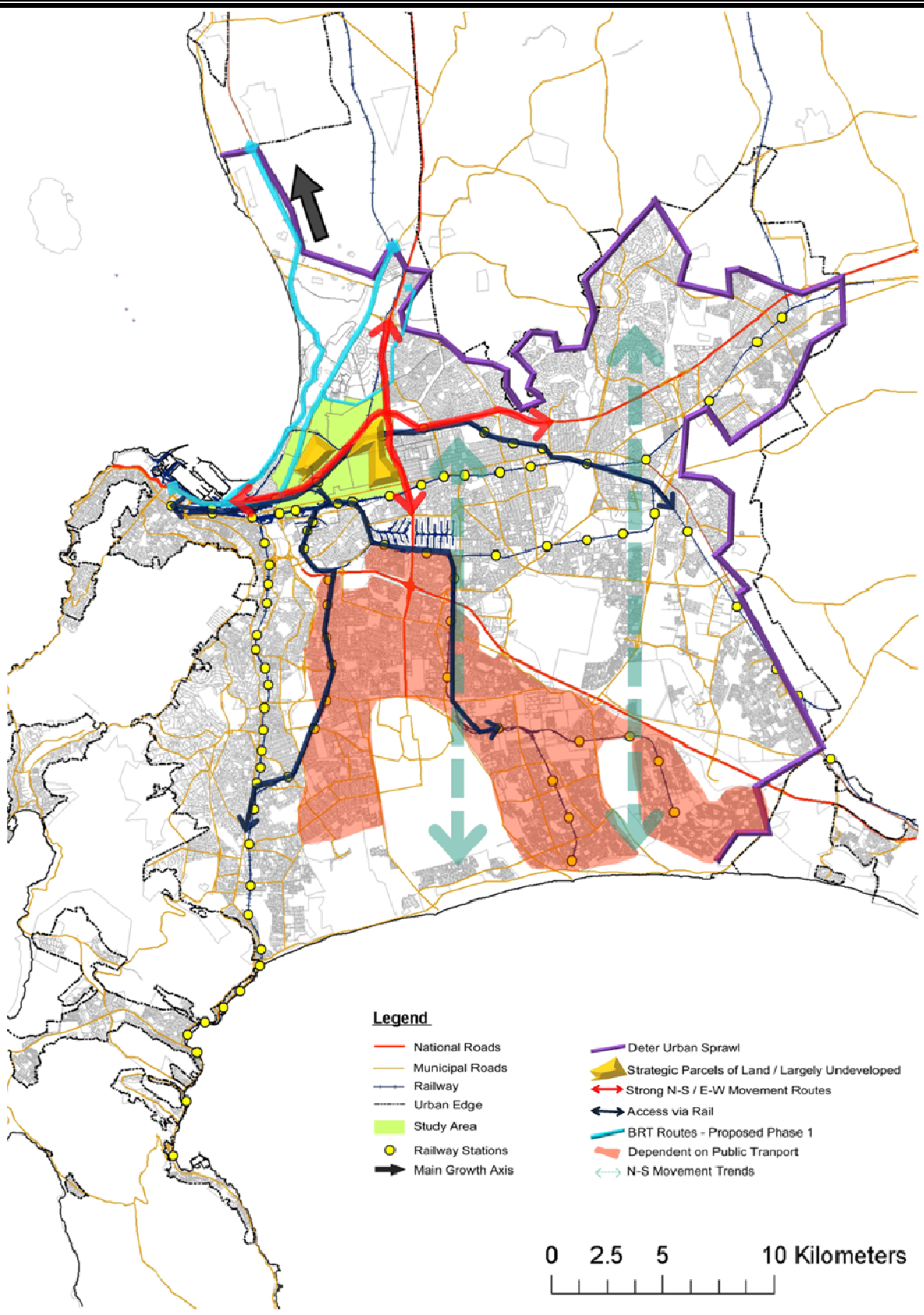
Juxtaposing the findings of the metropolitan and district analyses highlights the existing socio-spatial problems and elicits the key development issues that affect the northern inner district, as well as the CCT as a whole. These are accordingly summarized in table 8 below. As shown, the key issues include the housing crisis, high poverty levels, negative impacts on the natural environment, an inefficient transport system, and spatial fragmentation, and it is expected that interventions focussed on the development priorities will address these key development issues. These issues are all interconnected in some way or another. Thus, owing to the complex nature of the urban environment, a shortcoming in one area may negatively affect another, and vice versa. To illustrate this point one may say that poverty, for example, exacerbates the issues with housing, whereby a significant portion of the population is excluded from the market and forced onto marginalized land, in turn contributing to spatial fragmentation. To address these issues, both policy programmes and physical (spatial) schemes need to be employed. For example, by initiating government-aided urban agriculture programmes, issues related to poverty may be addressed and sustainability may be promoted. Measures that support equitable urban development will be further explored in *chapter 7*.

Development Issue:	Addressed by:
Housing Crisis	Investing in a range of housing to cater for all income groups
Poverty	Promoting social & economic development by providing more opportunities
Environmental Degradation	Protecting environmental assets & encouraging sustainable development
Inefficient Transport System	Improving public transport to provide better access to urban opportunities
Spatial Fragmentation	Restructuring urban space to create a more equitable, integrated city

Table 9: Key Development Issues

5.4. Overall Synthesis

The city has a diverse demographic composition from a range of socio-economic backgrounds, of which a significant proportion (over 1/3) is living in economically sterile, vulnerable environments. In addition, investments are being directed further and further away from these poorer areas. Thus, the northern inner district SDF should aim to rectify these socio-spatial disparities and provide more opportunities for social and economic uplift. Two strategic options to achieve this are plausible. These include (i) relocating people closer to urban opportunities so that they may access social facilities etc., or (ii) bring economic activity to poor areas (i.e. Cape



Northern Inner District SDF

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Overall Synthesis

Scale: 1 : 148 000 at A3

Source: ENPAT DEAT; City of Cape Town 2006a

Flats) through investment. However, as the SDF is specific to the confines of the northern inner district, the intervention must focus on the strategic decisions that can be made in *this* area.

From the district synthesis, it is determined that the spatial priorities central to the development of the SDF are related to the environmental, transport problems, and the trends in development. This is illustrated spatially in map 25 above at the city scale. As shown in map 25, the northern inner district is accessible to many parts of the city via rail. It is also highly accessible via the freeways, and the proposed BRT system will further improve access. The N7 also forms an opportunity as an important link in the road network to improve north-south movement across the city. In addition, it contains a few open parcels of land in which the right types of development could have positive effects on the city as a whole. The existing 'single dwelling unit per plot' pattern (which occurs in both wealthy and poor areas) is not sustainable. This culture that is ingrained in society is contributing to urban sprawl, a serious issue in the CCT. The CCT is geographically the largest city in South Africa, spanning an area of 2,455 km^2, resulting in a relatively low population density (UNEP Local Action for Biodiversity 2008). Furthermore, as more land is needed to accommodate this kind of development, people settle further away from activity centres. The result is congested transport networks, inefficient use of infrastructure, and the isolation of the urban poor. Hence, it is essential that development in the northern inner district deters urban sprawl.

5.5. Final Site Role

As shown in map 25, the northern inner district is essentially located at the interface of the areas experiencing economic growth, and those that are declining. This is a pivotal point within the CCT where two major freeways and two modes of public transport (i.e. rail and BRT) converge. Thus, the site is well suited to become a major node in the city. The role of the site may be defined in terms of (i) land-use and (ii) structure and is further discussed below:

(i) *Land-use*

Within urban areas there is inevitably competition for available land. In the northern inner district, there is tension between private commercial and residential development, and the need for government subsidized housing. While high-end, market-driven development does contribute to

the economy, it typically excludes the possibility for lower income households to participate in the urban arena, thus perpetuating the marginalization of these income groups. Furthermore, besides the contention between the various income groups vying for land, there is the need to retain and protect open, green space. Thus, there is a need to strike a balance in order to ensure that this prime land is utilized in an equitable, sensible way so as to accommodate all the factors as discussed above.

Due to the vast amounts of open space in the northern inner district, it is proposed that a variety of developments take place in the study area, ranging from low income housing to high-end development. This will facilitate the integration of urban spaces and different socio-economic groups. Specifically, the Wingfield and Acacia Park areas are envisioned as suitable for low to medium income development where poor people may be relocated, while Ysterplaat is considered to be more suitable for commercial development (similar to that of Century City). As determined in the district analysis, there is a problem of low skills that cannot be matched with the current, high-tech orientated jobs in the northern inner district. Therefore, it is important to invest in skills development facilities and programmes. Also, through social networks and community forums, knowledge/skills sharing may occur. This is particularly beneficial to low income households as formal education is often too costly. The wetland is seen as a significant natural area that has a number of opportunities ranging from conservation and education, to tourism and job creation. Furthermore, the northern inner district is envisioned as a potential major node in the CCT where, through the Century City interchange, access to other parts of the city becomes possible.

(ii) *Structure*

At the macro- and meso-scale, the restructuring of the area in not feasible. However, at the micro scale, several restructuring prospects exist to alleviate the pressure of traffic congestion at particular

bottlenecks and create more integrated urban spaces. This is achieved primarily through the construction of new road (main structuring element) links. Traffic congestion is a significant problem along the N1, Koeberg Road, as well as Marine Drive (along the west coast), particularly during peak hour as commuters travel to and from the Cape Town CBD. Two high congestion roads intersect at the Koeberg / N1 interchange in the south west corner of the study area. Thus, this is a priority area for intervention. The CCT's current upgrading of this interchange (as shown in *section 4.4.6*) will, in the short-term, aid in improving traffic flows in this area. However, long-term strategies are necessary in order to manage traffic. These strategies would primarily focus on promoting public transport as an alternative to private passenger vehicles. As a good road infrastructure exists already, improvements may include development of these routes. The N1 in particular could be improved through modifications to include a hierarchy of transport lanes (i.e. buses, mini-buses, high-occupancy vehicle etc.). This long-term strategy would promote easier movement on this route, as well as provide alternate, money-saving options.

There is a clear need to improve north-south movement routes, as well as to open up linkages between these routes to facilitate movement. This may be achieved through the implementation of new lower level routes that link up to higher level routes (i.e. the main movement routes). These are particularly needed in the Wingfield and Acacia Park areas. As discussed in *section 4.7*, the extension of Frans Conradie Drive and Milton Road, as well as extensions of Sable Road in both directions to Koeberg Road and over the N1 into Kensington, are two strategies that would improve integration of areas, as well as improve access to surrounding areas. These ideas will be further explored in the intervention (*chapter 8*).

Another structuring element is public spaces (Behrens and Watson 1996). Public squares, where the masses can gather, should be surrounded by more intense mixed-use development that decreases towards the areas that are more residentially focussed. Furthermore, a 'green' network (i.e.

open space system) forms an important structuring element. The northern inner district should contain a well organised green network to provide natural spaces for recreation and enjoyment, as well as the conservation of endemic species. Finally, creating and maintaining a green buffer zone around primary movement routes (freeways), as well as creating green elements along lower order movement routes would complement the movement structure and enhance the environmental. By implementing these kinds of green elements that conform to the road network, green spaces can be linked to create continuity in the open space system.

Since development is strongly influenced by the economy, the structural organization of economic activity should be such that it offers unrestricted access to all socio-economic groups. In particular, the provision of space dedicated to the informal economy (in addition to government support for this sector) should form a part of the urban structure in the northern inner district. Furthermore, the structure of the northern inner district should be, as mentioned, mixed-use orientated and at the human scale. This entails the development of activity hubs that are accessible for non-motorized forms of transport (i.e. pedestrians and cyclists), and medium to high density, low-rise residential blocks. These types of development create a 'community atmosphere'. Also, higher densities than the current 'single dwelling plot' opens up land for other uses, such as public open space and facilities. Hence, it is evident that urban structure can influence the social dynamics and aid social and economic development. Thus, restructuring the northern inner district should be focused on creating quality, integrated, mixed-use spaces.

In summation, the role of the northern inner district is to include higher density, mixed-use development so as to promote a more compact city. The area is envisioned to function as a central node in the city where a range of activities (e.g. social, cultural, commercial and recreational) may be provided. Also, development should include a range of housing typologies in order to cater for all socio-economic groups, thereby creating a more diverse urban fabric. Ultimately, development should focus on strategic decisions that will aid socio-economic growth and promote

equality. Through this type of development, the northern inner district may act as a model for more 'people orientated' urban development in the rest of the city.

5.6. Conclusion

In this chapter the findings of the metropolitan and district analyses were synthesized, and in so doing, elucidated the key development issues (summarized in table 8), the site role and the key development priorities, the latter of which will be focussed on in the intervention. These include environmental issues, problems related to an inefficient and ineffective transport network, as well as existing development trends. These aspects are highlighted as strategic areas for intervention that would address the broad development concerns in the CCT, and result in positive contributions in the study area, as well as the city as a whole. Selecting the most appropriate intervention calls for a review of the relevant literature. Both theoretical writings and precedent is considered in *chapter 7* as a fundamental input in the SDF process. Prior to this, an appraisal of the CCT's existing SDFs (*chapter 6*) is carried out.

6. Appraisal of Existing Spatial Plans

6.1. Introduction

In *chapter 5*, through the process of synthesizing the findings of both the metropolitan and district analyses, the key development issues and strategic aspects for intervention (i.e. environment, transport and development trends) in the northern inner district were ascertained. Together, these form the basis for the literature review (*chapter 7)*. Prior to the literature review, the existing spatial plans for the CCT, along with their understanding of the existing socio-spatial issues and urban characteristics, are each reviewed. These plans include the metropolitan spatial development framework (MSDF) of 2001, the municipal SDF (muni-SDF) of 1999, the Cape Town SDF of 2009, as well as the district plans of 2009 relevant to the study area. This review is carried out in an attempt to evaluate the abovementioned plans in terms of the urban performance criteria (i.e. the planning values as discussed in *section 1.4*), as well as to assess how effective these plans are/will be in effecting results that are beneficial to the development of the city. Thus, through a critical assessment of the city's plans, the useful and applicable spatial strategies will be highlighted and carried through in the northern inner district SDF.

6.2. Metropolitan SDF 1996

The MSDF of 1996 serves as an overarching guide for development-orientated spatial planning in the Cape Metropolitan region (CMR) and, being approved by the local Cape Metropolitan Council (CMC), forms a concept plan that acts as a reference for development in the city (Cape Metropolitan Council 1996). Although it is not a statutory document, government authorities in the CMR are expected to act in accordance with the MSDF guidelines. The purpose of the MSDF is to guide the form and location of spatial development at the metropolitan scale and direct the growth and expansion of communities and the private sector. The planning goals of the MSDF differ from previous spatial plans in that it takes due cognisance of the need to address the historic legacy and rectify the divided, inefficient nature of the CCT. The MSDF puts forward the spatial problems in the CCT, including the issues of poverty, poor public transport and environmental degradation, and envisions a compact, integrated metropolitan region where sprawl is contained. Through directing spatial development at the metropolitan scale, the MSDF aims to create the pre-conditions for development to occur and economic growth to flourish.

The MSDF has highlighted four main structuring elements which form the mainstay of the CCT's urban development. These include urban nodes, activity corridors, a metropolitan open space system, and the urban edge. Figure 24 below illustrates the main spatial elements of the CMR as per the MSDF. As shown, Voortrekker Road, which is seen as a mature corridor, and Koeberg Road, which is seen as an incipient corridor, are indicated as significant metropolitan corridors that should be surrounded with medium to high densities[11]. It is important, according to the MSDF, that lower order activity streets reinforce the activity corridors. Also, it plans for a north-south link along Symphony Way (activity spine no. 9) to link the proposed Philippi node to the Bellville CBD. Finally, to enhance the overall quality of urban areas, green open space (whether for public/recreational use or conservation/agriculture) should complement urban development. From these main points, it is clear that the MSDF considers a grid-like structure in the metropolitan as conducive to development and economic growth.

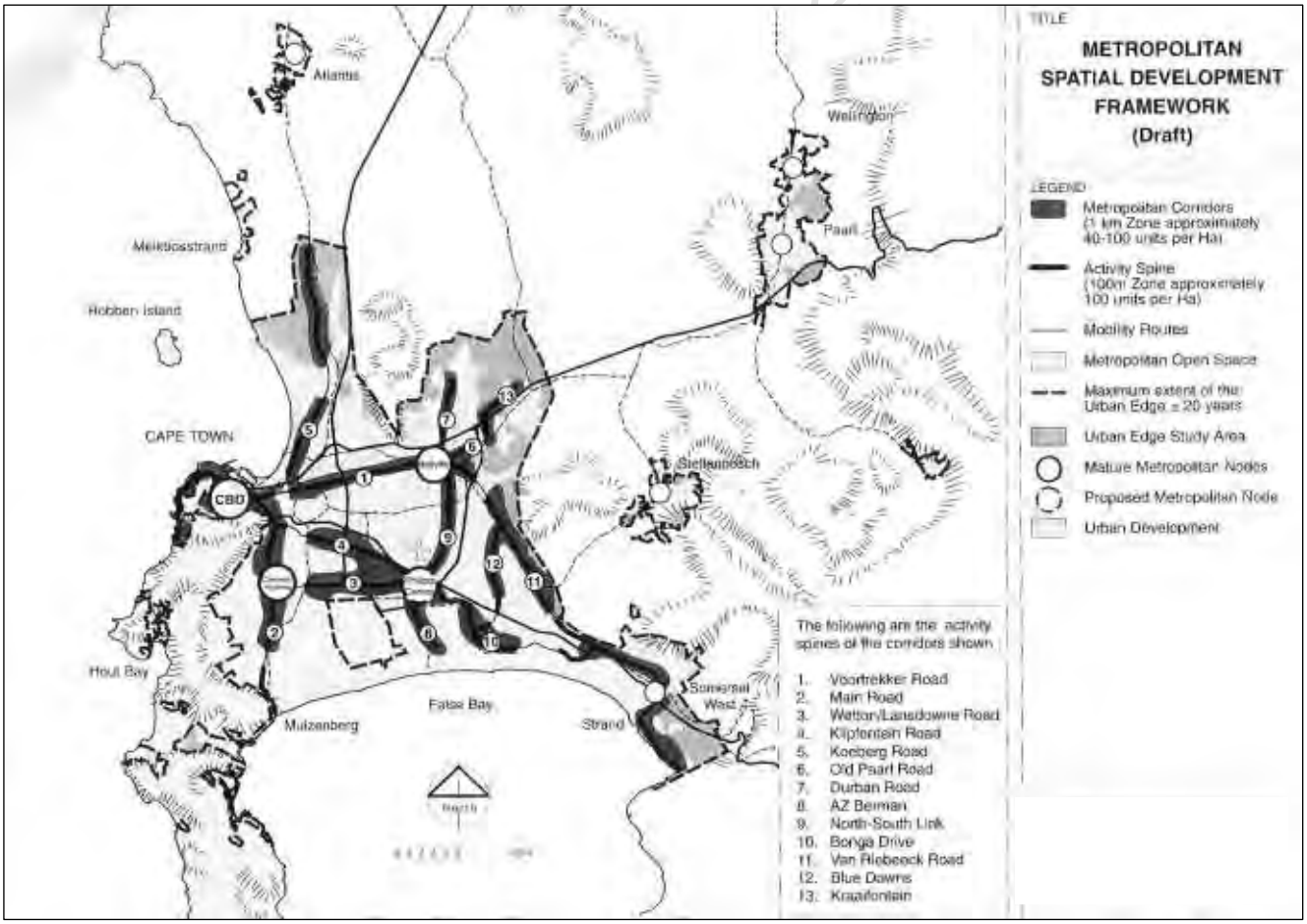


Figure 24: MSDF Plan 1996 (Cape Metropolitan Council 1996)

[11] Medium to high densities defined as 40 – 100 dwelling units per hectare *gross* (Cape Metropolitan Council 1996).

Addressing the traffic congestion and accessibility to urban opportunities through the decentralization of economic activity (from the Cape Town CBD to other nodes) is a positive attribute of the MSDF. However, as previously stated, much of the economic growth has occurred along the northern growth axes as opposed to along the designated activity nodes and corridors. This has hindered the objectives of the MSDF as the investment needed to develop these activity areas have been mostly directed towards other areas. Thus, the MSDF hasn't had a significant impact with respect to citywide development since its inception. While the MSDF fails to acknowledge the northern growth axis and the weak north-south link, some valuable ideas have come out of this framework. These include the importance of an open space system, the importance of fixing the urban edge and making use of underutilized land within the CMR, the need for mixed-use development and higher densities, as well as the role that activity nodes and corridors can play in promoting socio-economic development. These ideas are still pertinent to the development of the CCT and may be carried through to the northern inner district.

6.3. Municipal SDF 1999

The muni-SDF is a follow up to the MSDF of 1996 whereby the ideas have been more fleshed out in an attempt to stimulate development in the municipal area. To some extent, the muni-SDF is more detailed than the MSDF as it identifies a number of specific projects and strategies to promote development in the city, opposed to merely giving general citywide guidelines. Hence, it is anticipated that the muni-SDF would be somewhat more productive in realizing development goals. However, since the muni-SDF has no formal status (and the current Cape Town SDF and District plans are draft versions awaiting approval), the MSDF remains the official development framework in effect. Nevertheless, the muni-SDF remains an important aspect in the evolution of the CCT's spatial planning strategy, and is accordingly further discussed. Figure 25a below illustrates the main elements of the muni-SDF. Also, figure 25b shows one of the more detailed, priority projects which includes a section of the northern inner district. It is clear that the muni-SDF recognises the need to be strategic and the importance of the role of vacant land, particularly Wingfield.

As shown in figure 25a, the muni-SDF, like the MSDF, envisions a grid like structure for the city at the metropolitan scale. The difference here is that not only are activity nodes designated, but these nodes have been hierarchically classified. In addition to the Cape

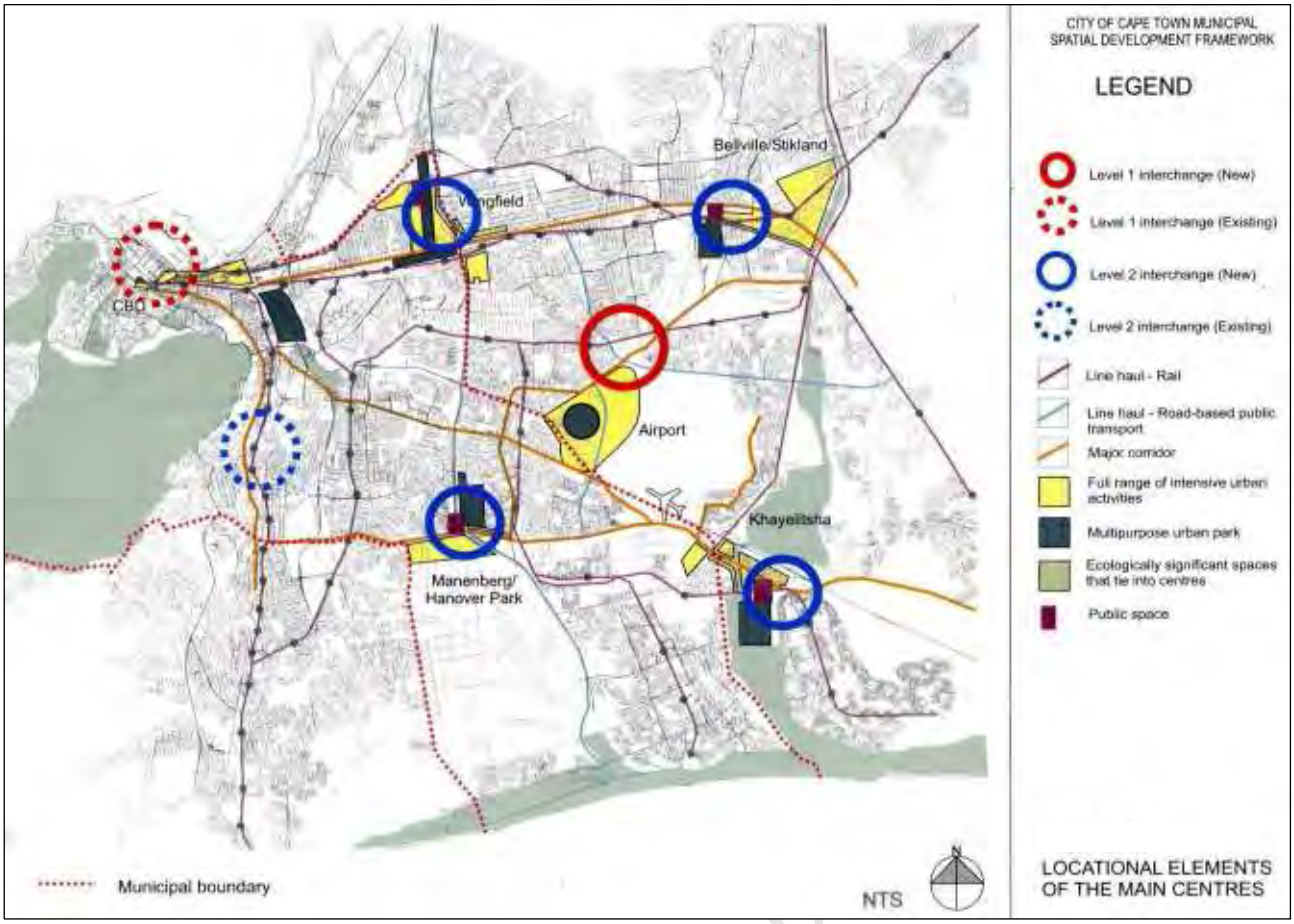


Figure 25a: Municipal SDF Plan 1999 - Main Elements (City of Cape Town 1999)

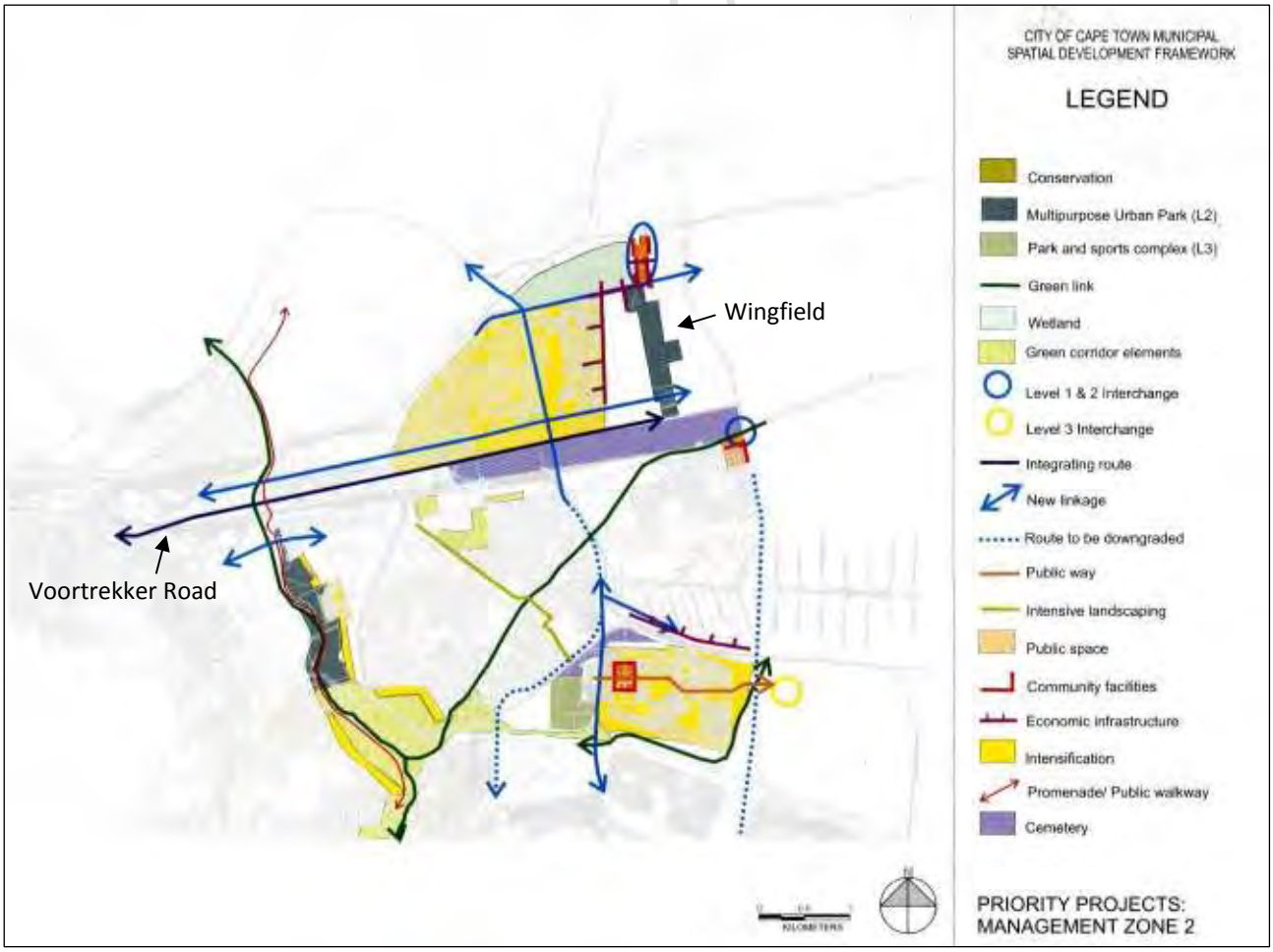


Figure 25b: Municipal SDF Plan 1999 – Priority Projects (City of Cape Town 1999)

Town CBD and Claremont nodes, one other level 1 node, and four other level 2 nodes have been specified, one of which is Wingfield. Also, the muni-SDF seems to place less significance of activity corridors and has removed Koeberg Road as a major metropolitan corridor, although several major corridors are still indicated, as shown in figure 25a. However, with the exception of the Claremont activity corridor, these corridors in reality do not function as important elements in the metropolitan area. In addition, these activity corridors reinforce the radial road pattern and the poor transport network without giving any consideration to north-south movement to access the rapidly developing areas along the west coast, as well as that of the Durbanville area.

The priority project in the Wingfield area (figure 25b) illustrates some spatial development initiatives at a more local scale. These proposals seem to lack coherence and it is unclear what implementing them will achieve. For instance, downgrading the parts of the N7 would seem to be in conflict with the need to improve north-south linkages. Also, there doesn't appear to be a logical basis for situating the multi-purpose urban park in Wingfield as illustrated in figure 25b above. This green space would serve the community better if it were located where urban development may be problematic, such as along freeways or near power lines. Also, the economic infrastructure intended between Wingfield and Factreton, as well as the extension of Royal Road (parallel to Voortrekker Road) is somewhat obscure.

Positive attributes of this localised spatial plan include the extension of Thirteenth Avenue in Kensington to Sable Road (over the N1), the extension of Frans Conradie Drive, and the conservation of the wetland. A new interchange that services the Wingfield area is beneficial, although the location of this is questionable. This would perhaps be better located at Sable Road/Thirteenth Avenue. Also, an attempt to designate green links in the urban space has been made, however, this stills seems fairly fragmented. Lastly, the 'intensification' intended in the Kensington/Factreton area is a positive point whereby urban renewal may occur. Again, the positive aspects will be carried through in the northern inner district SDF.

6.4. Cape Town SDF 2009

The new Cape Town SDF differs from the muni-SDF in that it takes a more holistic approach to city development at the metropolitan scale (opposed to the municipal level). It acknowledges the strengths and weaknesses in the urban system, and aims to implement a broader range of spatial strategies to bring widespread development and growth across the

CCT. Figure 26a alongside illustrates the spatial concept of the Cape Town SDF. According to the SDF, five key spatial strategies are employed in order to achieve the long-term objective of creating a sustainable future for the CCT. These strategies include enhancing the green spaces in the city, establishing an integrated grid based movement system, consolidating and intensifying development along the access grid, directing urban growth to promote compact, integrated development, and developing more great people places (City of Cape Town 2009d). As illustrated, the concept returns to the idea of Voortrekker and Koeberg Road as areas of economic activity. In addition, a high level of intensification is proposed along the main east-west movement route (i.e. the urban core), thereby integrating the northern and southern parts of the city and improving access to urban opportunities.

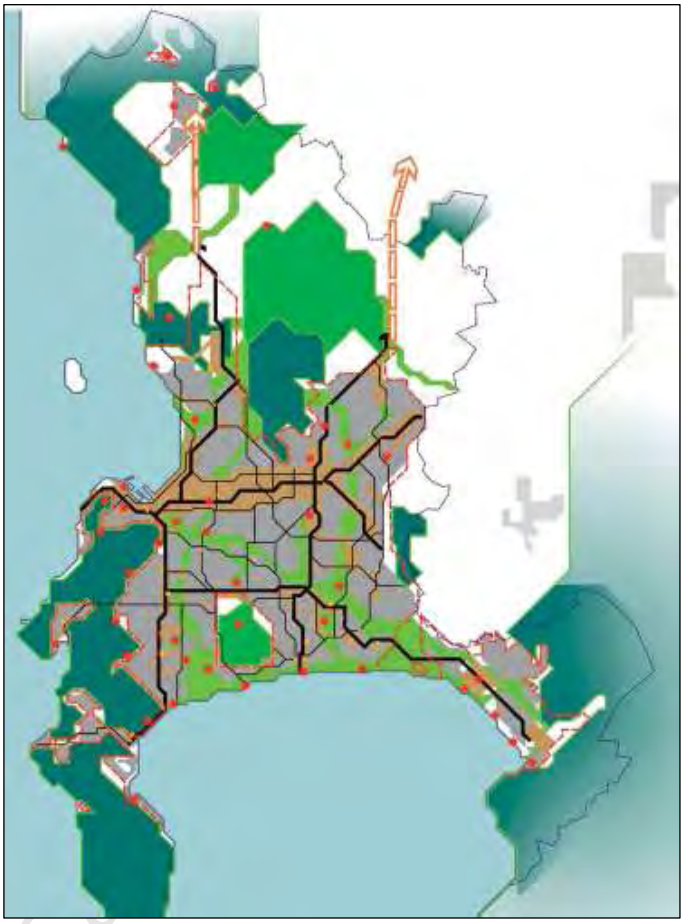
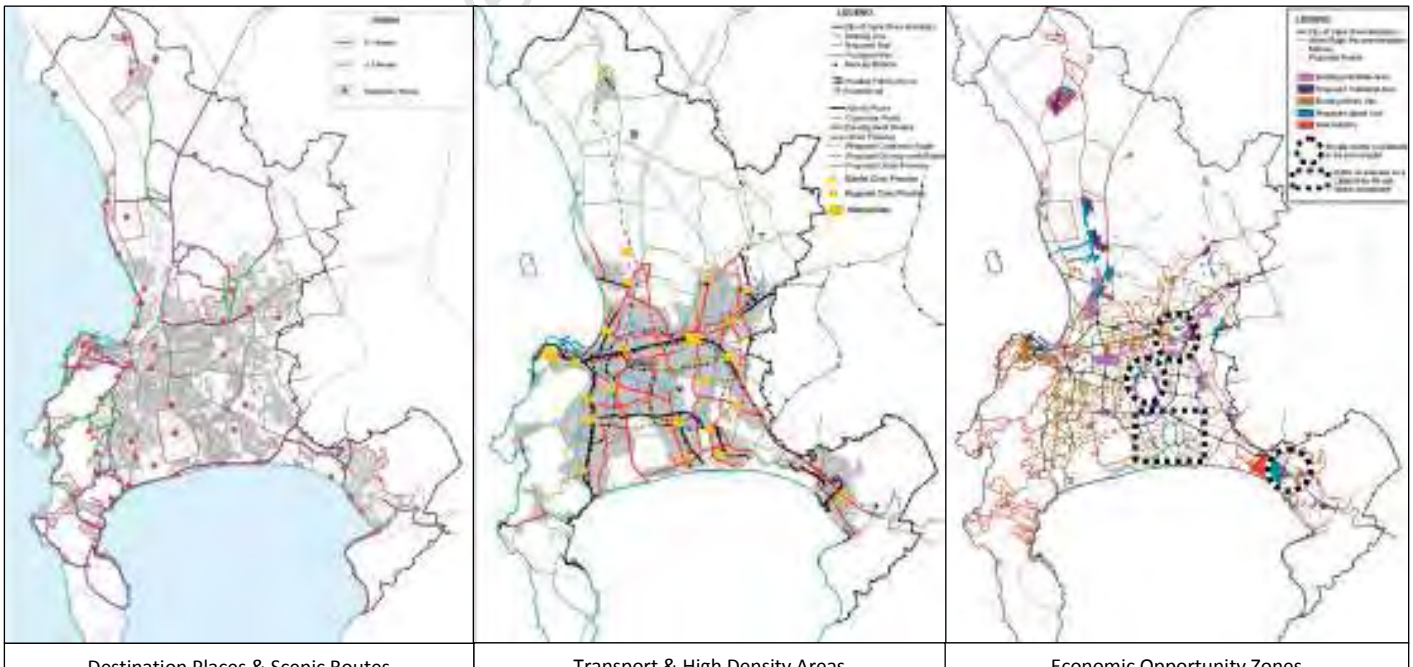


Figure 26a: Cape Town SDF Plan 2009 – Spatial Concept (City of Cape Town 2009d)



Destination Places & Scenic Routes	Transport & High Density Areas	Economic Opportunity Zones

Figure 26b: Cape Town SDF Plan 2009 – Other Elements of Importance (City of Cape Town 2009d)

Figure 26b above illustrates several of the other important elements that constitute the Cape Town SDF. As shown, the SDF recognizes the importance of directing both private and public investment to the areas where it is needed (particularly the south and south-east of the city), as well as the importance of public spaces and locations where people can congregate for recreation etc. Several high density locations are designated, of which two are situated in the vicinity of Ysterplaat and Wingfield. Also, it acknowledges the north-south movement trends and the need to provide adequate infrastructure to cope with the increased traffic in this direction. To achieve better north-south links as well as an overall improved transport network, the SDF proposes a multi-modal transport system that incorporates rail, bus rapid transit and non-motorised transport to create an efficient transport system. Some of the proposals include new passenger rail links in a northward direction that may connect surrounding smaller settlements. New linkages that join existing routes will improve the continuity of the urban fabric. The SDF also recognises the N7 as an important access route and proposes an additional north-south freeway along the eastern section of the city to improve access. Hence, although this is just a glimpse of the new Cape Town SDF, it is evident that it takes many factors into account in producing a set of guidelines to direct and manage future development and growth in the CCT. The SDF appears to have useful directives that would produce equitable development in the CCT. Due to the scale of the SDF, the level of detail and extent of the impact at the local level (i.e. at the northern inner district scale) is somewhat vague, thus, for a more clarity regarding the intended spatial development in this area, the district level spatial plans are reviewed below.

6.5. District Plans 2009

The district plans are intended to guide spatial development in each respective district in the medium term (i.e. ± 10 year period). They align with and complement the Integrated Development Plan (IDP) and National Spatial Development Framework (NSDF), and, once approved by local council, will inform the development of priority areas at a more detailed level. Each district plan comprises an environmental management framework, policies and guidelines to direct new development, as well as urban restructuring guidelines, and is governed by two sets of legislation, i.e. LUPO and NEMA (City of Cape Town 2009b). Also, the district plans are tied to the Cape Town SDF and make regular reference to this document in order to ensure that spatial objectives are aligned and achieved.

Figure 27 alongside illustrates the extent of the Cape Town metropolitan area, as well as the outlines of the eight planning districts. In this image, the districts straddled by the northern inner district are highlighted, namely the Table Bay District (district A) and the Blaauwberg District (district B). Together with these two district plans, the Tygerberg District (district D) plan is reviewed as it lies adjacent to the study area, and thus proposed interventions may have some impact on the development in the northern inner district. Firstly, each of the relevant district plans are briefly reviewed independent of one another, after which a composite image of the three plans is discussed.

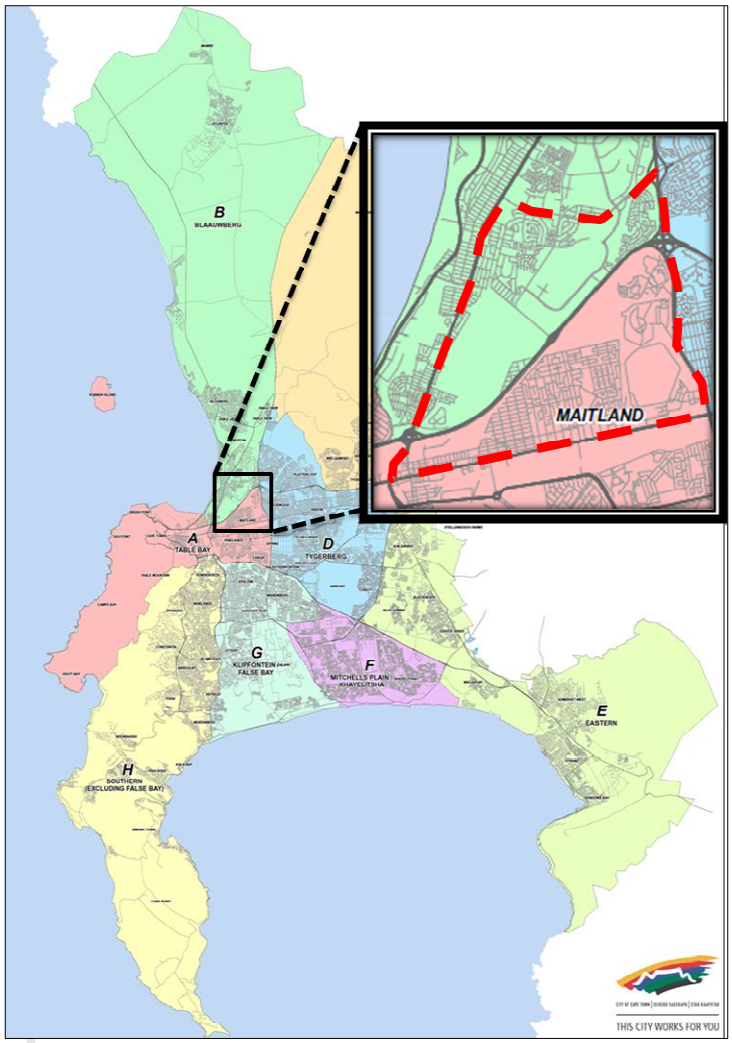


Figure 27: Cape Town Metro Area Showing the 8 Planning Districts 2009

Table Bay (District A)

The Table Bay District contains the main commercial and tourist areas, as well as some of the most affluent residential areas in the CCT. Despite the proximity to employment opportunities, there are few informal settlements located in this district due to the lack of available land (City of Cape Town 2009b). This district, like other parts of the CCT, is experiencing ageing infrastructure and maintenance backlogs, as well as increasing urban pressures due to capacity constraints. In addition, commuter traffic is significant in the CBD, as well as along major movement routes leading into the city centre. As a result of the specific problems facing this area, the Table Bay District plan has identified key development priorities for the district. These include protecting significant environmental and heritage assets, managing development pressures, and allocating land for appropriate and sustainable development (id.).

Figure 28 below, the complete spatial plan for the Table Bay District, illustrates the strategic interventions intended to tackle each of the above mentioned issues. Focussing specifically in the vicinity of the northern inner district, the Table Bay District plan identifies some areas of ecological importance in the Wingfield area. Although urban development is envisioned for this site, these parts should be developed sensitively. High intensity urban development is specified along the Voortrekker corridor. Also, green space is demarcated, however, this seems fragmented and an attempt to improve the continuity of the green network should be made. Lastly, with regard to movement and integration, the district plan identifies the potential of extending Frans Conradie Drive and Milton Road, as well as creating a link over the N1 (Sable Road) and a link directly to Epping industrial area.

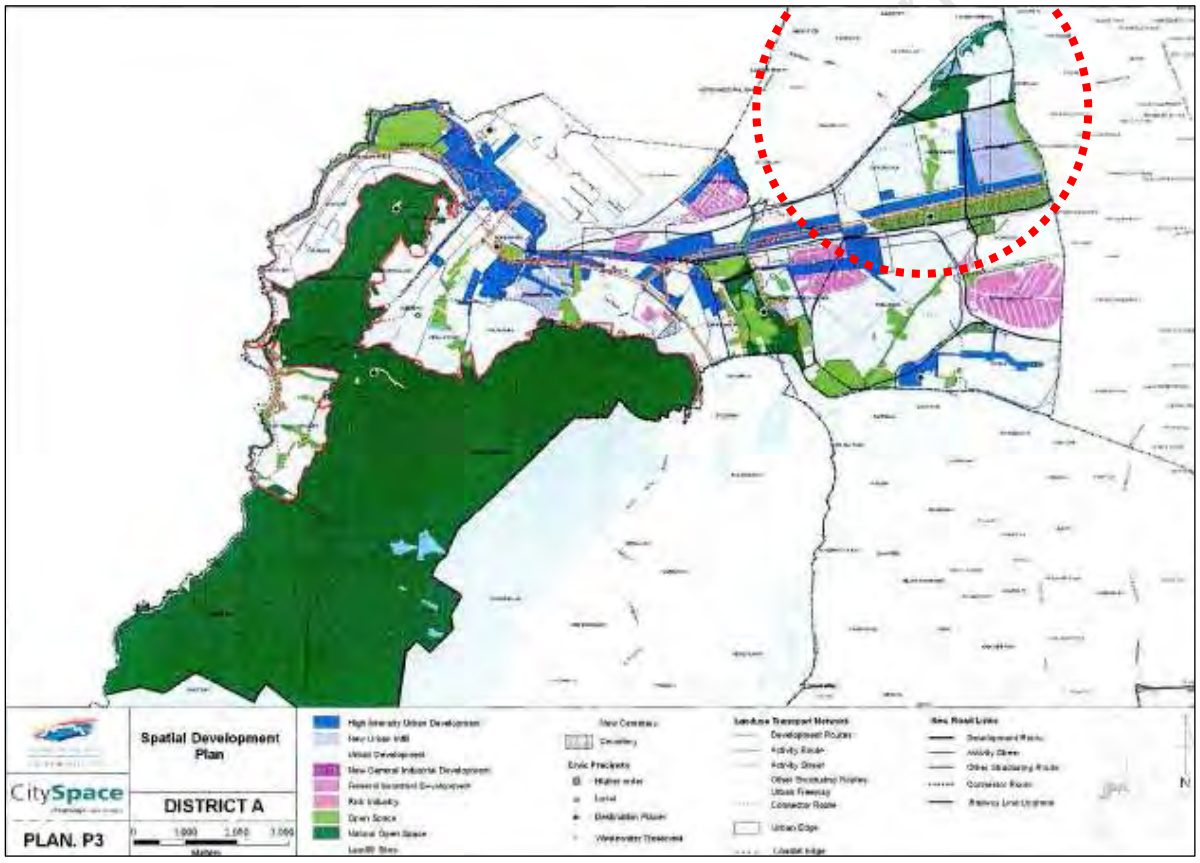


Figure 28: Table Bay District Plan (City of Cape Town 2009b)

Blaauwberg (District B)

The Blaauwberg District, in which the northern segment of the study area is located, contains within its limits the most rapidly developing urban areas in the city, which are located along the west coast. As with the Table Bay District plan, the Blaauwberg District plan similarly identifies the key problems associated with rapid urban development and conveys the measures that should be taken to deal with these issues.

These include improving the inefficient movement system, promoting socio-economic development in the surrounding dislocated rural settlements (such as Atlantis), balancing environmental and development needs, and guiding investment to areas where it is needed (City of Cape Town 2009c). The development proposals of the Blaauwberg District plan that are relevant to the development in the study area are mostly related to the movement network, the environment and the types of appropriate development for the area. Note that development proposals in the Ysterplaat area are limited as, according to the Blaauwberg District plan, the area will continue to function as an airport base for the foreseeable future.

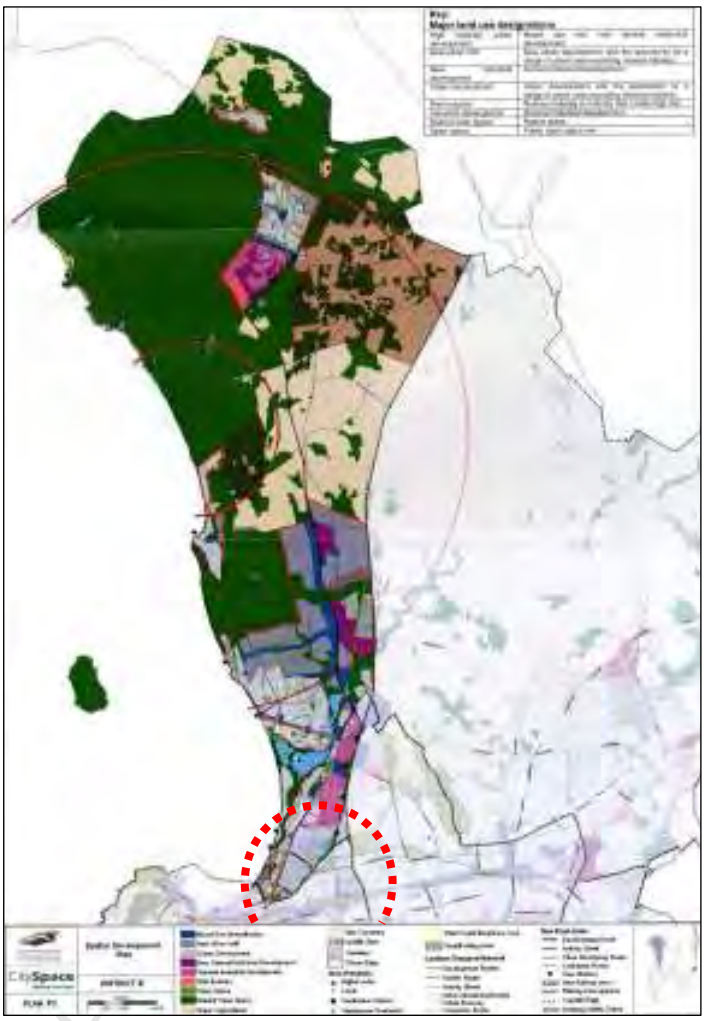


Figure 29: Blaauwberg District Plan (City of Cape Town 2009c)

Koeberg Road is seen as an important metropolitan route that functions as a north-south link. This function will be reinforced with the implementation of the proposed BRT route. Also, the section of Koeberg Road south of Boundary Road is proposed as an activity route for mixed-use activity including commercial, retail, and residential uses. Thus, Koeberg Road, according to the Blaauwberg District plan, should function as a development route with areas of more (appropriately) intense nodal development along its length proposed at the intersection with Sable (at Boundary) and Loxton Roads (id.). In terms of transport, the extension of Sable Road to connect Kensington to Rugby/Brooklyn via Century City will improve accessibility and aid in integrating these areas. Also, as there is an urgent need to improve public transport, it is proposed that the Atlantis rail link be upgraded to function as a

passenger line (however this is a long-term strategy as current densities are too low to support this). Going hand in hand with this is the addition of several stations along this route, making the northern inner district more accessible via rail. Finally, the composite district plan for Blaauwberg combines new development areas and urban restructuring proposals guided by environmental informants. In addition to the mixed-use, high intensity development based around public transport stops (including BRT stops), urban civic precincts (local and higher order) are proposed at high accessibility points where social facilities will be available to commuters at local, as well as district level. Also, an open space system comprising biodiversity corridors, rivers and wetlands, and destination places that celebrate unique natural and historical value are included in the composite district plan.

Tygerberg (District D)

As shown in figure 27, the Tygerberg District lies to the east of the northern inner district. The key issues identified in the Tygerberg District plan are degraded, fragmented urban environments, economic marginalisation and a lack of investment, pressure from urban development, a lack of access to facilities and natural places, poor, ineffective maintenance and an inefficient movement system (City of Cape Town 2009e). As shown in figure 30 alongside, immediately adjacent the northern inner district is a portion of land designated for natural open space and conservation of biodiversity. The majority of the remaining area adjacent the northern inner district is urban (mostly residential) space. The Tygerberg District has a number of industrial areas, the nearest of which is the Epping industrial area. This is accessible via the N7 and offers employment opportunities, particularly to lower

Figure 30: Tygerberg District Plan (City of Cape Town 2009e)

skilled workers. Thus spatial development in the northern inner district should aim to facilitate access to this area. Also, Voortrekker Road extends into the Tygerberg District where high order, mixed-use, high intensity development is proposed. Thus, the function of Voortrekker Road as an activity corridor is significant in the context of the district plans.

Merged District Plans

Figure 31 below is a composite image of the three district plans as discussed above. These plans are spliced together to give an overall impression of the proposed development initiatives in and around the northern inner district. Due to the fact that these plans are at a more local scale, they are more detailed than other SDFs, without being prescriptive, and thus contain proposals that are more useful to the development of the northern inner district SDF. Several of the proposals of the district plans are

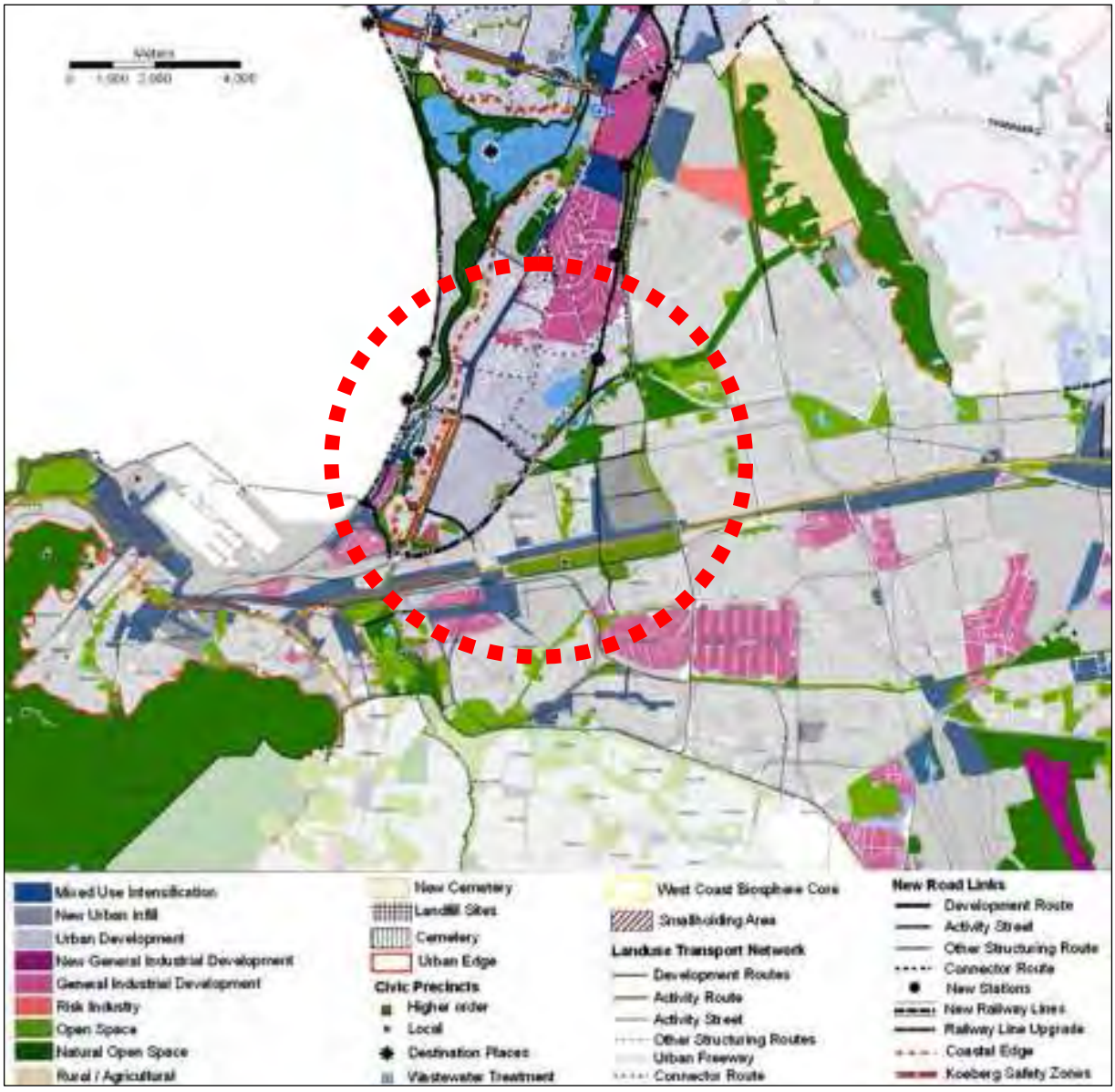


Figure 31: Composite of District Plans

herein determined as useful to bring change and growth to the northern inner district. Of the three district plans, the most useful aspects are drawn out and integrated into the spatial plan for the northern inner district. The beneficial development proposals include the plans for several of the road extensions, including that of Frans Conradie and Sable Roads. Also, as an open space system is an important element in the urban space, a number of proposed open spaces will be carried through in the northern inner district SDF. These aspects are further discussed in *chapter 8*.

6.6. Summary

The MSDF focussed on both corridor and nodal development, indicating Voortrekker Road and Koeberg Road as important metropolitan corridors. Subsequent to the MSDF, the muni-SDF dropped the idea of corridor development, but kept nodal development as an important feature in the CCT, designating five additional nodes (which include both first and second order interchanges) at Bellville, Wingfield, Manenberg, Khayelitsha, as well as one adjacent the airport. Both of these SDFs have not adequately incorporated a strategic transport plan and thus, the CCT is still facing major transport problems, with poor accessibility to both the northern (i.e. Parklands area) and southern (i.e. Cape Flats) parts of the city. Due to the discrepancies between where investments are being directed and where they are needed, the idea of nodal development in a grid-like pattern at the metropolitan scale has not come to fruition as many employment opportunities are still located in more affluent areas (i.e. the Cape Town and Bellville CBDs). Some of the proposals in these SDFs also appear to hinder development, such as the muni-SDF's proposal to downgrade parts of the N7 – an important north-south link.

The MSDF does not speak extensively about any proposals around the northern inner district besides the development and intensification of the Voortrekker and Koeberg corridors. However, as mentioned, the muni-SDF presents a set of more detailed priority projects for the CCT, of which one occurs in the vicinity of the study area. Some of the positive attributes of this part of the muni-SDF may be applicable in the northern inner district. Referring to figure 25b, the extension of Sable Road and Frans Conradie are seen as important new links to integrate the areas. In addition, some green space (for recreation and, possibly, market gardens) and intense, mixed-use development is envisioned for the Wingfield area. Finally, the development of a

transport interchange would benefit commuters travelling to and from this area, thus this will be taken into account in the northern inner district SDF.

While the MSDF and muni-SDF do share the commonality of identifying the citywide development issues and the same planning principles, and are useful to gain an understanding of the macro-scale dynamics of the CCT, they, evidently, have not succeeded in influencing the spatial growth and development of the CCT. The city is still experiencing poor public transport, sprawl, socio-economic disparities and spatial fragmentation. Hence, it is expected that the new Cape Town SDF and accompanying district plans would be more useful in directing both public and private investment and guiding spatial development to create a more efficient, equitable city. The new SDFs aim to address all of the spatial issues in the CCT in a holistic way by stipulating both a spatial development framework and an environmental management framework in order to promote eco-conscious urban growth and development. These SDFs recognise the importance of a north-south link and support a grid-like movement network. Also, like the MSDF, the new Cape Town SDF supports both nodal and corridor development and indicates that the urban core (which runs from the Cape Town CBD to the Bellville CBD) in particular be intensified due to the high degree of accessibility to economic activities through this corridor (i.e. the N1). Thus, there are prospects for various developments adjacent the N1 to create a dynamic, energetic environment along this route.

Although the delineation of each of the planning districts seems in some ways arbitrary, the district plans do appear to work in tandem, complement each other and aim to achieve the same goals. This is evident in figure 31. In addition, they offer a more holistic approach to urban development and offer several proposed spatial strategies that may be useful. The difficulty comes in implementing the proposed spatial directives and whether there are enough (financial) resources to effect growth and development, not only in the northern inner district, but in the CCT as a whole. As is, the spatial plans reviewed herein lack an effective implementation strategy and, perhaps, therein lies their ineptitude in rectifying the CCT's spatial problems. Hence, for the success of the CCT's current SDFs, as well as the proposed SDF for the northern inner district, an effective implementation strategy is essential.

6.7. Conclusion

The problems that exist in the CCT are neither new nor unique. All the spatial plans reviewed herein pick up on the same issues and, in various ways, present strategic spatial interventions in order to abate the existing socio-spatial disparities and promote socio-economic development. In this chapter, the main points of each of the spatial plans was highlighted so as to guide the development of an informed SDF proposal for the northern inner district. From a review of the CCT's existing spatial plans, it is evident that progress has been made around the ideas of urban development over the last ± 13 years and spatial strategies are seemingly more focussed on producing positive outcomes within the complexity of the urban arena. While there are some useful ideas found across the spatial plans, ultimately the district plans offer the most useful strategies for urban development and thus will be primarily drawn on for the northern inner district SDF.

7. Literature Review

7.1. Introduction

As stated in the synthesis (*chapter 5*), several key development priorities are identified in order to address the development issues in the northern inner district. In this chapter, a review of some of the relevant literature is carried out in order to gain an understanding of the current trends in the field of urban planning, with a particular focus on the concept of 'New Urbanism'. Based on the key development issues in the northern inner district, a set of key research questions are defined, the purpose of which is to guide the literature review. In light of these research questions, theoretical writings and case material from both local and international sources are surveyed in order to ascertain what measures are available and appropriate to deal with the development priorities in the northern inner district. The knowledge gained through the literature review is in turn used to guide the decisions regarding the spatial interventions in the study area (*chapter 8*).

7.2. Framing the Key Research Questions

The literature review is guided by a set of key research questions that ensure a focussed survey of relevant scholarly material. These key questions are derived from the key development issues as discussed in *section 5.3*. To reiterate, the issues are that of inadequate housing provision, high poverty levels, environmental degradation, an inefficient transport system and spatial fragmentation. Understandably, each of these issues has been discussed at great length within the body of literature. Thus, the literature review must be strategic in addressing these issues and finding solutions that are very specific to the circumstances in the northern inner district.

As mentioned, spatial interventions will focus on the development priorities whereby the reorganization of aspects of the natural environment (i.e. green open space), the transport network, as well as urban elements will be implemented. Due to the strategic nature of the northern inner district SDF, the objective of the spatial interventions is to effect the greatest positive outcome with the least amount of resources. That is to say, the spatial interventions should aim to positively impact on various aspects of the urban environment, such as poverty and traffic congestion, concurrently. Hence, the key questions to be addressed in the literature review are:

What kinds of development are most desirable? What will assist to create an urban space that embodies the stipulated planning values? What spatial interventions are most appropriate for the northern inner district? What measures can be taken in order to begin to address all of the key issues simultaneously and in a holistic fashion?

In order to address these questions, a study of some of the contemporary planning philosophies is carried out in the paragraphs that follow.

7.3. Main Focus of Current Ideas in Planning

In recent times, there has been a growing consensus that planning should move away from the old, modernist way of thinking that has been spread across the globe, influencing city development in both the developed and developing world. According to the UN Habitat (2009), a number of innovative approaches to city planning have come to light in the last two decades (figure 32). One of these approaches is that of strategic spatial planning, which focuses on both the planning process as well as the implications for urban form (id.). A positive aspect of this approach is that it results in context specific planning initiatives that are unique to any given locality, an idea which many in the field subscribe to. In this way, the appropriate measures to deal with spatial problems may be used, opposed to 'transplanting' ideas from other localities which may not be appropriate to, or compatible with, the local socio-spatial characteristics.

In addition to the shifts in planning approaches, some new ideas regarding urban form have emerged. New spatial forms, according to the UN Habitat (2009), are among the most important contemporary ideas being used in a number of contexts. The concept of New Urbanism has become particularly popular,

Category	Type	Characteristics
Strategic spatial planning	• Strategic spatial planning in developed countries • Strategic spatial planning in developing regions • The Barcelona model of strategic spatial planning	Implications for planning processes and the nature of the directive plan: Barcelona model has implications for urban form: large, well-designed urban projects.
Spatial planning as institutional integration	• The new British planning system • Integrated development planning	Implications for planning processes and the nature of the directive plan. Planning's role in government is important.
Land regularization and management	• Alternatives to evictions • Influencing development actors • Managing public space and services	New approaches to regulatory aspects of planning; focus on accommodating informality.
Participatory and partnership processes	• Participatory planning • Partnerships	Focus on planning processes and state–community relations.
International agency approaches and sectoral concerns	• The Urban Management Programme • Sector programmes	Implications for planning processes and institutional location. Sector programmes are issue specific.
New master planning		New processes and regulatory approaches; implications for land market processes.
New spatial forms	• The 'compact city' • New urbanism	Focus on urban form, less on process. Reaction to modernist and unsustainable cities.

Figure 32: Some Contemporary Ideas in Planning (UN Habitat 2009)

however, it is not without its share of critiques. Fainstein (2000), who compares the 'communicative' and 'just city' planning models to that of New Urbanism in her essay "*New Directions in Planning Theory*", confirms that there are some contentions around the ideas and approaches in contemporary planning discourse. Expressing her position on New Urbanism, Fainstein states that this movement "displays little theoretical rigor" (Fainstein 2000, p. 462). Similarly, critics argue that there is little evidence that New Urbanist neighbourhoods can achieve development goals and improve socio-economic conditions of, particularly, low-income households (Joseph et al. 2007).

Another critique of New Urbanism is that it ignores the social and economic realities of the modern world (Ellis 2002). As stated by Ellis, critics of New Urbanism argue that it is intrinsically tailored to the upper middle class and thus perpetuates social segregation (of class, race and ethnicity) and denies cultural difference. Furthermore, it is feared that New Urbanism may result in negative outcomes similar to that of modernism – under the premise that changing the physical environment will address social problems and inequality (Harvey in Fainstein 2000) – particularly if development is left in the hands of the private sector. Thus, as echoed in Joseph et al. (2007), without public investment, the social composition of New Urbanist developments will not differ markedly to that of existing urban forms. Hence, "only a publicly funded effort to combine social groups through mixing differently priced housing with substantial subsidies for the low-income component" (Fainstein 2000, p. 465) will achieve the objective of demographic, cultural and socio-economic integration.

Proponents of New Urbanism claim, however, that judgements are premature and as a result of unrealistic expectations and a poor understanding of New Urbanism principles (Ellis 2002). There are, despite criticisms, a number of strong arguments in support of the New Urbanism movement. Harvey (in Fainstein 2000) praises its recognition of the importance of public space, the relationship between work and living, and environmental quality. It is claimed that New Urbanism encourages diversity, both in land use and community, and celebrates unique local elements (Meredith 2003), while seeking to reconcile nature and culture (Calthorpe in Grant 2005). Kelbaugh (in Grant 2005) commends New Urbanism for its totality and relevance to development at different scales. In addition, advocates of New

Urbanism, such as Duany, state that the movement strongly opposes urban sprawl, favouring the "coherent organization of the traditional city" (Grant 2005, p. 45). While New Urbanism is questioned for being represented as a 'utopian solution', proponents of this movement recognize that this is not a 'one size fits all' response to the widespread contemporary urban problems. However, according to Ellis (2002) and Bohl (2000), if used in the correct context, New Urbanism can be one of many strategies to promote socio-economic development and improve the quality of life for low-income communities (Bohl 2000).

It is apparent, through perusing the literature, that the principles of New Urbanism (*section 7.4*) are generally consistent with the planning values described in *section 1.5*. New Urbanism is a strategy that corresponds with the "pedestrian qualities, mixed uses, interconnected streets, and urban housing types that have historically defined the neighbourhoods and that support concepts of sustainable development based on compact, mixed-use, pedestrian-friendly environments" (Bohl 2000, p. 776). The characteristics of New Urbanist neighbourhoods thus foster community unification and encourage 'compact' development. It promotes sustainable, convenient, efficient, walkable cities, and creates a platform for socio-economic development. As Sultan (in Ellis 2002) points out, there is a reason why the rich texture and vitality of many traditional cities such as Rome and Paris are celebrated. While it is acknowledged that perhaps some research gaps need to be filled, New Urbanism is seen as "a resilient, practical and well-founded alternative to conventional land development practices" (Ellis 2002, p. 261).

In this succinct account of some of the main arguments in planning, it is evident that the nature of this field is one of several points of view. It is an extensive subject in which a number of new ideas have emerged, particularly in response to the urban social and spatial problems manifesting from the old, modernist way of thinking entrenched in so many cities across the globe. Irrespective of the varying opinions and approaches to urban planning, there is a shared appreciation for the need to move toward urban forms that are very different from those of urban modernism, the need to create quality urban public spaces, and the need to manage the urban environment and its resources for societal benefit (UN Habitat 2009). In terms of the development of the northern inner district, the New Urbanism movement offers several principles that correspond to the desirable spatial and social outcomes of the SDF. As Ellis

(2002) states, more projects of this kind will provide more opportunities to gauge the efficacy of New Urbanism in practice. Hence, this school of thought is drawn on for the development of the northern inner district SDF. The principles of New Urbanism will be further explored below.

7.4. Principles of New Urbanism

According to Fainstein (2000), New Urbanism refers to a design-orientated approach to urban development that resembles the ideology of early theorists Ebenezer Howard and Patrick Geddes. The New Urbanist approach primarily advocates mixed-use, mixed-income, pedestrian-oriented, compact developments. Moreover, the negative impacts on the natural environmental are decreased through less land consumption and a reduced frequency and length of automobile trips, thereby conserving energy (Garde 2004). New Urbanists advocate infill development and the provision of dignified, affordable housing (Ellis 2002). In addition, New Urbanism "explicitly endorses a participatory approach to urban design and planning" (Ellis 2002, p. 281).

In New Urbanism, the basic unit of planning is the neighbourhood, which is limited in physical size, has a well-defined edge, and has a focused centre, and the daily needs of life are accessible within the five minute walk (Kunstler in Fainstein 2002). The approach advocates medium to high residential densities, sustainable urban form and, as mentioned, mixed-use environments with good public open spaces, which are important as places for small and informal businesses (Jabareen 2006; UN Habitat 2009). Public facilities, such as health, libraries, retail and government services, should also be clustered around key public transport interchanges and intersections to maximize convenience (id.).

Evidently, the New Urbanism movement addressed both structural and social issues. Thus, through the application of New Urbanism principles, the urban form may be restructured so as to: deter sprawl and protect important, valuable environmental resources; encourage inner-city restoration; create an economical (in terms of time and energy), cost effective, multi-modal transport system; increase the supply of affordable housing and address urban poverty; create safe, vibrant, walkable streets; create close-knit social communities that foster diversity and interaction; and support the place-based economy (Ellis 2002; Garde 2004; Jabareen 2006; Joseph et al. 2007).

7.5. Research Themes

From the above discussion, it is evident what kinds of development are most desirable in the context of the northern inner district. As stated in the synthesis (*chapter 5*), three development priorities have been identified as particularly pertinent to effect positive results in terms of socio-spatial development in the northern inner district. To reiterate, these pertain to the environment, transport and urban development, particularly mixed-use and intensification. Thus, in accordance with the principles of new urbanism and the desirable spatial outcomes in the northern inner district, the research themes identified include *sustainable development*, *transit orientated development* and *mixed-use* development, all of which contribute to sustainable urban form. Below follows a discussion of each theme, which includes relevant theoretical contributions, as well as precedent where applicable. Through a review of various reference materials, the measures available to create efficient, good urban systems and address the particular issues in the northern inner district spatially will be ascertained.

7.5.1. Sustainable Development

According to McDonald (1996), sustainable development should be a fundamental principle underlying planning decisions. It is now commonly accepted that the current rates of growth and consumption cannot be maintained without having severe negative impacts on the natural environment. "Responding to the challenge of sustainable development has very important theoretical, technical, and practical relevance for planners, whether it be reviewing the ethics and norms of planning, the objectives of plans, research priorities, planning techniques, or designing programs for planners" (McDonald 1996, p. 225). The main contemporary challenges, as stated by Berke (2002), include reversing environmental degradation, reducing overconsumption and addressing poverty. Plans should attempt to strike a balance between these issues, sometimes referred to the three *E*s of sustainable development (**e**nvironment, **e**conomy and **e**quity), through coordination, negotiation and compromise (Campbell in Berke 2002). Planning is an important tool to assist in achieving sustainable development, however, it is not achievable in any real way without attention to the substance and process of planning as it happens on the ground (McDonald 1996). Land use planning has well-developed techniques for addressing issues related to sustainable

development and policies and plans to promoted community development, nature conservation, and waste management should be implemented at the local level (id.).

The goal of sustainable development is the maintenance of environmental sink and source capacities unimpaired (Goodland and Daly 1996). However, "ecological sustainability is a necessary but not sufficient condition for sustainability, ... social and economic conditions must also be met" (McDonald 1996, p. 225). Sustainable development is defined by the Brundtland Commission, as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (UN Habitat 2009). According to the UN Habitat (2009), there are eight major strategies to bridge the brown and green agendas[12]. These include developing renewable energy; striving for carbon-neutral cities; developing distributed power and water systems; increasing photosynthetic spaces as part of green infrastructure; improving eco-efficiency (related to city metabolism); increasing a sense of place; developing sustainable transport; and developing 'cities without slums'. In particular, issues relating to urban form, transportation, and energy efficiency in cities have attracted a lot of attention in planning due to their relevance in terms of achieving sustainability (McDonald 1996).

Swilling and Annecke (2006) present a case of a development in Stellenbosch where there is a balance between growth, equity and sustainability. This development, the Lynedoch EcoVillage, is cited as a significant case because it is the "first intentional, socially mixed ecologically designed urban development in the South African context", thus it challenges "both the traditional unsustainable approaches to urban design and infrastructure that have dominated the democratic period in South Africa since 1994, and to the perpetuation of economic apartheid whereby the rich and poor have remained segregated" (Swilling and Annecke 2006, p. 315). The Lynedoch EcoVillage development considers both ecological and social sustainability. Thus, it includes various 'green' measures to, for example, conserve energy and water,

[12] Refers to the dichotomy between social justice (brown agenda) and environmental justice (green agenda).

as well as a good governance structure that serves a community comprising people from a range of cultures and socio-economic backgrounds. The three main lessons from the Lynedoch EcoVillage are that ecologically designed urban settlements can reduce operating costs and improve efficiency; it is possible to develop socially orientated, mixed income neighbourhoods with a strong sense of community using appropriate zoning schemes; spatial integration of different income households creates a range of markets that include, rather than exclude, the urban poor, thereby assisting in socio-economic development.

A second example of integrating sustainable development into urban design is that of the Fruitvale Transit Village in Oakland, California (Berke 2002). This New Urbanist neighbourhood was developed through a collaborative effort between a community group, the regional mass transit and air pollution control authorities, the City Chamber of Commerce, the local affordable housing authority, as well as the agencies responsible for administration of 'empowerment zones' in the inner city (id.). Through an innovative approach, a pedestrian orientated, affordable neighbourhood was developed whereby urban opportunities were generated and environmental benefits were gained. Hence, through this type of development, intergenerational equity may be promoted.

Both of these cases provide an example of what is possible through the "technical designs, governance structures and social dynamics of building sustainable neighbourhoods" (Swilling and Annecke 2006, p. 331). Creating communities that achieve and retain improvements in quality of life is attainable, however this must not be done in such a manner that it diminishes the quality of life of other communities, present or future (Berke 2002). "If sustainability is to move beyond a vague idealism, the task ahead for planners...is to translate theory to practice" (Berke 2002, p. 34). This will require a holistic and integrative approach that is politically backed.

7.5.2. Transit Orientated Development

Transit oriented development (TOD) is a fast growing trend in many cities, such as Maryland, Portland and Toronto, whereby vibrant, compact, liveable

communities are created. The concept of TOD relates strongly to sustainable urban form. According to the UN Habitat (2009), dense TODs built around each station, along with quality transit down each main corridor (which is faster than private vehicle use) and cycling and pedestrian facilities, all create sustainable transport strategies and contribute to sustainable urban form. The result is walkable communities centred around high quality movement systems, thus making it possible to improve quality of life without the dependence on a private vehicle for mobility and to access urban opportunities. Figure 33 below illustrates an example of TOD. As shown, more intense development (mixed-use commercial and residential) occurs near stations and along primary routes (arterial), with more diffused development located away from transit routes.

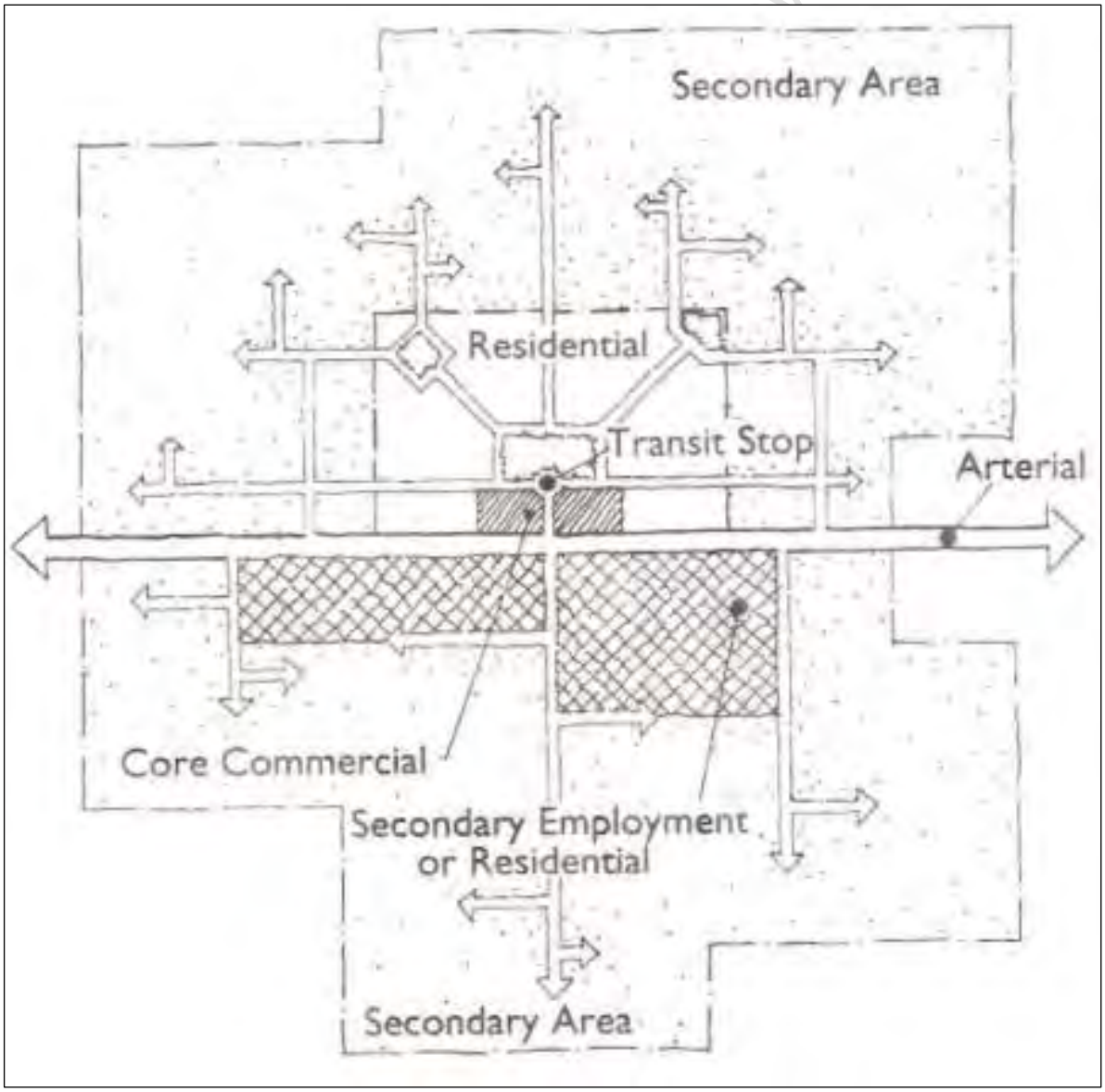


Figure 33: Transit Orientated Development (Calthorpe 1993 in UN Habitat 2009)

TOD plays an important role with respect to influencing the surrounding urban development. According to the UN Habitat (2009), it forms a structuring grid where dense, mixed-use nodes (where office, commercial, retail, residential space and public facilities are clustered) around stations may be generated. In addition, high residential densities should occur in the vicinity of these nodes (within a 400m – 800m radius). Restructuring the urban and metropolitan transportation system to include TOD, as stated by Jabareen (2006), can help conserve energy as shortened trips encourage non-motorized transport, and fewer low-occupancy, private vehicle trips, resulting in lower per capita fuel consumption. In order to assist TOD and move from private to public transportation, land use planning schemes should be in accordance with the types of development associated with TOD and encourage walking and cycling as eco-friendly forms of transport.

7.5.3. Mixed-use Development

Mixed-use development plays an important role in achieving sustainable urban form. It allows for compatible land uses to locate in close proximity to one another, thereby increasing efficiency in the urban system (Parker 1994 in Jabareen 2006), and creating more vibrant, more secure environments. Mixed-use implies a diversity of land uses, as well as diversity in terms of cultural, demographic and socio-economic groups. Through mixed-use and mixed income developments, the poor may benefit from the resources of the more affluent and experience a shared quality of life. The aim of mixed-use development, according to the Jabareen (2006), is to reduce air pollution and traffic congestion, as well as to stimulate the interaction of residents, by increasing pedestrian movement. For a sustainable urban form, mixed-use should be encouraged in cities, and zoning discouraged (Breheny in Jabareen 2006). In conjunction with mixed-use development, higher densities close to urban activities should occur. According to the UN Habitat (2009), very high density cities signify that more destinations can be reached with a short walk. In addition, an effective public transport system is more viable and efficient with higher densities. If densities are for the most part low, with higher densities along activity corridors, it is still feasible to have a good transit system. However, with very low densities, public transport becomes impractical, thus access is achieved through private vehicle use.

7.6. Conclusion

This chapter serves to provide an understanding of some of the contemporary ideas in planning theory and practice. From the above discussion, it is evident that in order to address the spatial problems in the CCT, the kinds of development that should occur include mixed-use, mixed income high density developments that integrate natural open space within the urban environment. This will result in economic vitality, social equity and better environmental quality. However, it should be noted that this cannot be created if the cultural and economic circumstances discourage integration of land uses. Thus, regulatory and cultural aspects should be considered in developing the plan. Following this chapter, the strategic spatial interventions for the northern inner district are developed, drawing on the ideas elicited through the literature review.

8. Intervention

8.1. Introduction

The previous chapters have laid the foundation for the intervention through the preliminary steps of analyzing and synthesizing the contextual realities in the northern inner district. In addition, an evaluation of the CCT's existing spatial plans and a review of the relevant literature support the SDF process so that potential, context-specific spatial interventions may be identified. In this chapter, the spatial development of the northern inner district is discussed. The objectives of the spatial interventions are to restructure the study area so as to create an urban space that embodies the planning values discussed in *chapter 1*. These spatial interventions focus on the development priorities as determined in the synthesis, and will in turn address the key development issues in the area. In addition to the spatial interventions, included in this chapter is a general outline of the development vision for the northern inner district, a conceptual framework for development and a description of the key informants of the plan.

8.2. Vision for District Development

The development vision for the northern inner district is an abstract idea of the desirable structural and functional characteristics envisioned for the area. The vision is informed by the development problems elicited in *chapters 3 – 5* and is based on the planning values discussed in *chapter 1*, which make reference to the criteria of good urban performance. While the development vision is representative of the desired spatial outcome specific to the northern inner district, it should be noted that it considers the urban dynamics and development concerns at the metropolitan scale and relates to the citywide development goals.

Vision Statement

The northern inner district is envisioned as a place where the public can work, live, play and move with ease and efficiency, and where a range of urban opportunities and choices are provided and readily accessible. It is a place where the natural and built environments complement each other and where all individuals can interact with nature. Through mixed-use development, the northern inner district will function efficiently with most of the opportunities being accessible either on foot or via the

integrated public transport system. A range of residential opportunities that are accessible (in terms of affordability) to all socio-economic groups creates a socially integrated environment where the less affluent may benefit from the resources of the more wealthy. In addition, the northern inner district functions as a sustainable settlement, where development takes due cognisance of environmental factors, such as sea level rise and carbon fuel depletion.

Essentially, the vision for the northern inner district is that it stands out as an exemplary urban space where the criteria for good urban performance are attained. This denotes that the district will be a socially, economically and spatially integrated space where every individual has equitable access to both urban opportunities and dynamic, natural areas. The goal is ultimately to create a 'pedestrian friendly', liveable and vibrant district that is clean, safe and secure. In addition, the heritage of the area is considered and preserved. Finally, the northern inner district will have a strong sense of place that fosters demographic and cultural diversity.

8.3. Conceptual Development Framework

The key development priorities elicited in the synthesis form the basis for the conceptual development framework. As evidenced through the analysis, there is a need for a spatial shift in the northern inner district in order to create a more efficient and integrated urban space. In this section the spatial ideas for each development priority are discussed. These ideas in turn inform the detailed spatial development framework in which strategic spatial interventions are proposed in order to realise the developmental and spatial goals of the northern inner district.

8.3.1. Development Priority 1 – Environment

The environment has the important function of providing a supporting role to the urban system by acting as a 'system regulator', providing primary commodities (source) for urban consumption, and absorbing urban discharges (sink). With regard to urban development, the integration of green space is an important element whereby the public is provided with space for relaxation, sports and recreational purposes. Also, natural space within a city can assist in the conservation of endemic flora and fauna. Thus, the first development priority for the northern inner district SDF is to include an open space system.

The open space system in the northern inner district should conform to the following imperatives:

- The aim is create a *network* of green corridors that *link* a series of natural areas, thereby creating *continuity* in the open space system and averting 'islandization'[12].
- Different *types* of green space should be included in the district, such as conservation areas/biodiversity corridors and sports facilities, providing access to a *range* of active and passive activities.
- The northern inner district open space system should link into, and be *consistent* with the metropolitan open space system, *reinforcing* the citywide green network.
- The open space system should be well managed and *integrated* into the urban system to promote *safe* environments.

8.3.2. Development Priority 2 – Transport

As discussed in the analysis, the northern inner district experiences major traffic congestion in both a north-south and an east-west direction. A strong car culture exists in the CCT and it is important that an attractive alternative to private vehicle use is provided to the public. In light of rising fuel costs, resource depletion and the environmental impacts of the burning of fossil fuels (including global warming induced sea level rise and climate destabilization), there is a great need to establish a sustainable, integrated transport system. The following imperatives pertaining to the transport system are stipulated:

- The transport network, as mentioned, should be an *integrated* system that incorporates a range of transport modes, including an efficient public transport system and the use of non-motorised transport.
- It should be a *grid* based system that enables convenient, multi-directional movement in order to *access* all parts of the city space.
- It should include a *hierarchy* of movement routes, each of which play a role with regard to citywide movement patterns.

[12] An undesirable result of urban development whereby isolated pockets of natural space (islands) are formed which, in a nutshell, reduces the genetic diversity of flora and fauna.

8.3.3. Development Priority 3 – Urban Restructuring

The CCT is characterised by a discrepancy between place of work and place of residence. In order to address the inefficient nature of the CCT, the northern inner district should be restructured to include mixed-use development where a range of economic activity is incorporated into residential areas. Not only will this decrease commuter demand on the transport system (by reducing the distance and frequency travelled to access economic opportunities), but it will also ensure that urban infrastructure is used efficiently. The following points list the imperatives for mixed-use development in the northern inner district:

- The aim is to create a healthy, liveable and affordable environment that is *self-contained*, reducing the need to travel long distances to access urban opportunities.
- Mixed-use development should have sufficient *densities*, thereby deterring further urban *sprawl*.
- There should be designated space for *informal* trade, which is expected to play an increasingly important role in economic development.
- The northern inner district should include more *intensive* mixed-use activity and *clustering* of social facilities that, depending on the frequency of visits, are located at points of high accessibility.

8.4. Key Informants

The key informants are a set of factors that influence the formulation of the SDF and inform the planning decisions regarding the location, form and intensity of development and activities in the urban space. With respect to the northern inner district, the key informants include structuring elements, the nature of the plan, as well as institutional informants, each of which is further discussed below.

8.4.1. Structuring Elements

As previously mentioned, the main structuring element of the northern inner district is the road infrastructure. The orientation of the first tier movement routes, i.e. freeways (N1 and N7), give the landscape a particular grain. Hence, as shown in figure 34 below, further development in the district will aim to conform to the existing grain in the area, thereby maintaining continuity of the urban fabric. Secondly, the open space system creates the 'green

infrastructure', a key concept in guiding urban development. In particular, protected areas inform where urban development may occur, as well as what kind of development is permitted. Green corridors can work in tandem with road infrastructure, providing a continued web that can restore natural drainage (amidst the urban hard surfaces) and enable ground water recharge. In addition, green infrastructure affects the microclimate, and contributes to the character and sense of place of the area.

Due to the proximity of the northern inner district to the coast, the coastline inevitably forms a structuring element with regards to urban development in the area. As shown in figure 34, the edge of the coastal zone is demarcated adjacent the northern inner district. No further development is permitted in this zone due to the dynamic and variable nature of the coastal environment. In addition, the edge of the coastal zone follows the 5m contour line and the area to the west of this line is more vulnerable to possible sea level rise. Lastly, at the local level, development must take the existing power lines into consideration. These power lines run along the eastern boundary of Wingfield and form a structuring element for urban development in this area.

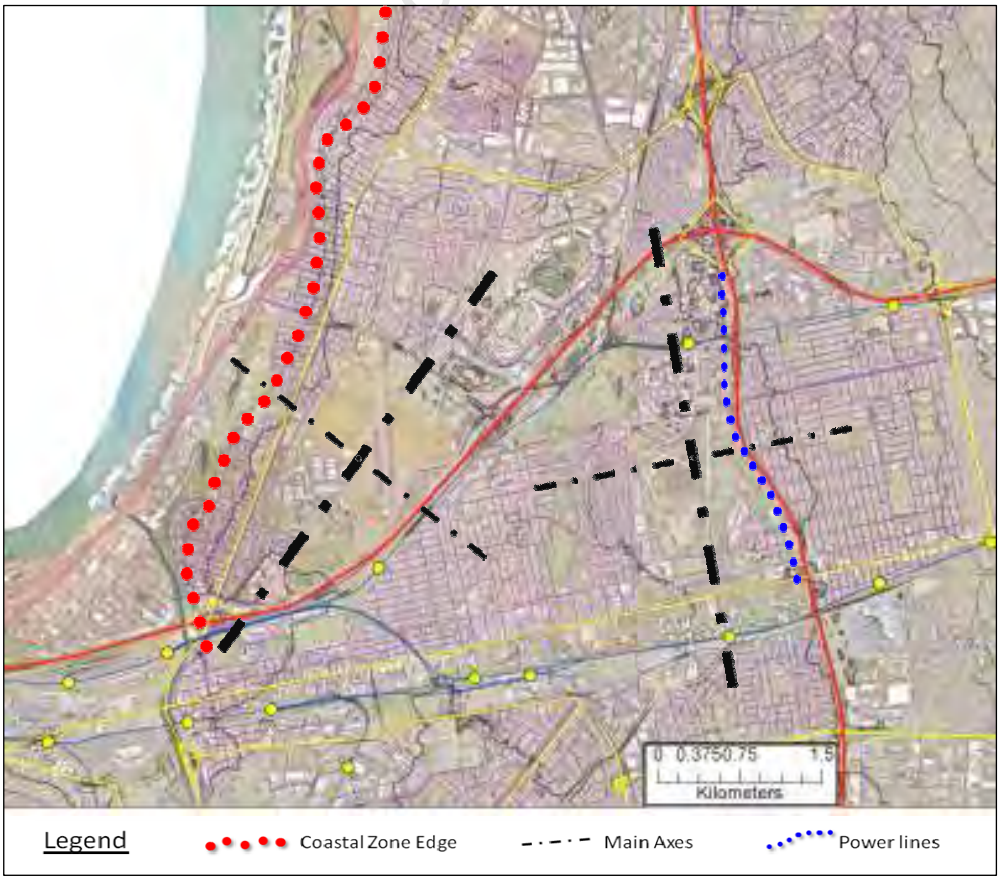


Figure 34: Structuring Elements

8.4.2. Nature of the Plan

The plan for the northern inner district is guided by the top-down/bottom-up approach to development, thus ensuring a holistic course of action regarding spatial development. The plan includes a set of spatial directives that are aimed at guiding the investments of both the private and public sector in order to effect the most positive outcomes (in terms of socio-spatial development) using the least amount of resources. Although the aim of the plan is to influence the development of the northern inner district this way, it is not a clear-cut, prescriptive scheme that is restrictive to development. Rather, it includes a combination of 'constraint' and 'freedom', providing a degree of flexibility in order to adjust to changing economic, political and social trends. The interventions (derived through a series of systematic research steps) are deemed appropriate to guide development for the benefit of all socio-economic groups. Moreover, the plan should include an element of public participation so as to ensure fair and democratic decision-making with respect to development needs.

The plan is based on contemporary planning philosophy, as well as precedents, so as to ensure a well-informed product. As stated in Albrechts (2006), the plan must incorporate a strategic element, focusing on issues that are of high priority. It is forward-thinking and takes due cognisance of environmental issues by including strategies to help establish a sustainable settlement, enabling the urban system to continue to operate in a post-carbon world. It embodies the planning values and recognises the relationship between space, structure and society (id.). The plan supports spatial, economic and social development, as well as the conservation of natural capital. Furthermore, it is in line with the relevant legislation and makes use of planning tools to protect environmental assets while generating opportunities in order to redress inequality in the CCT.

8.4.3. Institutional Informants

In general, the institutional informants pertain to the administration of land. Firstly, land ownership is an important informant of the northern inner district plan. The availability of publicly owned land plays a significant role in restructuring the socio-spatial trends of the city. Thus, access to this land is an

important factor to consider in the SDF. The plan is also informed by land restitution claims whereby specific land parcels are assigned to victims of previous forced removal. In the northern inner district, land restitution claims have been made with regard to the Wingfield area, hence, this must be taken into account in the plan. Lastly, the plan is informed by the relevant planning legislation. In particular, the National Environmental Management Act (NEMA) No. 107 of 1998 and the Land Use Planning Ordinance (LUPO) No. 15 of 1985 pertain to planning initiatives, ensuring that when implementing the plan, no legal obligations are infringed upon.

8.5. Spatial Development Framework

The strategies and policies of the SDF are aimed at restructuring, managing, as well as improving existing urban development in the northern inner district so as to achieve the desired social and spatial outcomes. The SDF comprises three strategy categories. These include (i) *environment*, (ii) *new development* and (iii) *spatial restructuring*. By way of a 'package of plans', the spatial directives of each of the various urban sectors (i.e. economy, housing etc.) are illustrated and linked to the strategy category to which they relate. It should be noted that the SDF includes several spatial directives derived from existing spatial plans (particularly the CCT's district plans), each of which will be distinguished from new ideas in the accompanying discussion.

8.5.1. Environment

The spatial directives pertaining to the environment essentially guide where development may, and may not occur. These directives (as with all the directives specified herein) conform to the principles of sustainable development, and aim to create urban spaces that use resources efficiently, protect environmental assets and deter the encroachment of urban sprawl onto valuable agricultural land. The environmental spatial directives are grouped under *environmental informants* and *developable land*, and are illustrated in maps 26 and 27 respectively. The directives are specified below:

Environmental Informants

- No further urban development is permitted beyond the edge of the coastal zone due to the sensitive nature of the area.

- Ecologically valuable areas should be preserved for the conservation of biodiversity. These areas include the wetlands (at the northern corner of Ysterplaat and adjacent the N1) and river.
- No activity other than 'light' recreation or tourism is permitted in and around conservation areas.
- A number of green spaces, particularly in the Kensington/Maitland area should be retained as public open space as indicated.
- Biodiversity corridors should conform to the transport infrastructure, taking advantage of the road network to create continuous links of green space.
- Lower order streets should be similarly landscaped to link with the open space system, thereby assisting in integrating green space into the urban environment and contributing to the character of the area.
- A green belt is indicated to run alongside the N7 under the power lines. This green belt holds particular prospects for subsistence farming/market gardens as an opportunity generator for the adjacent community to promote food security and socio-economic development.

Developable Land

- Urban development is possible and permitted on the developable land.
- All forms of urban development are possible, including commercial, residential etc. at various intensities.
- The exception is that no heavy industrial developments are permitted.
- It is advised to retain and average of 20% of the area as open space.

8.5.2. New Development

The new developments proposed for the northern inner district include space designated for commercial activity (including retail, office, industrial and informal), residential purposes, as well as facilities. As per the design measures elicited in *section 7.5*, the new development includes mixed-use development. The land use budget should roughly be allocated as 40% residential, 25% commercial, 25% facilities and 10% access routes. This is illustrated in maps 28 and 29. The directives are specified below under *economic development* and *housing and public facilities*:

26

INTERVENTION

Northern Inner District SDF

Environmental Informants

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT; City of Cape Town 2009c

27

INTERVENTION

Northern Inner District SDF

Developable Land

Scale: 1 : 25 000 at A3

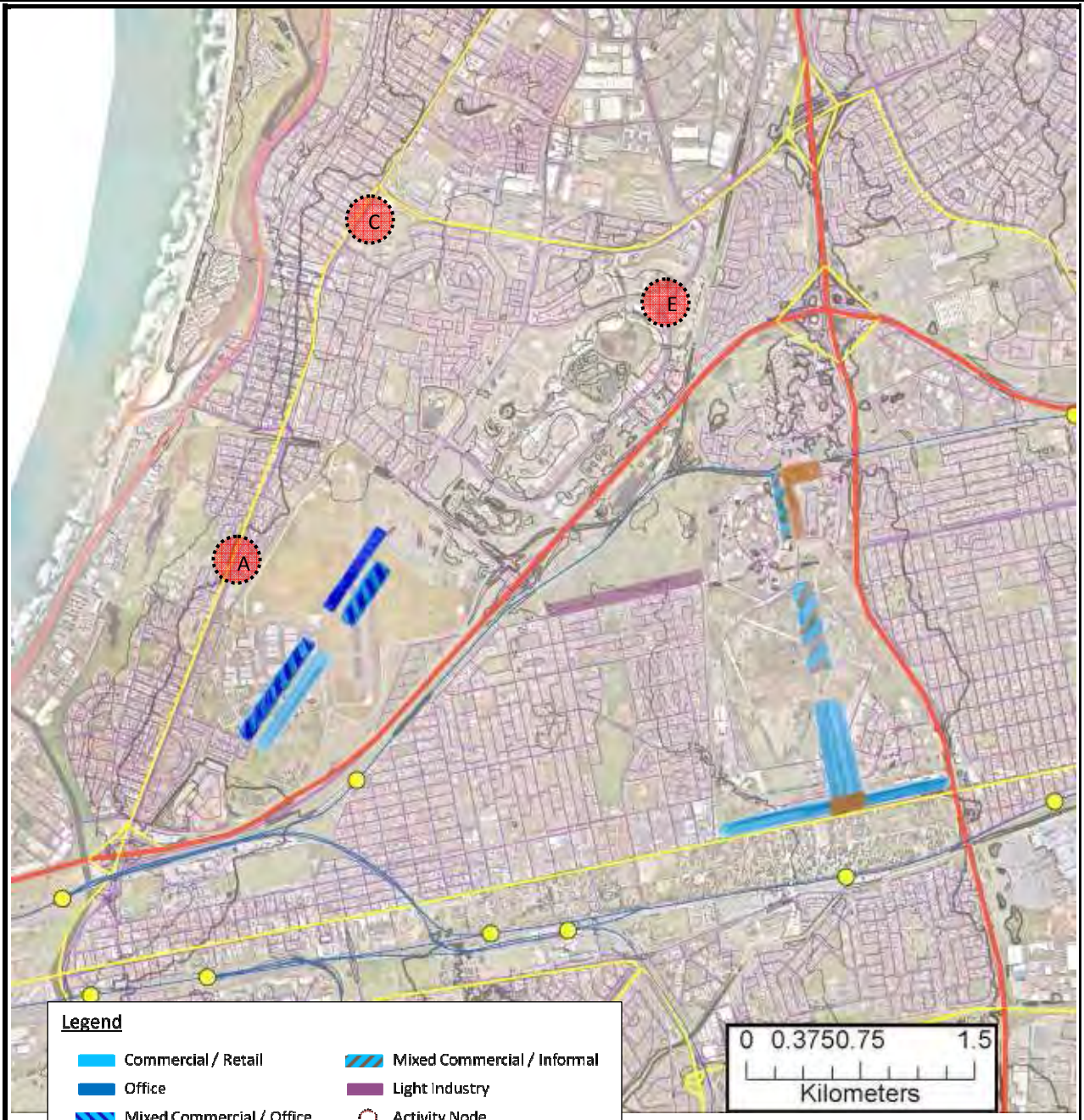
Source: ENPAT DEAT

Economic Development

- A range of economic opportunities are envisioned for the northern inner district in order to generate opportunities and create a good level of self-sufficiency in the area, thereby reducing the need to travel.
- Designated areas for informal trade are specified as an important avenue to promote socio-economic development. These are located in the Wingfield area on Voortrekker Road, as well as adjacent the Acacia Park station. In addition, mixed commercial/informal trade is indicated along the pedestrian orientated corridor (main north-south axis) extending from Voortrekker Road to the Acacia Park station, as illustrated in map 28.
- Similarly, commercial/retail activity is indicated along this same corridor, as well as along Voortrekker Road, and commercial/retail and mixed commercial/office are indicated through the main north-south axis of Ysterplaat, offering economic opportunities in close proximity to residential opportunities.
- The area to the north of Factreton is seen as a strategic location for light industry where employment opportunities may be accessed. This is located on Acre Street, with good accessibility via the Frans Conradie extension, as well as the Sable Road extension and the Century City interchange (see map 30).
- Activity nodes are designated at three stops along the BRT route which are seen as areas of economic potential. These are located on Koeberg Road at Aerodrome (A) and Centre Court (C), as well as at Estuaries (E) in the Century City development. Decentralizing economic activity and creating more activity hubs makes more opportunities available to more people. Thus, the activity nodes are envisioned as vibrant areas of high intensity, mixed-use activity, including informal trade and facilities, which are easily accessible via the integrated transport system.

Housing and Public Facilities

- Residential opportunities are stipulated in the Ysterplaat, Wingfield and Acacia Park areas.



28

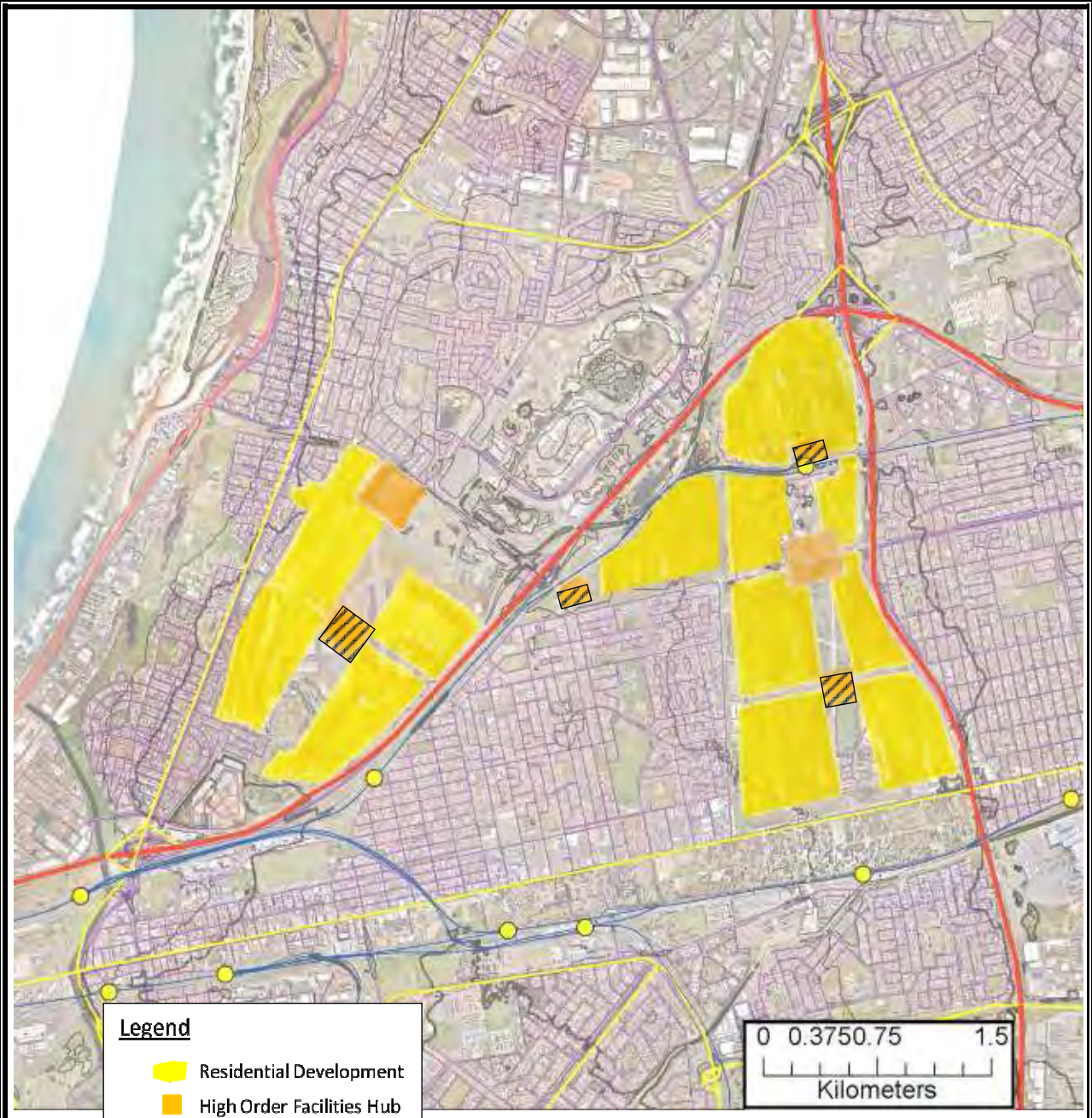
INTERVENTION

Northern Inner District SDF

Economic Development

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT



29

INTERVENTION

Northern Inner District SDF

Housing & Public Facilities

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

- The entire Wingfield and Acacia Park areas are designated for lower income and gap housing.
- Ysterplaat should cater for a combination of lower income and middle income housing opportunities. The western strip of Ysterplaat would have a higher land value due to its proximity to the Koeberg activity corridor and BRT route. Thus, upper middle income development in this area would be better suited. Additionally, this would aid lower income development in the eastern part of Ysterplaat through cross-subsidization.
- Housing should undoubtedly ensure sufficient densities, regardless of income group. The possible housing typologies and densities for new housing development are summarized in table 10. As shown, to achieve sufficient densities, there are three housing typologies that may be used, including semi-detached, row housing and four-storey walk-ups. Assuming each household consists of an average of 3 people, the maximum anticipated population that may be accommodated per housing typology in the new developments is shown.

Housing Typology	Achievable Gross Density	Density Level	Ppl/ha	Max. Population
Single dwelling per plot	10 – 30 DU/ha	Low	30 - 90	25 200
Semi-detached (simplex/duplex)	**40 – 80 DU/ha**	**Medium**	**120 - 240**	**67 200**
Row housing	**30 - 60 DU/ha**	**Medium**	**90 - 180**	**50 400**
Four storey walk-up	**80 - 150 DU/ha**	**High**	**240 - 450**	**126 000**
Eight storey high rise	250 – 320 Du/ha	High	750 - 960	268 800

Table 10: Possible Housing Typologies & Densities

- It should be noted that a combination of typologies is desirable in order to provide different choices for the population, however, single dwelling plots do not provide sufficient densities and high rise buildings are too costly, therefore they should not be included in development.
- Public facilities should be clustered at high access points, based on the frequency of visits.
- Higher order public facility hubs are designated at the intersection of the Frans Conradie extension and the main north-south axis in the

Wingfield area, as well as adjacent Sable Road on the main north-south axis in Ysterplaat.

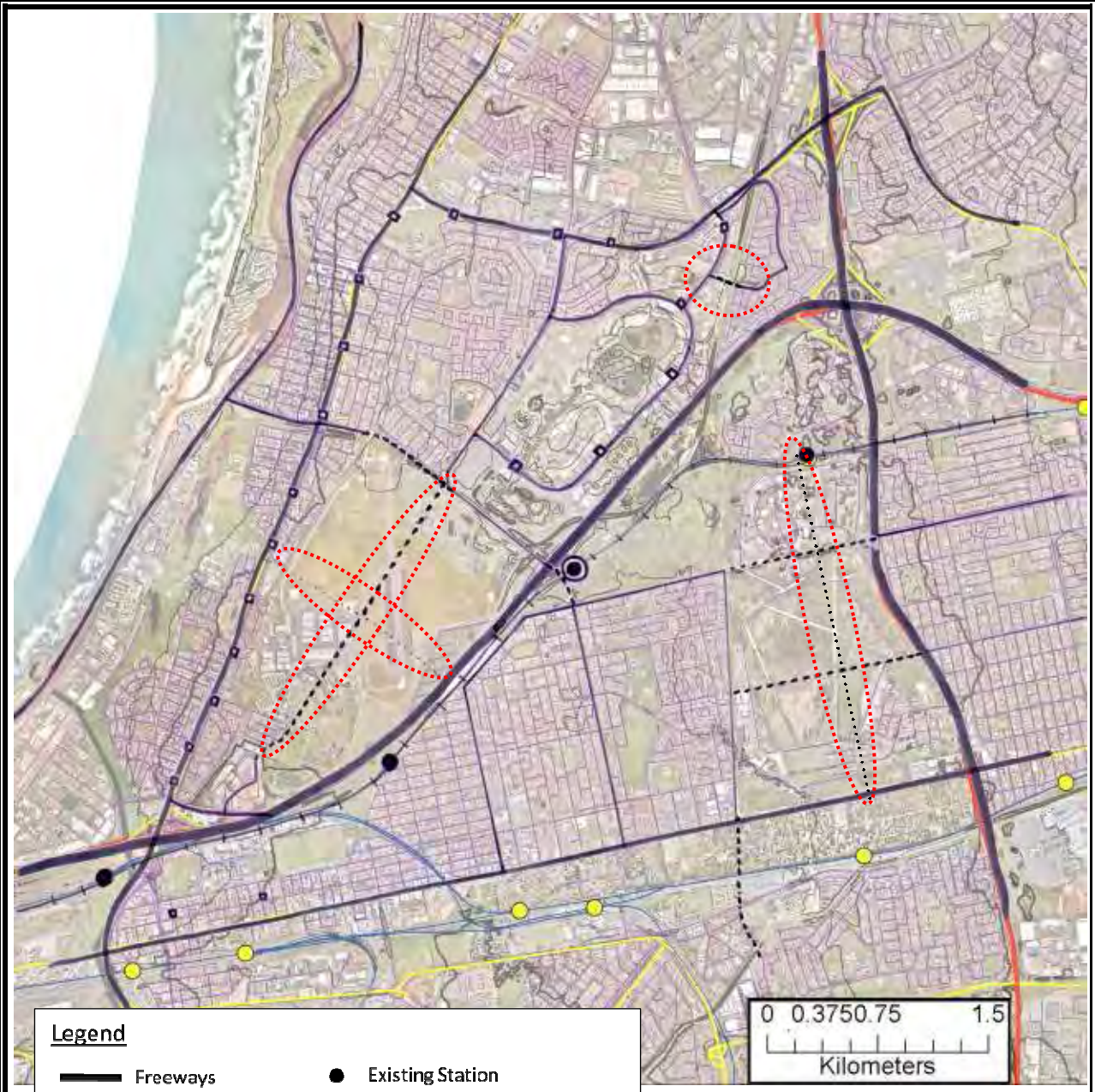
- An important facility needed in the northern inner district is a large public medical centre. Based on the anticipated population size and the community facility standards (table 8), at least one public medical centre should be provided, perhaps supplemented with a second, smaller facility. The medical centre should be located at the Frans Conradie extension as this is very accessible from the railway station, the N7, the N1 (via the Sable Road extension) and Voortrekker Road.
- According to the analysis, education facilities should also be provided to cater for the influx in people into the area. Not only are primary and secondary schools needed, but adult training centres/educational colleges will be a benefit, considering the low literacy levels amongst lower income groups.
- In addition, lower order facilities, such as places of worship, need to be located at exposed places and clustered where possible for convenience.
- Lastly, several public open space (public squares) are illustrated for recreational/meeting purposes. These areas provide further opportunities for informal economic activity.

8.5.3. Spatial Restructuring

The spatial restructuring of the northern inner district is aimed at restructuring, improving and intensifying the existing urban form in order to create a more integrated, coherent urban space. The directives primarily focus on improving the transport network and urban intensification/restoration to link areas of continuity. The spatial restructuring directives are grouped under *transport infrastructure* and *urban intensification*, illustrated in maps 30 and 31 respectively. Below follows a discussion of these directives:

Transport Infrastructure

- Due to the fragmented nature of the northern inner district, several new roads links are specified. As previously mentioned, some of these proposed links are derived from the CCT's district plans. In map 30



30

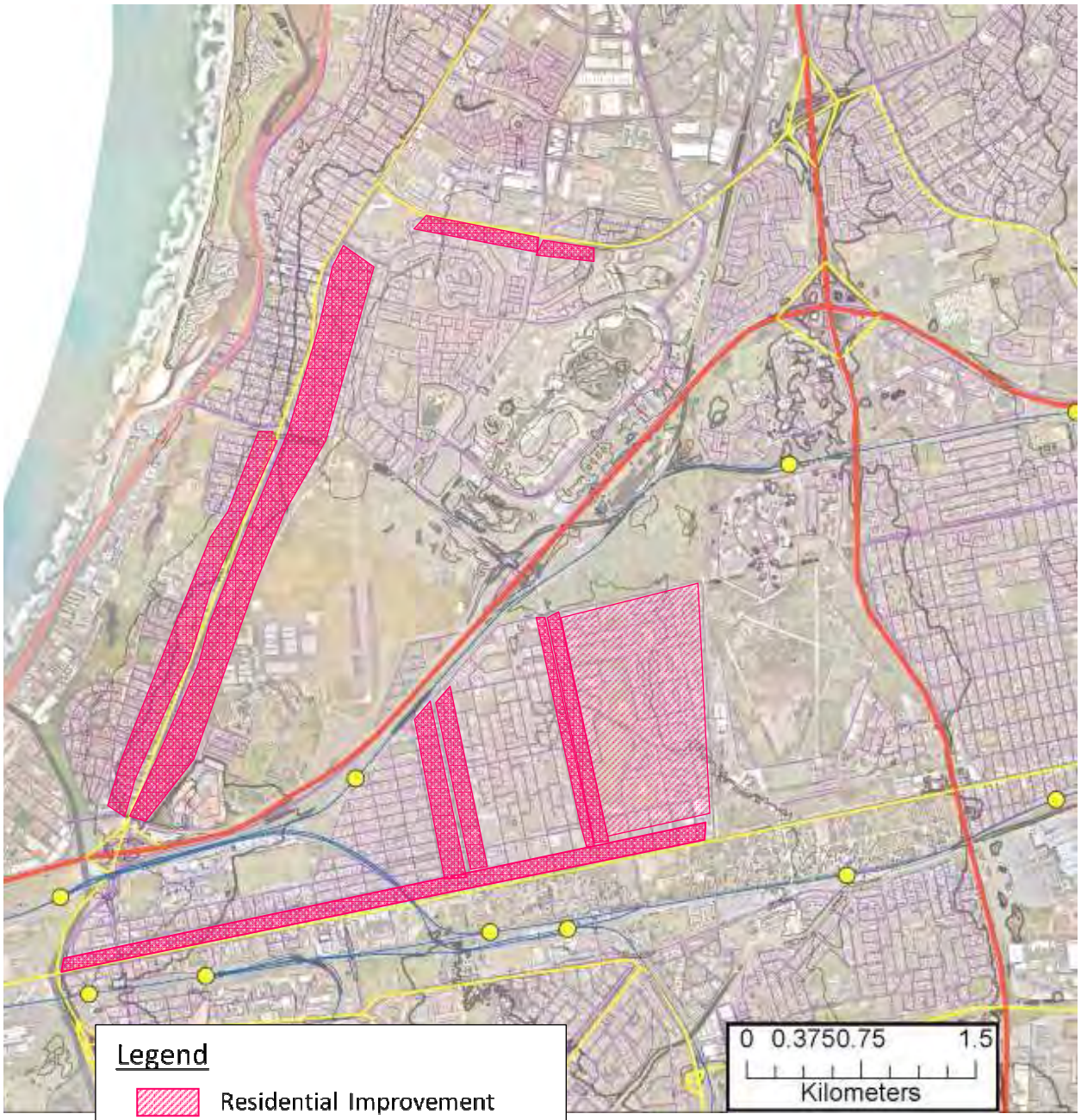
INTERVENTION

Northern Inner District SDF

Transport Infrastructure

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT; Wright 2009; City of Cape Town 2009b/c



31

Northern Inner District SDF

INTERVENTION

Urban Intensification

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT

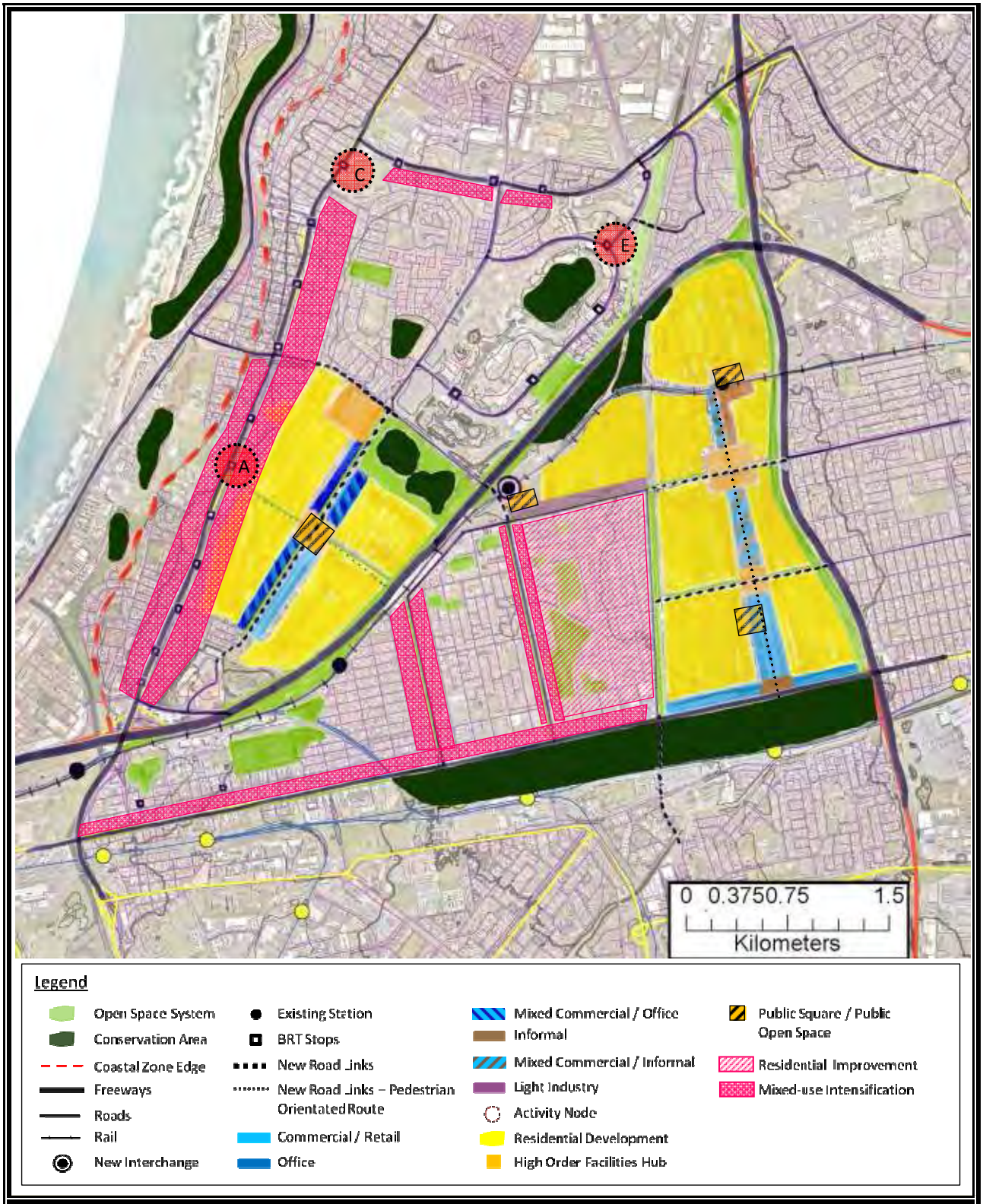
above, the ideas that are not derived from the district plans are encircled with red.

- All other new links are derived from either the Table Bay or Blaauwberg District plans. These include the extension of Sable Road to meet Koeberg Road (westward) and 13th Avenue (southward), the extensions of Frans Conradie and Milton Roads to link Goodwood with Factreton/Kensington, as well as the extension of 18th Avenue across the Maitland cemetery towards the Epping industrial area.
- Additional links include the new road extending from Sable Road southwards through Ysterplaat, as well as the pedestrian orientated routes extending from Voortrekker Road to Acacia Park Station, and across Ysterplaat in an east-west direction, all of which improve the grid-like network of movement.
- In addition, a new link is stipulated in Summer Greens to connect Century Avenue to Soldier Street, thereby improving the accessibility of residents in this suburb.
- In terms of public transport, the new Century City interchange is designated adjacent the N1, and the BRT stops are illustrated along the BRT route.

Urban Intensification

- Urban intensification should occur along high volume movement routes including Koeberg Road, Voortrekker Road and parts of Bosmansdam Road. In particular, Koeberg Road offers potential for a lot of intensification due to the proposed BRT route running along its length. In addition, some intensification is envisioned along 13th Avenue and 8th Avenue (in Kensington) as these may be used as access routes between the N1 and Voortrekker Road.
- Intensification, particularly along Koeberg and Voortrekker Roads should include mixed-use development, with commercial activity on the ground level and residential space above this.
- In addition to intensification, the area of Factreton is designated for residential improvement in order to address the poor living conditions observed through the analysis.

8.5.4. Composite District Plan



32

INTERVENTION

Northern Inner District SDF

Composite Map

Scale: 1 : 25 000 at A3

Source: ENPAT DEAT; Wright 2009; City of Cape Town 2009b/c

Map 32 above illustrates the composite plan for the northern inner district, combining the informants, new developments and restructuring proposals. This map is as a result of a serious of steps to determine the best way to develop the area, and represents the final set of spatial interventions that are aimed at achieving the desired social and spatial development outcomes in the study area. Through this set of directives, the northern inner district will become more equitable and efficient and, additionally, will aid in the restructuring of the CCT as a whole.

8.6. Conclusion

The SDF devised in this chapter aims to effect positive socio-spatial outcomes in the northern inner district through a set of strategic interventions that focus on several development priorities. The need to improve accessibility, socio-economic conditions, housing availability etc. have been addressed and, through this set of spatial directives, good urban form and performance may be achieved in the study area. Subsequent to this chapter, the implementation of the SDF is discussed in order to 'put the plan into action'.

9. Implementation

9.1. Introduction

The SDF assists in creating a concerted effort to facilitate the realization of socio-economic and spatial development. However, the success of the SDF and the interventions discussed in *chapter 8*, as previously mentioned, is dependent upon an appropriate and effective implementation strategy. The implementation process is a multifaceted undertaking that requires aligning and coordinating the goals and resources of different spheres of government, as well as of the private sector. In this final chapter, the factors regarding the implementation of the northern inner district SDF are detailed. Beginning with the phasing of the project, the various considerations of the SDF are discussed, drawing attention to the actions that need to be taken in order to achieve the intended spatial results. Lastly, to complement the implementation of the project, an effective monitoring programme should be put into effect so that the SDF remains consistent with the development goals and objectives of socio-economic development and spatial integration in the northern inner district.

9.2. Phasing

The phasing of the implementation is important to establish as there are a number of contending priorities that need to be addressed. In addition, the available resources (i.e. time, funds, labour etc.) are finite. In order to achieve the desired spatial outcome, the greatest development concerns must be identified are prioritized in the phasing plan. The phasing plan governs the sequence of events of implementation and identifies the actions that need to be taken in order to carry out the interventions of the SDF (as outlined in *chapter 8*). The proposed phasing of the northern inner district SDF is summarised in a Gantt Chart in figure 35 below. Prior to implementing the spatial directives, however, the first step is to align planning regulations. Particularly, land use regulations should be amended so as to enable appropriate development according to the characteristics of the area. For this to occur, the coordination of different government departments is necessary so as to ensure a concerted partnership whereby the desired spatial outcomes may be achieved. In addition, suitable land use regulations will hinder undesirable kinds of development (such as low density residential) from being initiated.

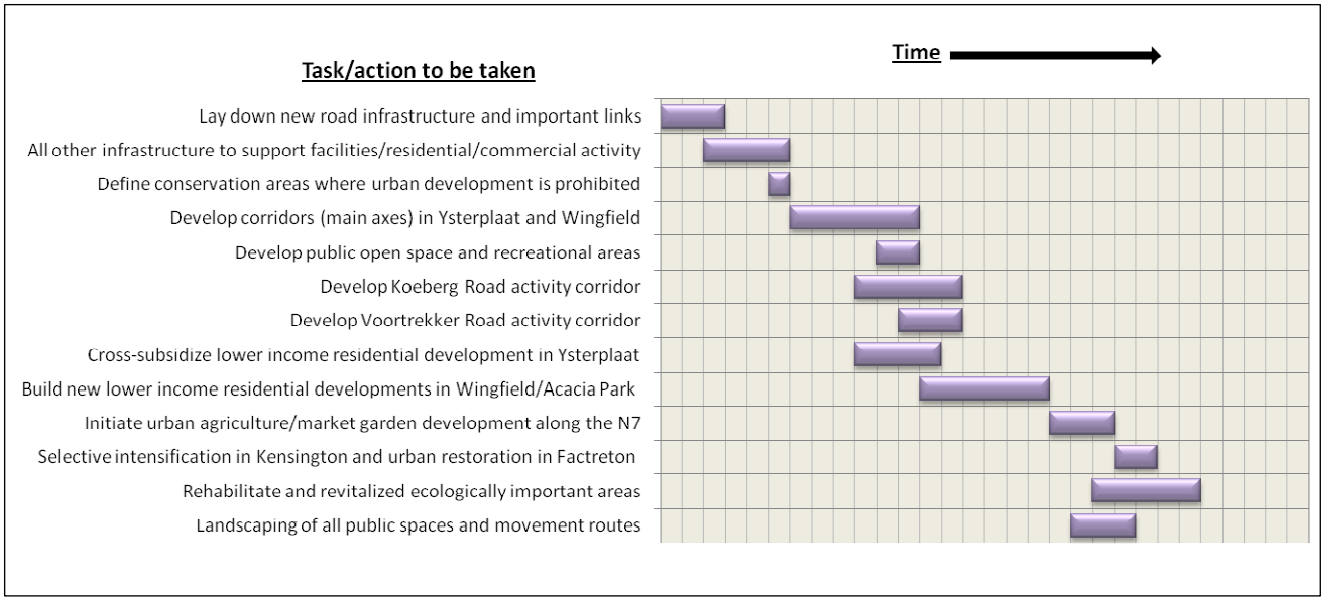


Figure 35: Gantt Chart Showing Phasing

Subsequently, with the limitations of the land use regulations set in place, the release of government owned land should be brought about. For this to occur, some form of compensation, such as a percent of the profit from the development, may be necessary to incentivize this action from the government. This land (Ysterplaat and Wingfield), as mentioned, is an important commodity that may be used to provide opportunities to the less fortunate and to support socio-economic uplift. Thus, lower income development (particularly in the Wingfield area) should be produced so as to accommodate this income group. Following this, as stated by the City of Cape Town (2009d) the spatial strategies and infrastructure planning should be aligned through an integrated development plan (IDP). Included in this would be time and budget considerations. With the IDP in place, development of infrastructure should begin. This includes infrastructure for community facilities and service provision, as well as the laying down of new roads and important road links in order to improve accessibility[13]. This forms the groundwork for other development, such as residential and commercial, to follow. At this point, development should focus on strategic interventions, such as corridor and nodal development. These developments provide opportunities whereby economic development may be stimulated. Subsequently, other urban developments may ensue. This includes selective densification in existing residential areas and upgrading of facilities, as well as a landscaping programme in order to realized the concept of an integrated green network in the district.

[13] It is assumed that the development and upgrading of the city's public transport system (which includes the BRT system) will run congruently to the implementation of the northern inner district SDF, thereby assisting integration and accessibility.

In terms of the time frames of each development phase, it is advised that specific benchmarks be set in order to ensure timeous outcomes. Coordinating stakeholder participation in the course of the implementation must also be considered. In addition, in order to ensure that the development on the ground remains consistent with the goals and objectives of the northern inner district SDF, an effective monitoring strategy, as well as periodic reviews of the plan (for example, at five year intervals) should be included. These two points will be further discussed in *sections 9.3* and *9.7* respectively.

9.3. Public Participation

The objective of the public participation process is to involve the key stakeholders in solving problems and decision-making through various arenas and avenues of stakeholder interaction. Figure 36 below illustrates the public participation process with respect to the development of the SDF. As shown, stakeholder interaction should occur at several stages throughout the SDF development to ensure an inclusive process. For a successful public participation process, it is necessary to identify the key stakeholders whose actions, interests and values are affected by urban development issues within the context of the northern inner district SDF. The area covered by the SDF does not include stakeholders at the local community level, but rather wider stakeholder groups. For example, stakeholders involved in the northern inner district SDF would include business and industry, as well as the Chamber of Commerce. Politicians, major investors and implementation agencies from governmental, non-governmental and private sector organizations should also be included (UN Habitat 2009). Finally, representatives of various business lobby groups, landholding groups, rate payers forums and religious groups, as well as NGOs (such as environmental groups) who have particular interests in the area should play a role.

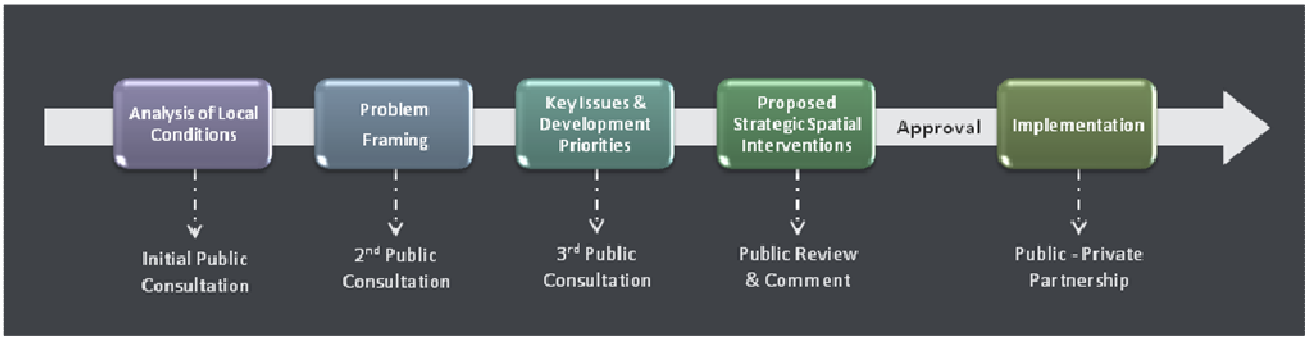


Figure 36: Public Participation Process

9.4. Regulatory Considerations

Planning regulations aim to shape how others undertake their own activities (UN Habitat 2009). They are used as both protective (to safeguard assets and resources) and developmental (to promote better standards of living) measures. Through planning regulations, the forms of development, the particular land uses, as well as the type of buildings on a site may be determined. Thus, planning regulations are vital tools of planning systems (id.). In terms of putting a plan into action, the most important regulatory measure is that of zoning. The CCT is in the process of completing the Cape Town Integrated Zoning Scheme (CTIZS) which, together with the various development frameworks, will be used to guide development in the metropolitan area. However, due to the fact that SDFs are developed independently of the CTIZS, there may be discrepancies between the suitable kinds of development (as established through the process of the SDF) and the permitted kinds of development (as determined by the zoning scheme) for any given area. Thus, it is preferable that zoning schemes and SDFs are developed concurrently with each other.

In light of the above stated situation, it seems local government should have a more proactive approach to land development. Short of this, another means of aligning the directives of the SDF with those of the zoning scheme is necessary. A possible option for this is that of 'overlay zoning'. In order to achieve the desired spatial outcomes as per the northern inner district SDF, a land use management system is necessary whereby the key aspects of the plan are fed into the zoning scheme. This includes an environmental management plan, a densification strategy and a mixed-use intensification plan.

9.5. Interdepartmental Coordination

Due to the multifaceted nature of spatial development, interdepartmental coordination is essential for the successful implementation of the SDF. "...Such coordination [is] a prerequisite for effective urban planning and development" (UN Habitat 2009, p. 84). Actions are required from different government divisions, such as the Department of Housing and Department of Economic and Human Development etc. According to McDonald (1996), horizontal and vertical coordination between development actions is necessary to improve decision-making processes. However, achieving horizontal and vertical integration between various levels of government, as well as with civil society and NGOs, is a key challenge for effective governance (UN Habitat 2009).

Vertical coordination refers to the coordination of the policies of different spheres of government. Horizontal coordination involves both policy integration across different sectors, as well as institutional coordination between constituent municipalities in order to deal with issues that cut across boundaries (id.). There are numerous obstacles to achieving such coordination, especially as a result of discrepancies between administrative and functional boundaries. In response to this, "integrated development planning has been introduced as a way of overcoming the lack of intergovernmental coordination, with varying degrees of success" (UN Habitat 2009, p. 85).

In view of the numerous difficulties as mentioned above, it is necessary to bring about alternate means of interdepartmental coordination. This may be achieved by establishing an interdepartmental task team to oversee major projects. As a number of government departments are involved in development, the task team should comprise several representatives from local, provincial and, in some cases, national government, depending on the task at hand. The interdepartmental task team should be responsible for prioritizing planning actions, as well as budget alignment and land use coordination so as to successfully implement the guidelines specified in the northern inner district SDF.

9.6. Resources

According to the UN Habitat (2009), an important issue is relating strategies, policies and proposals to the resources that could achieve them. Without these linkages, implementing the plan becomes problematic (id.). Firstly, it is necessary to identify the sources of funding for development in the northern inner district. Due to the types of development envisioned for the area (i.e. building of new road infrastructure and lower income housing), the primary source of funding would be from public finance. Local rates and taxes are drawn on as a source of finance, however, this source is limited. Thus, the phasing plan described in *section 9.2* becomes important in allocating resources to particular tasks at particular stages. Depending on the type of development, another source of funding comes from provincial and/or national government through municipal finance. To be specific, provincial government subsidizes housing, health care, as well as primary and secondary education facilities. Also, national government subsidizes tertiary education institutes. Lastly, capital investment spending from the private sector can contribute to development in the

northern inner district. In addition, cross-subsidization of lower income developments (low income and gap housing) from higher-priced development will aid in realizing the goals of the SDF.

9.7. Monitoring & Evaluation

All cities are dynamic entities that constantly transform and grow, therefore monitoring of the growth and change in the northern inner district is essential to ensure the successful development of the area and the realization of the defined goals. It is important to assess the project's progress during implementation in order to plan for and overcome any problems that may arise during development. It is thus suggested that a five year review of the SDF is carried out. This is done by way of a progress report in order to ascertain whether the goals set have been realized and whether the development priorities need to be changed. The UN Habitat (2009) stipulates a set of steps to take in monitoring development strategies as follows:

- *Formulate goals and outcomes*
- *Select outcome indicators to monitor*
- *Gather baseline information on the current condition*
- *Set specific targets to reach and dates*
- *Regularly collect data to determine progress*
- *Analyse and report the results*

The plan should make provisions for qualitative and quantitative key performance indicators, and should include a strategy of how they should be reviewed. The key performance indicators are a set of common measurements that can be tracked over time and allow for the changes that take place to be quantified and monitored (City of Cape Town 2006c). The evaluation of the SDF includes that of the *effectiveness*, as well as the *efficiency* of the plan (UN Habitat 2009). This implies that, firstly, the validity, relevance, outcomes and impacts of the plan are evaluated (effectiveness), in addition to the delivery issues (efficiency). The key performance indicators are the criteria with which to evaluate the *effectiveness* of the northern inner district SDF. As mentioned, they include both qualitative and quantitative measures that relate to the key development issues described in *chapter 5*, i.e. relating to environmental, economic and socio-spatial conditions. The key indicators that should be measured in the northern inner district after a period of five years are thus: education and skills levels; employment rates and income levels; improvements (or lack thereof) to the

transport system; gross dwelling unit densities; state of conservation areas. Should there be no improvement in the northern inner district as per these indicators, the obstacles to development would need to be identified. Finally, methods to measure whether these conditions are achieved with *efficient* use of resources should be put in place.

9.8. Conclusion

This chapter serves to complete the SDF for the northern inner district with an effective implementation strategy that will put the spatial interventions into effect. The above stipulated actions to be taken (figure 35) follow a logical course of action and it is intended that the desired spatial outcomes in the northern inner district will be realized as a result of this procedure. While the various aspects of the implementation process are considered, due to the fact that this is an academic exercise, the details regarding timeframes and budgets are unspecified. Nevertheless, in practice, with the full participation of all stakeholders (including investors and community members), alignment of various regulatory components, interdepartmental coordination, management of resources and an effective monitoring strategy, the implementation of the plan may be successful.

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