DURBAN METROPOLITAN AREA

SPATIAL DEVELOPMENT PLAN

Volume One

SPATIAL DEVELOPMENT FRAMEWORK

PREPARED FOR: DMA SPATIAL DEVELOPMENT FRAMEWORK STEERING COMMITTEE

DECEMBER 1998
# DURBAN METROPOLITAN AREA SPATIAL DEVELOPMENT FRAMEWORK

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# ACRONYMS AND ABBREVIATIONS

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<th>Description</th>
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<td>CBD</td>
<td>Central Business District</td>
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<tr>
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<td>Central Statistical Services</td>
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<td>DFA</td>
<td>Development Facilitation Act</td>
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<td>DMA</td>
<td>Durban Metropolitan Area</td>
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<td>DMC</td>
<td>Durban Metropolitan Council</td>
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<td>D’MOSS</td>
<td>Durban’s Metropolitan Open Space System</td>
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<td>FAR</td>
<td>Floor Area Ratio</td>
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<td>HDI</td>
<td>Human Development Index</td>
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<td>Integrated Development Framework</td>
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<td>Integrated Development Plan</td>
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<td>IWLC</td>
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<td>LGTA</td>
<td>Local Government Transition Act</td>
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<td>MR</td>
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<td>Metropolitan Transport Advisory Board</td>
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<td>North Local Council</td>
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<td>OWLC</td>
<td>Outer West Local Council</td>
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<td>PDA</td>
<td>Planning and Development Act</td>
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<td>Provincial Housing Board</td>
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<td>Regional Development Advisory Committee</td>
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<td>Reconstruction and Development Programme</td>
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<td>Spatial Development Framework</td>
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<td>Spatial Development Plan</td>
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<td>Southern Industrial Basin</td>
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<td>South Local Council</td>
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<td>SMME</td>
<td>Small, Medium and Micro Enterprise</td>
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SPATIAL DEVELOPMENT FRAMEWORK

PREFACE

This document is the result of a review of the Spatial Development Framework (SDF) September 1997 report. In building on the spirit of the original report, the process continues the work of building understanding and setting up co-operation so that we can make things happen.

The September 1997 document provided guidelines and objectives for spatial development in the Durban Metropolitan Area (DMA), while the continued operation of the Spatial Development Framework Steering Committee has provided an interactive, co-operative process to ensure refinement and a more effective translation of spatial policy to tangible actions.

The SDF provided parameters within which initiatives at a sector and local level should translate spatial objectives into tangible and attainable objectives, targets and projects. This work has provided a better understanding of the ability to translate spatial concepts and highlights the practical implications of meeting spatial challenges relative to current practice and capacity. This information has given the basis for:

• Revisiting and fine tuning spatial concepts
• Adding detail to give better understanding and highlighting application
• Identifying strategies for achieving desired outcomes
• Giving strategic direction for land development
• Providing Metro Council land development objectives

This document and the work of the Steering Committee continues to locate itself within the DMA integrated development planning processes. The emphasis given in the review to implementation has oriented the document to providing direction for the Metro Council IDP especially with respect to fulfilling the requirements of planning and development legislation.

The Spatial Development Framework Steering Committee will continue to facilitate co-ordinated implementation of spatial development by all Councils, and to:

• Act as a forum to raise concern for spatial issues of mutual interest
• Debate issues of conflict
• Lobby support for key interventions

DMA Spatial Development Plan  December 1998
The SDP documents are not about providing the definitive statement on all aspects of spatial development in the DMA. There is an enormous wealth of sector and local specific work that reflects this understanding. Their purpose is to draw this information together in a manner that:

- Promotes an understanding of key spatial issues and how they relate to each other
- Identifies strategic choices and key interventions
- Harnesses energies and mobilise resources around priorities
- Facilitates co-operation and teamwork
- Directs development

VOLUME 1 SPATIAL DEVELOPMENT FRAMEWORK

- Locates and highlights the role of spatial development.
- Outlines the current situation, at a broad metropolitan level, in terms of spatial characteristics, trends, key issues and challenges.
- Establishes a spatial vision and mission, and spatial guidelines needed to inform spatial development.
- Identifies spatial structuring elements and provides policy guidelines for their translation.
- Demonstrates the translation of the spatial elements in the DMA context.
- Establishes the spatial parameters for future development.
- Draws out the implications of applying the spatial concepts relative to current practice and capacity.

VOLUME 2 SPATIAL DEVELOPMENT STRATEGY AND ACTION PLAN

- Identifies strategies for achieving the desired outcomes of the policy.
- Identifies conditions required for implementation.
- Outlines responses and project interventions.
- Suggests the way forward in terms of the actions and approaches necessary for the implementation of the SDP.

VOLUME 3 SPATIAL DEVELOPMENT REFERENCE MATERIAL

- Contains information on the operation of the SDF Steering Committee.
- Provides a detailed assessment of nodes and corridors.
- Provides areas of greatest need profiles.
- Lists source documents and related projects.

DMA Spatial Development Plan December 1998
INTRODUCTION

This document is part of a set of reports that provide spatial guidelines and strategies for directing the physical development of the DMA. Volume 1 sets out the revised Spatial Development Framework by providing an assessment of where we are, where we want to be, and establishing guidelines for the key structuring elements. It also presents the emerging picture with respect to translating spatial elements and testing out the spatial concepts. Volume 2 outlines the strategies and actions necessary to achieve the desired outcomes, while Volume 3 provides more detailed information and reference material drawn from Local Council IDPs and Metro sector work.

1. ROLE OF THE SPATIAL DEVELOPMENT PLAN

The promotion of spatial restructuring of the DMA has been identified as a key strategy of all Local Council Integrated Development Plans (IDPs). While spatial restructuring remains a key theme, the work of further translating Idp's to implementable plans has highlighted the importance of the spatial component in promoting and achieving broader benefits. As well as redressing past imbalances, the SDP has an important role to play in: promoting an understanding of integrated development, ensuring biggest returns for efforts, fulfilling legislative requirements, and providing a framework for identifying local government’s role and actions in spatial development.

1.1 REDRESS PAST IMBALANCES

The present spatial structure of the DMA is an obstacle to its equitable, efficient and sustainable development, especially in terms of how the urban environment works for the poor. The momentum of the forces that have shaped the physical form of the DMA have been built up over many years. Unless a concerted effort is made to restructure and redress imbalances, they will continue. All Councils have actively addressed this concern by directing resources to previously disadvantaged areas. This has been especially obvious with respect to capital budgets.

However, redressing past imbalances is not just about understanding the physical legacy of apartheid planning but also about understanding the social and economic implications so that
physical elements can impact on giving social and economic benefits. Likewise, it is not just about making sure development is more equitably distributed but also about avoiding past mistakes, past fragmentation, past responses, and past way of doing things.

1.2 PROMOTE AN UNDERSTANDING OF INTEGRATED DEVELOPMENT

The work of the Local Council IDPs has highlighted the importance of the spatial component in terms of providing the physical context for the linkage and co-ordination of the other strategies. Figure 1 locates the SDP within the Metropolitan strategic planning process together with the broader National and Provincial context, and local processes, highlighting both vertical and horizontal linkages.

The emerging National and Provincial policy provides the context within which to locate local government efforts, while the translation of the Metropolitan Integrated Development Framework to Integrated Development Plans at Metro, Local Council and community levels, and the interaction of these processes provides the driving force for the transformation process. This process of integrated planning provides the basis for linking plans, people and budgets across all levels of government and across all sectors of development.

1.3 ENSURE BIGGEST RETURN FOR EFFORTS

Development that takes place in an ad hoc and uncoordinated way is wasteful of resources and limits opportunities for maximising impacts. Making sure all efforts have the biggest positive impact requires that the delivery of physical things also addresses social and economic needs. This means that the provision of housing should not just be about getting a roof over people’s heads but should address issues of capacity building and access to economic opportunities. Likewise, the provision of open space should not just make the area attractive but also reduce costs of storm water management, provide opportunities for tourism, recreation or urban agriculture.

Biggest return for efforts is also about making sure we do not set up unproductive competition and that one area does not suffer because of decisions made by another. It also requires that we address problems in a way that does not create problems for others, and that duplication and inefficient practices are eliminated.
1.4 FULFILLMENT OF LEGISLATIVE/POLICY REQUIREMENTS

In terms of the principles of the Development Facilitation Act, the SDP represents progress toward promoting efficient and integrated land development. It also provides an instrument for the strategic management of growth and development as outlined in the KwaZulu-Natal Planning and Development Act. While decisions and actions of local government must occur within the parameters set by the national and provincial policy, a key aspect of the Constitution is the empowerment of local government as a separate sphere of government, and the concept of co-operative government.

LOCATING THE SPATIAL DEVELOPMENT PLAN WITHIN THE METROPOLITAN STRATEGIC PLANNING PROCESS

Figure 1
Spatially, the DMA is identified as a major structuring element of the Provincial Spatial Growth and Development Framework, it being the convergent point of the Province’s two main corridors, the north-south and western corridors, and because of the framework’s focus on ports. The SDP satisfies the Provincial requirement of having an instrument to guide investment and a mechanism to ensure ongoing refinement and modification, and provides a foundation for the preparation of Development Plans (see Volume 3, Annexure 5). Spatial plans also provide the framework within which sector requirements for locating their services within integrated development planning processes can be complied with (e.g. Water Services Act, Interim National Land Transport Act, Housing Act, National Environmental Management Act)

1.5 FRAMEWORK OF ACTION FOR LOCAL GOVERNMENT ROLE IN SPATIAL DEVELOPMENT

Restructuring the DMA to improve its performance requires more than spatial changes, it also requires better management, organisation and use of its spatial elements. Since local government has extensive influence over development policy, funding, infrastructure and service provision, regulations and controls, and its capacities and assets, it is ideally placed to effect significant changes to the spatial form of the DMA.

The SDP provides a framework within which services and facilities are located. As well as giving direction and guidance for these, the plan assists to integrate programmes across sectors and to identify development priorities and strategic project areas. The spatial application of strategies provides guidance in terms of drawing on the collective capacity and resources of the DMA to address problems and provide guidance in terms of making the best use of assets. The translation of policy guidelines gives the basis on which to make decisions about where development should and should not go and its desired form.

The SDP provides a tool for promoting and managing physical transformation and restructuring processes within the context of developmental local government. It provides an instrument for guiding investment, for promoting investor confidence in terms of the DMA knowing and being responsive to its needs and opportunities, and gives the basis for making sure assets are used wisely, and problems are solved collectively.

If the SDP is to be an effective tool to respond to the DMA’s spatial development challenges in an integrated manner, its implementation requires people working together to get the best possible relationship between plans, people and budgets. In providing greater certainty about what to do and where to do it, the SDP also provides the basis for giving local government a stronger voice in terms of ensuring metropolitan interests are being addressed at provincial and national levels.
2. DEVELOPMENT CONTEXT

2.1 INTRODUCTION

Understanding how spatial development can assist putting the DMA onto a path toward realising its vision, first requires understanding the current situation in terms of the problems and issues being faced and the opportunities available to address these. Together with an assessment of underlying causes and impacts, this understanding provides the base on which to utilise opportunities and to direct trends toward common goals.

This section presents an overview of the development context in the DMA. It first presents brief social, economic and spatial descriptions of the DMA, and then outlines a set of development trends and issues that are evident. Economic and social processes are very powerful forces in shaping the spatial form of the DMA with many of the current trends being manifest in spatial outcomes. The section concludes by identifying a number of key variables that could potentially shape the future spatial development context in the DMA.

The development context must also be seen within the context of political processes both locally and globally. This includes understanding the legacy of past administrative structures and the potential of new structures (see Map 1). Local government transition, in line with the enabling legislation of the Local Government Transition Act, is moving local government to becoming more developmental. This requires local government working with its community to find sustainable ways to meet their social, economic and material needs and improve their quality of life.

2.2 SOCIAL DESCRIPTION

The DMA, in its transitional phase has become a rich amalgam of racial and cultural groups revelling in the spirit of a new democracy. Its population of approximately 2.5 million\(^1\) comprises 56% black, 27% Indian, 14% white and 3% coloured. The incorporation of the black townships and informal areas into the DMA has introduced a greater degree of political, religious, linguistic and social class differentiation. The DMA, unlike other South African cities, has the largest concentration of Indians in the country, with historical roots dating back to 1860.

In terms of population spread, the greatest population concentrations occur in the North and South Central Local Councils (34.2% and 31% respectively). The smallest concentrations of approximately 5% each are to be found in the North and South Local Councils. The Inner and Outer West Local Council areas accommodate a further 13.6% and 11% respectively.

\(^{1}\) This figure still needs to be verified by the recently released census.
Local Government Transition

Map 1
Since the local council boundaries have become more inclusive, informal processes in the DMA have become more prominent, reflecting changes in settlement patterns of its inhabitants. The informal population component, inclusive of peri-urban settlement, is almost one third of the total. Map 2 shows the settlement type in each of the Local Councils. It reveals that the North Central Council has the greatest proportion of informal settlements, with the North Local Council having the least. The South Central Local Council, which contains South Africa’s third largest township (Umlazi) of 300 000 people, has the highest proportion of the DMA’s township population. The Outer West has the highest proportion of peri-urban settlement.

In broad terms, the DMA’s other demographic characteristics (Refer to Table 1) are typical of cities in South Africa. Although working age people make up the bulk of the population (61.5%), there is a relatively large proportion of children under the age of 18 years (34.4%). There appears to be significant variation in the distribution of youth, working age and aged people in the DMA. Whereas the age structures of the North and North Central local Council areas mirror the DMA closely, the South Central and Inner West areas have a higher proportional share of the working age people. This is attributable to the hostel-dwellers that are found in these two areas, a fact that is reflected in the higher than average presence of males in the Inner West (52%) and South Central (51.3%). The Outer West has a substantially lower than average proportion of working age people (55.3%) reflecting the fact that this area has an employment deficit and is consequently a net labour exporter. This is corroborated by the comparatively low ratio of males to females (46.4:53.6). Recent surveys have indicated a decline in the rates of increase in population growth, attributable largely to the general decrease in family size as well as the impact of AIDS. Current growth rate is estimated to be approximately 2%, but this varies across racial groups, with the growth rate for the white population being 0.01% and the black population 3.78%.
Table 1: Demographic Characteristics

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<td>South</td>
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<td>34.4</td>
<td>61.5</td>
<td>4.1</td>
<td>49.8</td>
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Sources: Urban Strategy, CSS

Table 2 provides an overview of the socio-economic characteristics of the people living in the DMA. The 1991 Census suggested that less than 60% of the economically active age population was formally employed in the DMA. Nearly three-quarters of the DMA’s income earners earned less than R15 000 annually and just over 80% of the working age population was functionally literate. In aggregate terms, residents of the North, North Central and South Local Council areas appear to enjoy a higher than average level of wellbeing when their employment, income, housing conditions and education levels are compared to the DMA as a whole. Social wellbeing in the South Central and Inner West is largely on a par with the DMA as a whole while the Outer West by contrast fares worst of all.

There are wide disparities in Human Development Indices (HDIs)\(^2\) between the white and black populations, representing first and third world conditions respectively. Aggregated figures mask extreme inequalities in the life chances and lifestyles of people within Local Council areas. The HDIs of the lower income residential areas of Inanda, KwaMashu, Chesterville, Lamontville, Umlazi, KwaMakhuta, Magabeni, KwaDabeka, Mariannhill and Mpumalanga do not exceed the value of 0.3. By comparison, the upper income residential areas of Umhlanga, Pinetown, Westville and Kloof all exceed 0.7. Almost one third of the population has four years of formal schooling, these being mostly blacks. Eight percent of the metropolitan adult population is illiterate, whilst 47% of the population have passed standard six. Of these, only 16.5% have completed matric.

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\(^2\) A measure of people’s ability to live a long and healthy life, to communicate, to participate in the community and to have sufficient means to be able to afford a decent living.
Table 2: Socio-economic Characteristics

<table>
<thead>
<tr>
<th>Local Council Areas</th>
<th>% formally employed (1991)</th>
<th>% earning&lt; R15000 per year</th>
<th>% earning&gt; R15000 per year</th>
<th>% with functional literacy</th>
<th>% formally housed (1991)</th>
<th>% share of DMA income</th>
<th>Sample Human Development Indices (1994)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>62.5</td>
<td>67.5</td>
<td>32.5</td>
<td>82.0</td>
<td>90.0</td>
<td>7.4</td>
<td>Tongaat 0.501 Verulam 0.504</td>
</tr>
<tr>
<td>North Central</td>
<td>60.2</td>
<td>74.8</td>
<td>25.2</td>
<td>83.0</td>
<td>64.4</td>
<td>36.5</td>
<td>Inanda 0.179 KwaMashu 0.268</td>
</tr>
<tr>
<td>South Central</td>
<td>58.3</td>
<td>72.5</td>
<td>27.5</td>
<td>84.0</td>
<td>68.0</td>
<td>30.6</td>
<td>Chesterville 0.302 Lamontville 0.206 Umlazi 0.259</td>
</tr>
<tr>
<td>South</td>
<td>63.4</td>
<td>53.5</td>
<td>46.5</td>
<td>90.3</td>
<td>79.9</td>
<td>6.2</td>
<td>Amanzimtoti 0.883 KwaMakhuta 0.292 Isipingo 0.505</td>
</tr>
<tr>
<td>Inner West</td>
<td>58.7</td>
<td>74.1</td>
<td>25.9</td>
<td>82.4</td>
<td>61.1</td>
<td>8.7</td>
<td>Kwadabeka 0.283 Mariannhill 0.293 Pinetown 0.739 Westville 0.812</td>
</tr>
<tr>
<td>Outer</td>
<td>52.1</td>
<td>82.6</td>
<td>17.4</td>
<td>73.1</td>
<td>29.2</td>
<td>10.5</td>
<td>Mpumalanga 0.193</td>
</tr>
<tr>
<td>DMA</td>
<td>58.6</td>
<td>73.6</td>
<td>26.4</td>
<td>82.2</td>
<td>63.3</td>
<td>100.0</td>
<td>KZN average 0.58</td>
</tr>
</tbody>
</table>

Source: CSS

Historically Durban has been a racially and culturally divided city reinforced by spatial segregation. Major changes were ushered in with the 1994 national elections and more recently, with local government restructuring which occurred in 1996. The new democracy, as well as exposure to the values of western industrial societies has had tremendous impact upon social processes and institutions. Social change is occurring at a more rapid pace than ever before. The DMA is now a more vibrant and cosmopolitan city than it has ever been. This is so because for the first time, black people have the opportunity to live and recreate in the city centre. Attempts at integrated social relations manifest themselves in the creative arts such as dance, drama, music and the material artifacts of culture such as craft, cuisine and fashion. The net result is that the urban culture has become more ‘Africanised’.

Social change is usually accompanied by conflict between tradition and modernity, manifested in values, beliefs, attitudes, lifestyles and consumption patterns. Traditional extended families are increasingly splintering into nuclear units, and single parent households are becoming more acceptable. The impact of this on housing demand will mean that greater variations in housing structure will emerge. However, the family continues to play an extremely important supportive role, despite the fact that the apartheid city did much to fracture family relations. Hostels in Umzazi and KwaDabeka which once accommodated men only have now been infiltrated by ‘families’.

With greater access to education and skills development, a trend in upward social mobility is
already evident. In broad terms, the apartheid regime had enforced a fairly neat coincidence between space, race and social class variables. With increased geographical and social mobility, the probability of a gradual erosion of this is fairly high.

Moreover, increasing educational opportunities open to women have also impacted on the infrastructural needs of society. With more women entering and remaining longer in the labour force, there is an urgent need for more community facilities such as creches, day care centres and old age homes.

The DMA, not unlike other major South African cities, is besieged by excessively high levels of crime, violence, infant mortality and AIDS. In terms of more serious crime, an increase of 9.2% has been recorded over the past two years in the Durban area (defined as Newark in the north, Hillcrest in the west and Amanzimtoti in the south). A simultaneous decrease of 10.7% has been recorded for less serious crime (South African Police Services).

According to national surveys of women attending antenatal clinics of public health services, it was found that KwaZulu Natal had the highest incidence of HIV positive women in 1997 (26.92%)\(^3\). Focusing on the DMA, statistics released by the King Edward Hospital reveal that whilst in 1990, only 1.61% of women attending the antenatal clinic were diagnosed as HIV positive, by 1998, the figure had escalated to 31.07%, representing a phenomenal increase.

### 2.3 ECONOMIC DESCRIPTION

The DMA is the main economic driver in KwaZulu-Natal, contributing over half of the province’s output, employment and income (see Table 3). In national terms, the DMA is the second most important economic complex after Gauteng. The DMA’s economic strength is due in part to its role as South Africa’s international trade hub as well as being a leading regional industrial, commercial and financial centre in its own right.

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\(^3\) AIDS Training and Information Centre, Durban.
Table 3: DMA Economic Contribution

<table>
<thead>
<tr>
<th>Indicator</th>
<th>% Share of KZN</th>
<th>% Share of RSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Geographic Product (1994)</td>
<td>56</td>
<td>15</td>
</tr>
<tr>
<td>Employment (1991)</td>
<td>50</td>
<td>11</td>
</tr>
<tr>
<td>Income (1991)</td>
<td>60</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: CSS

Table 4 reflects the DMA’s role as an international trade centre. The Port of Durban contributes approximately 65% of the revenue generated by South Africa’s ports. Even though it handles only 38.3% of all vessels, the port handles most of the trade in high value goods.

Table 4: Port of Durban National Contribution

<table>
<thead>
<tr>
<th>Indicator</th>
<th>% Share of SA ports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vessels handled (1997)</td>
<td>38.3</td>
</tr>
<tr>
<td>Container traffic (1997)</td>
<td>64.8</td>
</tr>
<tr>
<td>Port revenue (1997)</td>
<td>65.0</td>
</tr>
</tbody>
</table>

Source: Portnet

The DMA is a substantial administrative centre, providing key public services within the Metropolitan area as well as to the wider region. The community services sector is the largest employer (30.5%), although it makes a more modest contribution to economic output (14.4%). The financial and real estate and transport sectors make smaller yet significant contributions to the economy of the DMA. They each account for approximately 7% of employment while the finance and real estate sector (14%) makes a slightly larger contribution to output than transport (12.8%). Table 5 shows that the DMA’s economy is primarily an industrial one. Manufacturing is the DMA’s economic engine accounting for approximately 30% of output and employment respectively. The trade and catering sector make an important contribution to output (20.8%) and employment (16.1%), underscoring the DMA’s role as a regional commercial and tourism centre.
Volume One: Spatial Development Framework

Table 5: DMA Economic Structure

<table>
<thead>
<tr>
<th>Sectors</th>
<th>% share of employment (1991)</th>
<th>% share of output (1994)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; mining</td>
<td>4.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>29.3</td>
<td>30.9</td>
</tr>
<tr>
<td>Electricity &amp; water</td>
<td>0.6</td>
<td>1.6</td>
</tr>
<tr>
<td>Construction</td>
<td>4.6</td>
<td>3.5</td>
</tr>
<tr>
<td>Trade &amp; catering</td>
<td>16.1</td>
<td>20.8</td>
</tr>
<tr>
<td>Transport</td>
<td>7.3</td>
<td>12.8</td>
</tr>
<tr>
<td>Finance &amp; real estate</td>
<td>7.6</td>
<td>14.0</td>
</tr>
<tr>
<td>Community services</td>
<td>30.5</td>
<td>14.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: CSS

Table 6 indicates that in the national context, the DMA is more than simply a manufacturing hub and trading port. The DMA has an 8.5% share of national retail sales, driven largely by a resident population of approximately 2.5 million people.

Table 6: National Share of Economic Activity

<table>
<thead>
<tr>
<th>Sector</th>
<th>% share of RSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail sales (1992)</td>
<td>8.5</td>
</tr>
<tr>
<td>Foreign visitors (to KZN, 1997)</td>
<td>27</td>
</tr>
<tr>
<td>National visitors (to KZN, 1997)</td>
<td>25</td>
</tr>
<tr>
<td>A-grade office space (1998)</td>
<td>2.5</td>
</tr>
<tr>
<td>B-grade office space (1998)</td>
<td>21.7</td>
</tr>
</tbody>
</table>

Sources: RDAC, CSS, JHI

KwaZulu-Natal attracts approximately one quarter of the foreign and domestic visitors that support South Africa’s tourism trade. As the primary gateway to KwaZulu-Natal’s tourism and recreation resources, the DMA captures a significant portion of the country’s international and national tourism.
The DMA accommodates a large proportion of the county’s B-grade office space, emphasizing its role as a *regional financial and administrative hub*. Comparatively speaking, the DMA makes up a relatively minor share of A-grade office space nationally, which reflects the historical dominance of Johannesburg and the recent ascendance of Cape Town as the preferred locations for national head offices.

Table 7 shows that, geographically, *economic activity* is mainly located in the South Central and North Central Local Council areas. Economic activity is primarily centred around Durban’s CBD, port and Southern Industrial Basin as well as the North Coast Road and South Coast Road corridors that links them together. Collectively, these areas account for approximately three-quarters of the output, two thirds of the employment and nearly half the industrial land in the DMA.

The Inner West comprises a secondary industrial and commercial centre. Development in the Inner West has occurred around Pinetown’s CBD and the industrial estates of Westmead, New Germany and Southmead to a lesser degree. The Inner West has an 11,6% share of output, a 17% share of employment and 19,9% share of industrial land in the DMA.

**Table 7: Distribution of Economic Activity**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>DMA</th>
<th>North</th>
<th>North Central</th>
<th>South Central</th>
<th>South</th>
<th>Inner West</th>
<th>Outer West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross geographic product (1994)</td>
<td>R 31 204 445 000</td>
<td>3,6</td>
<td>Combined share of 79,6</td>
<td>11,6</td>
<td>5,2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment (1996)</td>
<td>708 000</td>
<td>4</td>
<td>23</td>
<td>43</td>
<td>9</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>Industrial land area (1997)</td>
<td>5 790 ha</td>
<td>6,7</td>
<td>16,6</td>
<td>30,8</td>
<td>16,8</td>
<td>19,9</td>
<td>9,2</td>
</tr>
</tbody>
</table>

Sources: CSS, MTAB, Urban Strategy Land Coverage Study

Smaller economic centres are found in the northern, southern and western regions of the DMA. In the North, commercial development is dispersed between the towns of Umhlanga, Verulam and Tongaat. Industrial development occurs primarily at Glen Anil, Mt Edgecombe and Canelands. The North accounts for 3,6% of output, 4% of employment and 6,7% of industrial land in the DMA. In the South, commercial development has mainly clustered around the town centres of Isipingo and Amanzimtoti, while industrial development is found at Prospecton and Umbogintwini. The South accounts for 9% of employment and 16,8% of industrial land in the DMA. In the Outer West commercial development is primarily found in Hillcrest’s town centre and industrial development has occurred in Hammarsdale and Harrison Flats. The Outer West contributes 5,2% of output, 4% of employment and 9,2% of industrial land in the DMA.
2.4 SPATIAL DESCRIPTION

The DMA covers a land area of 1336 square kilometres, encompassing six Local Council areas that range in size from 451 square kilometres in the Outer West to 89 square kilometres in the South (see Table 8). The remaining Local Council areas are all roughly equal in land area, ranging from 203 to 210 square kilometres.

Less than one-third of the DMA’s land area lies under formal settlement, while a further 11% lie under informal settlement. Economic, transport and public and social infrastructures account for a further 11% of the land area and agriculture makes up 20% (see Map 3). The residual 27% of land area is undeveloped, a large part of which is designated as part of the Metropolitan Open Space System (see section 4.5).

The North Central, South Central and Inner West areas are the most urbanized Local Council areas. Respectively, approximately 58%, 52% and 59% of their land area lies under formal and informal settlement. The North is the least urbanized (17%) and contains most of the DMA’s remaining commercial farming, which covers 59% of its land area. The South and Outer West areas also have a significant remaining agricultural base, which accounts for 16% and 26% of their respective land areas.

Table 8: Spatial Characteristics

<table>
<thead>
<tr>
<th>Local Council Areas</th>
<th>Land area (sq.km)</th>
<th>% formal settlement</th>
<th>% informal settlement</th>
<th>% urban economic</th>
<th>% road, rail &amp; harbour</th>
<th>% public &amp; social facilities</th>
<th>% water-bodies</th>
<th>% agriculture</th>
<th>% undeveloped</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>209</td>
<td>16</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>59</td>
<td>17</td>
</tr>
<tr>
<td>North Central</td>
<td>210</td>
<td>44</td>
<td>14</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>South Central</td>
<td>204</td>
<td>44</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>South</td>
<td>89</td>
<td>34</td>
<td>5</td>
<td>12</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>16</td>
<td>23</td>
</tr>
<tr>
<td>Inner West</td>
<td>203</td>
<td>40</td>
<td>11</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>35</td>
</tr>
<tr>
<td>Outer West</td>
<td>451</td>
<td>17</td>
<td>18</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>DMA Total</td>
<td>1336</td>
<td>30</td>
<td>11</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>20</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: Urban Strategy
DMA Spatial Development Plan: Volume One
Spatial Development Framework

Regional Context
Map 4

NATIONAL LINKAGES
FREE STATE
TRANSVAAL
SWAZILAND
NEWCASTLE
DURBAN
LADYSMITH
PMB
ELMA
ST ANDREWS
UMLAFTI
RICHARDS BAY
MIDDLEBURG
PB
HULUHLE
LADYSMITH
PORT EDWARD
STUTTGART
MULRION
PORT SHEPSTONE
ESTCOURT
GREYTOWN
MIMOSA
KOSI BAY
MBASWANA
SODWANA
ST LUCIA

NATIONAL ROADS
PROVINCIAL LINKAGES
INTERNATIONAL LINKAGES

LESOTHO
EASTERN CAPE
DURBAN
EASTERN CAPE

17

DMA
Regional Context
Map 4
Highly Resourced Areas
Poorly Resourced Areas
Rail

Map 5

Inequities
Total population

Employment

30 minutetravel time
from CBD (taxi) 1992 AM peak hour

person trips across
screenline

Car
Taxi
Bus
Rail

1992 AM peak hour
person trips across
screenline

Inefficiencies

Map 6
Map 7

Dams

Informal Settlements

D’MOSS

Council Boundaries

National Roads

Unsustainability

Southern Industrial Basin

Map 7
The major physical assets of the DMA include its orientation to the Indian Ocean and the East; its highly accessible CBD, an established transport infrastructure (road, rail, air, port) that provides strategic national and regional links; an extensive industrial and commercial infrastructure; and a range of attractive physical attributes including an attractive cityscape, lush sub-tropical vegetation, a favourable climate, several rivers, the sea and beachfront, the bay and the harbour, and the valley of a thousand hills.

The DMA is the cornerstone of three regional development axes. These lead northward to Richards Bay, southward to Port Shepstone and westward to Pietermaritzburg. The DMA is a magnet for rural-urban migration which peaked during the 1980s. This shift of people spawned large informal and peri-urban settlement along the northern, southern and western fringes of the DMA, which abut the rural hinterland. The DMA forms part of a network of routes that penetrate the rural hinterland and commercial farmland and link the smaller towns and service centres with the regional economy (refer to Map 4).

The DMA forms an important part of national and regional economic and spatial development strategies. It is a key trade hub and its coastal location arguably provides it with a comparative advantage for the location of certain export-orientated activities. Several of the country’s Spatial Development Initiatives (SDI) hinge in some way upon the DMA. Regional development corridors linking Durban northwards to Richards Bay and onwards to Maputo, and westward to Pietermaritzburg and onwards to Johannesburg, are key regional planning tools in the SDI. The SDI seeks to build up the competitive advantage of the region by exploiting the manufacturing, trade and tourism resources found within the region, within the physical framework of development corridors.

Mapping the spatial characteristics of the DMA assists in locating some of the outstanding characteristics of the area, especially in terms of drawing out key relationships. It enables us to develop an overall understanding of how the city works and where it doesn’t, where there is need for improvement, and where there are opportunities for development. While the spatial form of the DMA is characterised by inequalities (see Map 5), inefficiencies (see Map 6) and unsustainability (see Map 7), it also offers major physical assets that present opportunities that can be utilised to address these.

The organising principle informing apartheid planning was spatial segregation according to race. The effect has been to create a spatial form that is racially structured, highly fragmented, sprawling and poorly integrated functionally, with the majority of the poor located in under-serviced areas on the periphery. Residential densities around the central core have generally been low. Environmental degradation of natural assets such as rivers and the coastline, and poor environmental quality of townships and informal settlements threatens not only quality of life but also the sustainability of development in the DMA.
Map 5 highlights the uneven distribution of economic opportunities with most employment and consumption opportunities concentrated in the central core areas. High densities are found in townships and informal settlements on the periphery but these densities are not supported by the provision of urban amenities. These poorly resourced areas have high unemployment rates, low household incomes, poor levels of education, and low levels of access to areas of opportunity. Because of the lack of services and economic activities, the little income that is earned by people in these areas is usually spent elsewhere and not fed back into the local economy. The bulk of the housing backlog, 240 000 units, is located in these areas. Poverty and increasing rates of unemployment have reduced people’s ability to pay for services, homes and transport or to make a significant contribution to the revenue base of the DMA.

The segregation of people and activities has resulted in a mismatch between workers and jobs reflected in high levels of commuting between work and home especially for the poor (see Map 6). The public transport system is inefficient largely due to low thresholds resulting from low densities around core areas and outward sprawl that makes it difficult to provide affordable and effective commuter transport systems.

Many of the natural resources and environmental qualities that make Durban unique are under threat from its continued growth (see Map 7). A disregard for environmental systems reduces opportunities for creating a system of open space which can support recreation, agriculture and flood/run off management. In instances such as the Southern Industrial Basin the ability of such an ecosystem to assimilate pollution is being exceeded. The lack of basic services (water, sanitation and electricity) in informal areas has also put strain on the natural resources.

2.5 DEVELOPMENT ISSUES AND TRENDS

Several development issues and trends are evident from the economic, social and spatial overview provided above. Tables 9, 10, 11 and 12 outline the key development trends and issues affecting the built environment, natural environment, economic and land use management context in the DMA. In each table the contextual factors facing the DMA are outlined along with the underlying causes and spatial impacts of the issues.

---

Table 9: Built Environment Issues and Trends

<table>
<thead>
<tr>
<th>Issue</th>
<th>Underlying cause</th>
<th>Spatial impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>High degree of social need</td>
<td>Historical neglect of housing and servicing needs resulting from past apartheid policies</td>
<td>• Rapid urbanization giving rise to growth of informal settlements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Poor levels of infrastructure and services in townships, informal and peri-urban areas</td>
</tr>
<tr>
<td>High social and economic costs of city structure</td>
<td>High degree of segregation of places of work and home due to land use and racial zoning</td>
<td>• Gives rise to long home to work journeys which imposes travel costs upon commuters</td>
</tr>
<tr>
<td></td>
<td>Poor or no planning with respect to optimising efficiency for the majority of the population</td>
<td>• Has largely precluded the development of mixed use environments and reinforced dependence upon centrally-located areas of employment and social facilities</td>
</tr>
<tr>
<td></td>
<td>Externalities effects attributable to the location of incompatible land uses adjacent to each other</td>
<td>• Sprawl that raises the unit cost of servicing and infrastructure</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reinforces the imperative to commute, but precludes the efficient operation of public transport systems</td>
</tr>
<tr>
<td>Constraints to restructuring city form</td>
<td>Constrained access to well-located land to meet low income housing needs</td>
<td>• Environmental and social conflict arising from poor planning in inner city, townships and informal settlement areas</td>
</tr>
<tr>
<td></td>
<td>National Housing Subsidy Scheme constrains higher density, multi-storey housing options for assisted housing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Perpetuates the settlement of people on the edge of the DMA where land values more easily permit low income residential development</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Perpetuates the necessity to commute to urban opportunities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inhibits the efficiency of public transport systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Constrains the building thresholds to support higher level of services and facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Constrains lower income housing development on significant scale in central city locations</td>
</tr>
</tbody>
</table>
Reluctance/inability to employ mechanisms to densify residential areas

Less than optimal co-ordination between service providers in their respective delivery programmes

• Constrains the formation of higher thresholds for services and facilities
• Inhibits the formation of economic markets that could attract business investment to decentralized locations
• Perpetuates ad hoc expansion of city and reinforces existing inequalities, inefficiencies and unsustainability of city form

World class investment zones

Past expenditure in the past created areas with a high degree of infrastructure, that now present competitive advantages

• High degree of investment in Durban’s central business area, beachfront, industrial areas and DMA’s high income suburbs

High dependence upon road-based public transport

Mobility of the majority of the public is largely dependant on public transportation modes, particularly taxis and buses

• Emergence of large commuter hubs at inter-modal transfer points and mixed use transportation corridors

Table 10: Natural Environmental Issues and Trends

<table>
<thead>
<tr>
<th>Issue</th>
<th>Underlying cause</th>
<th>Spatial impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor urban environmental quality</td>
<td>Poor environmental controls on industrial pollution and emissions</td>
<td>• Cumulative effect of pollution in certain industrial districts, notably SIB, parts of Pinetown, Hammarsdale and Cato Ridge</td>
</tr>
<tr>
<td></td>
<td>Rapid growth in un-serviced informal and peri-urban settlements</td>
<td>• Poor social and environmental health in neglected areas</td>
</tr>
<tr>
<td>Poor natural environmental quality</td>
<td>Erosion of natural systems by urban development and agriculture Poor management of land use and natural resources in river basins</td>
<td>• Remaining open space systems are largely fragmented</td>
</tr>
<tr>
<td></td>
<td>High levels of poverty coupled with a poor level of environmental ethic and awareness of sustainability among communities</td>
<td>• Declining agricultural potential due to erosion of soil and de-vegetation, degradation of water quality due to siltation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Degradation of environment through stripping of natural resources and generation of urban pollution and waste</td>
</tr>
</tbody>
</table>
Table 11: Economic Trends and Issues

<table>
<thead>
<tr>
<th>Issue</th>
<th>Underlying trend</th>
<th>Spatial impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jobless growth in the formal economy</td>
<td>Decline in labour intensive industrial sectors (e.g. textiles, clothing, footwear), associated with shedding of jobs</td>
<td>• Decline and blight associated with closure of businesses in industrial areas</td>
</tr>
<tr>
<td></td>
<td>Rapid growth in capital and technology intensive sectors</td>
<td>• Land demands for expansion, and associated infrastructure requirements</td>
</tr>
<tr>
<td>Infrastructure limitations to economic expansion</td>
<td>Capacity limitations for port expansion</td>
<td>• Pressure upon interface between port and city</td>
</tr>
<tr>
<td></td>
<td>Aging and obsolete industrial infrastructure</td>
<td>• Relocation of businesses from aging industrial areas to newly established areas</td>
</tr>
<tr>
<td></td>
<td>Growth in road-based traffic, notably for container transport</td>
<td>• Congested transportation routes, mixing of industrial and residential traffic</td>
</tr>
<tr>
<td></td>
<td>Inadequate supply of utilities</td>
<td>• Certain forms of development are precluded from economic zones where water, waste disposal, waste water treatment and energy supplies are inadequate to meet requirements of industry</td>
</tr>
<tr>
<td></td>
<td>Poor transport linkage between certain economic zones and installations</td>
<td>• Development is focused along north, south and west growth paths with limited development in adjacent hinterland</td>
</tr>
<tr>
<td>Changing location patterns</td>
<td>Outward expansion of industry</td>
<td>• Relocation of service industry and light manufacturing to decentralized business parks along north, south and west growth paths</td>
</tr>
<tr>
<td></td>
<td>Growth in suburban retail markets</td>
<td>• Relocation of higher income retailing functions to suburban locations</td>
</tr>
<tr>
<td></td>
<td>Emergence of specialist, bulk retailing activities</td>
<td>• Emergence of specialist / value retail parks outside CBDs</td>
</tr>
<tr>
<td></td>
<td>Growth in suburban high grade office space</td>
<td>• Decentralization of offices (especially A-grade) to suburban office parks</td>
</tr>
<tr>
<td>Changing nature of economic markets</td>
<td>Emergence of informal/small scale economy</td>
<td>• Growth of economic activity around commuter hubs, public nodes and activity corridors</td>
</tr>
<tr>
<td></td>
<td>Transformation of mass tourism and leisure markets</td>
<td>• Growth in street trading</td>
</tr>
<tr>
<td></td>
<td>Emergence of niche tourism and hospitality industry</td>
<td>• Growth in mass tourism and leisure focusing of seasonal utilization of the beachfront by day-trippers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Deepening of niche tourism and leisure industry via the growth of elite/coastal tourism, business and convention</td>
</tr>
</tbody>
</table>
## Table 12: Land Use Management (LUM) Issues and Trends

<table>
<thead>
<tr>
<th>Issue</th>
<th>Underlying cause</th>
<th>Spatial impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical lack of strategic spatial guidance</td>
<td>Multiplicity of local authorities exacerbated institutional fragmentation</td>
<td>Poorly co-ordinated, uneven spatial development</td>
</tr>
<tr>
<td>Focus on controlling not facilitating development</td>
<td>LUM tool (zoning) is prescriptive and not sufficiently flexible and responsive to development</td>
<td>Largely mono-functional land use arrangement</td>
</tr>
<tr>
<td>Weak co-operation between responsible authorities</td>
<td>Lack of co-operative approach to managing shared resources</td>
<td>Inability to yield the most optimal results from key spatial assets</td>
</tr>
<tr>
<td>Weak sustainability focus</td>
<td>LUM systems not explicitly orientated to sustainability in development</td>
<td>Unsustainable development and erosion of environment</td>
</tr>
<tr>
<td>Administrative entities not functionally optimal</td>
<td>Inherited local government and service provision structures that are not grounded in functional reality. Inhibits rational and optimal provision of services</td>
<td>Uneven spatial and economic development pattern</td>
</tr>
<tr>
<td>Weakly developed systems to deal with land use conflict issues</td>
<td>Highly impacted interfaces between low income communities and industry</td>
<td>Urban blight and social and environmental conflicts</td>
</tr>
<tr>
<td>Land and legal obstacles to development</td>
<td>Complex land registration system due to multiplicity of township establishment procedures and land tenure systems</td>
<td>Lack of development of key land parcels</td>
</tr>
<tr>
<td>Weak focus on qualitative guidelines for developing the built environment</td>
<td>Traditional focus of LUM and service delivery has neglected the public realm of the built environment</td>
<td>Poor quality of urban environment, lack of mixed use environments</td>
</tr>
<tr>
<td>Weakly developed information systems</td>
<td>Co-ordinated collection and storage of information has not been possible due to fragmented administrative systems</td>
<td>Development is not occurring optimally due to registration inadequacies, and public income is not being optimally collected due to inadequacies in rating land</td>
</tr>
<tr>
<td>Weak alignment of development programmes of line functions</td>
<td>Limited opportunity to realize synergies and economies of scale due to lack of purpose and co-ordination between and within authorities</td>
<td>Ad hoc development/fragmentation, Lack of optimal use of resources</td>
</tr>
</tbody>
</table>
2.6 POTENTIAL DEVELOPMENT SCENARIOS

Table 13 outlines a series of potential scenarios that provides the basis for identifying a range of possible development trajectories for the economic, transportation, housing and environmental sectors in the DMA. The scenarios broadly revolve around three spatial investment climates. The first investment climate assumes that new large-scale spatial investments are made in the economic, transportation, housing and environmental sectors. The second assumes that ad hoc and incremental spatial investments are made in the respective sectors, and the third assumes that spatial investment declines. As development need not occur evenly across sectors, there are various combinations and permutations of these scenarios.

Table 13: Potential Development Scenarios

<table>
<thead>
<tr>
<th>Potential Scenarios</th>
<th>New large scale investment</th>
<th>Incremental investment</th>
<th>Declining investment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic sector:</strong> Industrial and commercial development</td>
<td>Description: Economic climate permits new large-scale investment in economic generators with downstream spin-offs. <strong>Impact:</strong> Revives existing economic core in SIB, Pinetown, Durban CBD. Also precipitates further decentralized development to the north and west.</td>
<td>Description: Economic climate permits only incremental investment in existing drivers. <strong>Impact:</strong> Retains existing spatial patterns. Central economic areas remain largely intact but shed some development to the north and west.</td>
<td>Description: Economic climate results in declining investment in economic drivers. <strong>Impact:</strong> Net loss of economic activity in central areas, places constraints on expansion in north and west.</td>
</tr>
</tbody>
</table>
| **Transportation sector:** Transport linkages and connection | Description: Investment climate permits the construction of new connecting routes and transport systems. **Impact:** Outer ring routes constructed, SIB arterial access augmented, fixed rail systems become more viable. Alters the spatial pattern of the Metro. | Description: Investment climate allows only incremental augmentation of routes and systems and selective new route construction, e.g. Effingham-Avoca interchange. **Impact:** Does not fundamentally alter the spatial pattern of the Metro. | Description: Investment climate limits options to management of traffic and no new capital works. **Impact:** Does not allow for a fundamental alteration of the Metro spatial pattern.
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<table>
<thead>
<tr>
<th>Housing sector: Housing form and settlement pattern</th>
<th>Description: Housing and land policies permit high density, formally planned and serviced settlement to be realized.</th>
<th>Description: Housing and land policies permit a mixture of formal settlement programme and planned incremental housing opportunities.</th>
<th>Description: Housing and land policy breaks down leading to informal / unplanned settlement.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impact: Enables the take up of well-located housing opportunities, reduces the tendency of outward sprawl and improves viability of fixed rail public transport systems.</td>
<td>Impact: Continues the dominant pattern of low to medium density settlement, placing pressure on agricultural and tribal land at the edge of the Metro Area.</td>
<td>Impact: Achieves relatively high density settlement in centrally-located areas, albeit at a high social and environmental cost.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental sector: Environmental resource protection</th>
<th>Description: Restoration and reclamation of ecosystems and open spaces takes place. Made possible by higher settlement densities and controlled housing programme.</th>
<th>Description: Open spaces and ecosystems are largely retained or expanded on an ad hoc basis where formal land use controls permit.</th>
<th>Description: Open space and ecosystems are difficult to protect as a consequence of the break down in housing and land policy.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Impact: Improvements create benefits in the form of reduced servicing costs and enhanced eco-tourism potentials.</td>
<td>Impact: But growing settlement needs places tribal areas under pressure. Housing and land policies largely mitigate the impacts of such development.</td>
<td>Impact: Core environmental areas come under threat of informal settlement encroachment.</td>
</tr>
</tbody>
</table>

### 2.7 SPATIAL DEVELOPMENT CHALLENGE

The DMA is faced with a set of complex problems that are rooted in an **historical legacy** that includes the existence of policies and institutional arrangements of an old order which are still being transformed to meet new challenges. The physical and spatial problems occur within the context of massive unemployment and a large range of social problems, including violence, crime and AIDS. The need to address backlogs in the provision of services and infrastructure is occurring in the face of increasing urbanisation. The physical constraints (rivers, steep topography, geology, etc.) influence the shape of development and in the DMA impose major financial constraints on restructuring efforts.

Generally, opportunities occur within the core and well-serviced areas of the DMA while areas of greatest need are located on the periphery. The vision for the DMA requires that the physical development of the DMA balances and blends a needs-based approach with an economic opportunity-driven approach.
The challenge is to ensure that physical development of the DMA addresses areas of need and opportunity in a way that integrates the urban area, i.e. linking areas of need with opportunities in a manner that ensures that the relationships between physical elements, activities and people function in an efficient, equitable and sustainable manner (see Figure 2).

Optimising spatial development under possible scenarios will require that the DMA projects an image of understanding how best to use its physical assets in a globally competitive environment. Ensuring that the Spatial Development Plan can give effect to linking basic needs with economic development opportunities, requires commitment to processes that coordinate and integrate sectoral interests and different levels of government. This will include being able to utilise and direct current trends and processes (both formal and informal) toward common objectives, and balancing economic growth with sustainable use of the DMA’s natural environmental resources.

![Diagram of Development Challenge](image)

**Figure 2**
3. GUIDELINES FOR ACTION

Promoting a spatial form that redresses imbalances, promotes efficiency and sustainability, and generates confidence in the future of the DMA requires:

- Identifying where growth and development should and should not occur and its desired form.
- Providing the framework within which to integrate and co-ordinate other areas of strategic importance.
- Providing the basis on which to prepare, implement and monitor strategies, objectives and tactics at the metro and local levels.

3.1 VISION AND MISSION FOR SPATIAL DEVELOPMENT

The vision for spatial development of the DMA comes from an understanding of the requirements of the Metropolitan vision and principles, and the current spatial development context of the DMA as outlined in the previous section.

By 2015 the DMA will have a more socially equitable, functionally efficient and environmentally sustainable spatial form.

The mission for spatial development recognises the need for and role of spatial restructuring in the transformation process.

To guide, co-ordinate and implement change in the physical development of the DMA that will most effectively promote economic development and the improvement of the quality of life for all.

3.2 SPATIAL DEVELOPMENT PRINCIPLES AND GUIDELINES

The principles of efficiency, equity and sustainability require a set of spatial guidelines for directing the physical development of the DMA. Responses to address these three sets of concerns must be located within a long-term framework that addresses the short-term trade-offs. Providing a framework that links these responses requires the application of a common set of spatial elements. Guidelines for the development of these elements are also provided as part of the policy framework, while section 4 outlines the application of these elements and the testing out of this application with respect to achieving desired outcomes.
Promote an efficient city by:

- Promoting more compact development by encouraging higher densities where appropriate
- Reducing the separation between places where people live and work
- Optimising development in areas of greatest opportunity
- Encouraging effective use of infrastructure and facilities
- Promoting cost effective movement systems
- Promoting optimal use of remaining land opportunities
- Promoting accessibility through improving relationships between people, places and activities

Promote an equitable city by:

- Reducing infrastructure and service disparities
- Redressing imbalances in the location of employment opportunities
- Providing adequate, accessible and affordable housing opportunities
- Promoting integration by linking and reducing distances between people, places and activities
- Making the city work better for the disadvantaged (the poor, the disabled and women)
- Promoting effective public transport

Promote a sustainable city by:

- Promoting a spatial form that supports the DMA as a world class/globally competitive region
- Promoting the inherent value of the natural and built environment
- Alleviating environmental health hazards
- Introducing environmentally sensitive management of development
- Promoting total living environments
- Retaining and enhancing positive qualities and assets of the DMA
- Promoting a well-managed spatial form
- Promoting city image, civic spirit and city pride

3.3 KEY SPATIAL ELEMENTS UNDERPINNING RESTRUCTURING

The spatial elements that were used to develop apartheid cities were based on the principles of *segregation*, *separate development* and *unequal access to resources*. Their physical expression (group areas, buffer strips, townships, housing estates etc.) together with more general planning principles (limited application of zoning, emphasis on control and regulation) continue to have their legacy on the ground.
The key elements currently being looked at to underpin spatial restructuring of South African cities centre on the promotion of a more **compact, integrated and efficient** city form. This can be achieved by limiting urban sprawl, by promoting higher densities, infill and redevelopment in and around both the urban core and other activity nodes, and by the promotion of mixed-use activity corridors linking otherwise isolated and monofunctional areas with a focus on public transport.

The concentration of activities facilitates greater integration and accessibility, and provides the opportunity for the emergence of a **richer and more diverse urban experience** and therefore an **improved quality of life**. The promotion of total living environments includes providing land, services, and housing in a manner that builds human resources and skills, builds the economy and creates viable environments with vibrant, safe and quality public places that assist in giving a **sense of identity** to all residents of the DMA.

Different parts of the city require varying kinds of intervention due to differences that exist between areas. An understanding of **local dynamics** is essential if we are to both acknowledge the strengths which particular areas display and to build on opportunities that these present. This understanding is important if decisions about **trade-offs** are to be based on the best possible information and if management systems are able to seize opportunities to shape the future. Likewise, it is important that these processes inform the provision of a **metropolitan perspective** on key issues of economic development, the addressing of basic needs and environmental sustainability, and ensure that reconstruction and development initiatives are integrated and co-ordinated at a metropolitan scale.

The general guidelines for spatial development outlined below reflect the importance of the process of developing spatial plans while the guidelines for each of the spatial elements (Section 3.5) give guidance to translating the elements into tangible actions.

### 3.4 GENERAL POLICY GUIDELINES FOR SPATIAL DEVELOPMENT

1. The preparation of SDPs provide guidelines for optimal land use and development by giving spatial expression to and providing linkages with other IDP strategies.

2. The promotion of spatial restructuring should be done within the context of Provincial and National spatial development initiatives, including concern for rural-urban linkages.

3. There is a need to guide and co-ordinate the form and location of physical development at a metropolitan scale in a joint and cooperative manner.

4. The development of the SDP is an ongoing, interactive process with local council Spatial Development Plans and with Metro transport, environment, economic, infrastructure and housing sector Plans.
5. Local government has an important role to play in terms of its own operations and with regard to ensuring linkages, integration and co-ordination with other development stakeholders.

6. The promotion of an understanding of the DMA in terms of its inequities, inefficiencies and lack of sustainability is critical to spatial restructuring efforts.

7. The physical development of the DMA must blend and balance a needs-based approach with an economic-opportunities driven approach and must positively manage trade-offs between councils and different geographic areas.

8. Spatial and non-spatial development interventions should be compatible and where possible, mutually reinforcing.

9. The public face of the metropolitan area is key to creating a desirable image and should be developed to reflect progress towards the Metropolitan vision.

10. The promotion of spatial restructuring at a metropolitan level should involve consideration of the equitable redistribution of resources and the equitable delivery of services so as to ensure that imbalances are addressed.

### 3.5 POLICY GUIDELINES FOR THE SPATIAL ELEMENTS

This section outlines the guidelines to be used to give expression to the key elements underpinning spatial restructuring. These provide the tools for translating spatial principles to tangible actions. They give emphasis to the importance of the public face of the city, the visible places that create the image of the city and the physical characteristics that reflect the functioning and economic performance of the DMA. Their identification is based on a need to take account of and build on current trends and opportunities and to utilise new growth as a resource to enhance the performance of existing areas. While each element is presented separately, the SDP places emphasis on drawing these elements together into an integrated framework.

Nodes and corridors provide the framework within which to locate and capitalise on areas of opportunity, especially with respect to building on the economic generation potential of the DMA. Transport linkages help to reinforce the system of nodes, to minimise travel, to maximise social and economic interaction, and to integrate areas of need to wider metropolitan opportunities. Guided by the constraints and potentials of a well-managed natural system (D’MOSS), this framework can be used to identify opportunities to construct viable living environments especially in townships and informal areas.
Densification and infill can be used to reinforce the investment framework by maximising opportunities and contributing to the restructuring of the urban environment. Strategic spatial investment areas highlight opportunities for reinforcing and linking spatial principles and elements. Concern for maintenance of existing good quality environments and infrastructure is crucial to generating economic development within the DMA.

### 3.5.1 NODES

Nodes are places of high accessibility usually located at important transport interchanges and characterised by a concentration of a mix of uses. Sometimes, transport interchanges generate a node, and other times, a node may encourage transport development. Well-planned activity nodes allow people to conduct different activities in one place, thereby improving overall accessibility to a range of goods and services. There is a hierarchy and typology of nodes peculiar to the DMA. This needs to be taken into account when formulating the implementation framework because it illustrates the significance of those particular nodes and highlights appropriate areas of intervention. Further, LDPs need to examine nodes in terms of their present and potential significance and locate the role of key nodes within the context of broader DMA development goals.

At a metropolitan level, the Durban and Pinetown CBD nodes are key structuring elements that are priority areas for densification, integration, intensification and improvement of environmental quality. Nodal points within the well-serviced areas (e.g. Isipingo, Verulam, Amanzimtoti, Westville) provide opportunities for capitalising on their locational advantage. As established growth points, these are areas where intensified development could be encouraged.

Nodes that open up areas of need become important linkage elements (e.g. Umlazi and KwaMashu stations). These areas need to be supported by public investment and targeted for the encouragement of private sector involvement.

**POLICY GUIDELINES FOR NODES**

1. There is a need to identify a hierarchy of nodes applicable to the DMA in terms of their significance and characteristics to guide public and private investment. These nodes may be of national, regional or local importance and fulfil different functions.
2. Nodes are priority areas for densification, integration, intensification and improvement of environmental quality.
3. The development of nodes should enhance economic opportunities and enable more efficient service delivery by intensifying activities.
4. Higher residential densities and mixed use activities should be promoted around certain nodes.

5. The development of nodes should maximise opportunities for linkages with previously disadvantaged areas.

6. The development of nodes should take into consideration rural-urban linkages.

7. The positive characteristics and potential opportunities (including functional and aesthetic, as well as social and economic) of existing nodes need to be enhanced through appropriate guidelines and control mechanisms.

8. Proposed nodes should be targeted for public and private investment that promotes intensive, mixed use development.

9. Nodes should be targeted for public transport improvements, provided they are on existing public transport routes, and that the necessary passenger threshold is met. For reasons such as this, public transport infrastructure may need to be reactive.

10. Nodes identified by local plans should reinforce those of the SDP and promote efforts to restructure and integrate the spatial structure of the DMA.

3.5.2 CORRIDORS

The spatial structure of the DMA indicates a network of movement corridors that serve to reinforce the hierarchy of nodes. These corridors fulfil different purposes, and reinforce a range of activities and connections. In addition, the existing framework of the DMA requires the development of other corridors to ensure maximum accessibility to goods, services and destinations. It is envisaged that this would occur through accessibility corridors and mobility corridors, as these elements together would facilitate a wider range of activities for residents, thereby improving their life choices and opportunities. The development of corridors on the periphery of the DMA can also provide for linking and expanding opportunities for the rural hinterland.

Accessibility corridors are linear mixed-use areas containing a concentration of facilities such as retail, office, work, residential, entertainment and community facilities. They can occur at different scales and levels, and reflect a range of different characteristics. For example, at a Provincial level the DMA falls within its north, south and western corridors. At the National level with the focus on ports, the Pietermaritzburg, Durban, Durban Richards Bay corridor is part of the National spatial strategy.
The transport system, through its direct and inseparable relationship with land use and development, needs to contribute to the restructuring of the DMA. Linking land use and transport planning will enable people and goods to be moved more efficiently, and promote greater integration and accessibility. A route hierarchy has been developed so that roads can serve their appropriate functions, and support and enhance the requirements of public transport. Improving transport linkages includes upgrading existing links, creating new links, and co-ordinating different modes of transport (rail, bus, taxi, pedestrian). The future role of rail transport in the DMA and the upgrading and extension of the network must also be considered.

A strategic assessment and prioritisation of mobility corridors (potential new and existing linkages in need of upgrading) would assist in maximising the objectives of restructuring and the creation of economic viability. An assessment of mobility corridors must be done in the context of an integrated transport plan and should include commitment to developing strategies and mechanisms to encourage improvements in public transport.

**POLICY GUIDELINES FOR CORRIDORS**

1. There is a need to differentiate between accessibility corridors and mobility corridors, which together integrate areas across the DMA. The different nature of the corridors means there will need to be a diversity of approaches applied to their development.

2. The development of accessibility and mobility corridors should enhance economic opportunities with a focus on accessibility corridors enabling more efficient service delivery by intensifying activities.

3. Certain mobility and accessibility corridors should actively promote public transport improvements.

4. The development of accessibility and mobility corridors should take into consideration rural urban linkages.

5. Accessibility and mobility corridors identified by local LDPs should reinforce those of the SDP and they should promote efforts to restructure and integrate the spatial structure of the DMA.

6. The positive characteristics and potential opportunities (including functional, and aesthetic, as well as social and economic) of existing accessibility corridors need to be enhanced through appropriate guidelines and control mechanisms.

7. Proposed accessibility corridors should be targeted for public and private investment that promotes intensive, mixed use development.
8. Accessibility corridors are priority areas for densification, integration, intensification and improvement of environmental quality.

9. Higher residential densities and mixed use activities should be promoted within accessibility corridors.

10. Improvements in existing and proposed mobility corridors should promote the integration of land use and transport planning.

11. Existing and proposed mobility corridors should minimise travel costs and the cost of transport infrastructure by increasing accessibility to employment opportunities, as well as access to commercial centres and community facilities, particularly for previously disadvantaged communities.

12. Linkages and co-ordination between different modes of transport should be planned and promoted in accordance with corridors.

13. Transport within corridors needs to be integrated with an holistic urban development approach and complement it.

14. Transport within corridors should be seen more widely in terms of the economic and development opportunities it creates, as well as how transport itself is affected by development.

3.5.3 DURBAN METROPOLITAN OPEN SPACE SYSTEM (D’MOSS)

The open spaces within the DMA provide a diverse range of environments which are acknowledged as being largely responsible for the visual attractiveness of our metropolitan area. Being a coastal area, the open space in the DMA provides not only terrestrial and freshwater but also estuarine and marine ecosystem habitats all of which represent the natural resources upon which our tourism industry depends.

Apart from the positive visual impact that open space resources have, there are a range of services that the open space system provides which are not widely acknowledged and yet which contribute to the economy and which greatly improve the quality of urban living within the DMA. A few of these services are:

- Food production (fish, crops, fruit etc. by non-commercial farming).
- Water supply (rivers, watersheds and reservoirs for agricultural, industrial and household use).
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- Recreation (ecotourism, sport fishing, swimming and other outdoor recreation activities).
- Waste treatment (breakdown of waste and detoxifying of pollution).
- Disturbance regulation (flood control, drought recovery etc.) and,
- Gas regulation (carbon sequestration, oxygen and ozone production).

A focus on open space services provides decision makers (at all levels in the DMA) with a clearer understanding of the uses and benefits of open space. Decision making regarding the use of open space or the allocation of resources between alternative land uses is taking place through economic and political processes where the value of open space is compared to the value of alternative land uses (e.g. housing, landfills, industry etc.). However, in most cases the value of open space to society is vague, while the benefits of the alternative uses to which it can be put, are explicit and quantifiable. This results in inappropriate decision making regarding the protection and maintenance of open space and the undervaluation of open space. The replacement value of the services delivered by open space in the DMA is conservatively estimated at R1,8 billion per annum (excluding the value of tourism). If one considers this amount in relation to the Durban Metropolitan Council’s operating expenditure for the general, airports, electricity, water, markets and transport sectors of R3,3 billion, it reveals that open space plays a very significant role in the day-to-day functioning of the DMA.

In order for D’MOSS to continue to deliver these services, it needs to be both sensitively integrated and effectively managed within a developing metropolitan area. If this were not done it would place a cost on society in the form of ameliorative actions having to be instituted in the future and/or a decline in the quality and sustainability of the metropolitan living environment which would impact negatively on all DMA residents.

Therefore, it is imperative that development within the DMA positively incorporates rather than destroys and replaces natural systems. D’MOSS must be properly designed, the full range of ecosystem categories (functional, partly functional as well as isolated pieces) must be incorporated and effective management structures (based on catchment areas) established. Only if this is done will the metropolitan area be assured of an open space asset that does not deteriorate but functions effectively to deliver an optimal quantity and quality of service to the DMA community.

POLICY GUIDELINES FOR THE DURBAN METROPOLITAN OPEN SPACE SYSTEM

1. D’MOSS is an integral and essential component of the spatial restructuring process and must be seen as a resource that contributes significantly to the visual attractiveness and economic prosperity of the DMA and provides the basis for a desirable and sustainable urban system which improves the quality of life of all residents.
2. The natural resource base must comprise healthy, functioning ecosystems which do not require constant and costly management and maintenance.

3. Existing natural environmental resources are economic assets and should be protected and enhanced to ensure that the ecosystems within the open space are able to effectively deliver services.

4. Previously disadvantaged areas should be specifically targeted for the identification of open space projects.

5. Development must be directed away from hazardous areas such as floodplains, unstable soils and steep slopes.

6. D’MOSS must integrate and link tourism, urban agriculture and recreational opportunities that promote ecological, economic and social objectives.

7. Local SDPs must integrate the full range of ecosystem categories (functional ecosystems, partly functional ecosystems as well as isolated pieces of ecosystems) contained within D’MOSS.

8. All development must take into account the impact on the sustained ability of D’MOSS to provide services.

9. In order to ensure that D’MOSS is not only ecologically sustainable but financially viable, all open spaces need to be effectively and efficiently managed through a collaborative effort involving public, private and parastatal organisations as well as NGOs, CBOs and other institutions.

10. Development needs to be managed on a catchment basis since landuse changes within a catchment often affect the entire catchment area.

### 3.5.4 AREAS OF GREATEST NEED

Areas of Greatest Need are essentially the **townships and informal settlements** which were targeted for the development of Integrated Development Frameworks through the RDP urban renewal programme. Nine such areas have been identified in the DMA, all **spatially and functionally marginalised** in relation to Durban’s CBD. These include certain formal and informal areas in the North and South Local Councils, Inanda, Ntuzuma, KwaMashu, Clermont/KwaDabeka, Pinetown South, Umlazi and Mpumalanga.
They are generally characterised by poverty, a lack of integration, inadequate basic infrastructure, monotonous housing, and little or no visual appeal. In this transitional phase of restructuring, attempts are being made to include these marginalised areas and transform their sterile environments into vibrant living ones.

These areas have therefore been accorded first priority in terms of the allocation of resources aimed at the promotion of equity, capacity building and sustainability. More specifically, they need to be integrated and become functional components benefitting from the economic and social aspects of the urban area. This includes being a focus for initiatives that promote income-earning opportunities and that supply or extend educational and training facilities and health services. Consideration should be given to longer term viability, especially in terms of location and potentials for long-term infrastructural improvements.

Although, in spatial terms, these areas constitute a small fraction of the DMA land use, they pose tremendous challenges in developmental terms because they contain over half of the total population of the DMA. Local Council IDP processes, in drawing on the work done in these areas, have focused on maximising opportunities for integration and influencing budget allocations.

POLICY GUIDELINES FOR AREAS OF GREATEST NEED

Areas of Greatest Need should be developed in such a manner that:

1. They are accorded priority in the allocation of resources so that equity may be attained.
2. Opportunities are maximised for linkages with the rest of the urban area.
3. Consideration is given to the longer term viability in terms of location, potentials for long-term infrastructure improvements and economic opportunities.
4. Housing is delivered within the context of total living environments, including quality public spaces and community facilities.
5. Democratic values are upheld with community participation and consultation occurring on a continuous basis at all levels.
6. Marginalised groups such as women, the elderly, children, youth and the disabled, and households with incomes less than R800 per month have a distinct focus.
7. In the longer term, not only spatial and sectoral integration, but also racial integration will be facilitated.
8. Harmonious relations between interest groups are fostered, and ethnic and cultural minorities are acknowledged.

9. Emphasis is placed upon changing culture, attitudes and mind sets of beneficiaries of development so that they take responsibility for their development, thereby creating capacity and sustainability.

10. Consideration is given to human resource development and capacity building.

### 3.5.5 INFILL AND DENSIFICATION

Infill refers to development of vacant or under-utilised land within existing urban areas. In order to promote more compact urban development, attention should be given to those areas that are not densely developed but are well serviced and centrally located. These gaps within the urban fabric should be identified for priority projects. Vacant land within the central area provides infill opportunities to make use of existing services and to strengthen internal development. Vacant land beyond the central area provides opportunities for linking and integrating peripheral areas.

The inability to access well-located land for low-cost housing perpetuates continued outward expansion and sprawl and the ability to escape poverty. Densification of established, well-located areas (including areas around nodes and along corridors) will promote more efficient use of existing infrastructure and help to create thresholds for public transport. These areas represent important opportunities in that they offer the potential not only for residential densification but also for diversification into mixed land uses and activity corridor development. The densification processes to be adopted are dependant on the spatial context of the development, the site-specific characteristics, the capacity of the existing infrastructure and the impact that the development will have on the environment. Consideration also needs to be given to the negative community perceptions of densification and to the constraints of low-cost housing delivery processes that provide very few options for increasing densities.

### POLICY GUIDELINES FOR INFILL AND DENSIFICATION

1. Densification and infill should contribute to the restructuring of the urban environment.

2. Densification and infill should be promoted in well-serviced and strategically-located areas of the DMA.

3. Densification and infill should help to create thresholds for public transport and contribute to the more effective utilisation of various modes of public transport.
4. Higher residential densities should be promoted around nodes and within corridors.

5. Densification and infill efforts should include opportunities for diversification of uses and the development of total living environments.

6. Spontaneous unplanned processes of densification must be positively managed.

7. Infill areas that provide opportunities for linking and integrating peripheral areas should be prioritised for development.

8. Redevelopment of under-utilised land should be promoted.

9. Local SDPs should address issues of densification by encouraging effective planning, establishing specific performance criteria and management/control.

10. Consultation with affected communities should include public education relating to the benefits of densification, in order to assist people in making informed decisions.

11. Densification and infill programmes need to be used to discourage sprawled development by promoting development that is contiguous to existing urban areas.

3.5.6 STRATEGIC SPATIAL INVESTMENT AREAS

The identification of strategic spatial investment areas at a metropolitan level highlights spatial locations that can play an important role in promoting spatial principles. While each of these opportunities presents its own set of issues and concerns, if the spatial framework is to have maximum impact, it needs to draw together these largely unrelated claims for attention so that they work to reinforce and support one another and are directed to achieving the aims of the metropolitan vision.

All of the areas listed below are currently covered by a range of projects and initiatives. Realising the opportunities that these areas present requires that they are accommodated within the Spatial Development Plan and are linked to other spatial elements.

- Development of the port as an economic, manufacturing and trading hub and promoting it as a gateway especially to the East. This needs to be located within an integrated development plan for the port that includes linking its planning with that of the CBD and with the adjacent industrial areas to the south. The Department of Trade and Industry’s National Spatial Development Initiative (SDI) provides the opportunity for focussing on the co-ordination of different levels of government and different stakeholders.
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- Promotion of the inner city as a commercial and tourist gateway. This requires building on the current strengths of the inner city as well as utilising opportunities for residential densification and economic growth. The work of the current inner city integrated development framework must give guidance to realising this potential.

- Ensure that Cato Manor still represents an opportunity for well-located mixed-use development and the promotion of higher densities. Local government should promote the realisation of these potentials.

- Maximisation of the economic potential of the existing Airport land. This can be realised with commitment to the renewal of the Southern Industrial Basin and the revitalisation of the Isipingo rail corridor in order to ensure a more attractive investor environment. Transport proposals to improve access into Umlazi and the Airport, and an integrated approach to the management of the Isipingo estuary, could provide catalysts to this process. All development proposals in this area would need to be investigated within the current Strategic Environmental Assessment (SEA) process.

- Realise the opportunities afforded by the development of the new airport. This requires ensuring that the Northern corridor is developed to assist in addressing some of the metropolitan development challenges, especially in terms of job creation and opportunities for well-located affordable housing. Accommodating the promotion of Durban as the Gateway to the Indian Ocean Rim countries, with the attraction of head offices to stimulate the commercial sector, could also be addressed in this area.

- Development of the coastal management plan to ensure that opportunities are not lost in terms of balancing physical, social and economic benefits. Optimising the opportunities offered by the coastal area includes the need to ensure that tourism enhances the quality of the environment and is undertaken in a sustainable manner, and that other competing uses are managed.

Historically advantaged areas and infrastructure that serve the metropolitan area are major assets for the city in terms of sustaining and generating economic opportunities. Local government needs to maintain infrastructure and services and renew aging infrastructure, particularly where this infrastructure is intensively used or has the potential to address needs in the DMA. With continued pressure to do more with less, it is crucial that more cost-effective and creative methods of maintenance be identified.

Concern for maintaining assets also includes consideration of protecting the qualities of the existing built and natural environment. Identifying places and elements of historical, cultural and natural significance, and ensuring their maintenance and enhancement, is not only important for contributing to a local sense of place but also for promoting a positive image of the DMA that is compatible with the drive for economic prosperity.
A local assessment of possible strategic assets may reveal opportunities that may have significant impact at a metropolitan level (e.g. state owned land, areas for rehabilitation, well-located low density suburbs). These may need promotion and facilitation at a metropolitan level to ensure maximum impact.

**POLICY GUIDELINES FOR STRATEGIC SPATIAL INVESTMENT AREAS**

1. DMA’s key spatial assets should be developed to build on the economic generation potential of the DMA.

2. Existing key DMA economic drivers should be maintained and enhanced.

3. New economic drivers should be developed to augment and diversify the economic base.

4. Opportunities need to be established to co-ordinate and integrate projects related to Strategic Spatial Investment Areas (SSIAs).

5. Linkages should be identified to ensure that SSIAs have benefits across the DMA, especially to previously disadvantaged groups.

6. Co-operative governance arrangements should be formalised around key spatial assets.

7. SSIAs need to be planned and managed on a co-operative basis with all stakeholders, with the promotion of vertical and horizontal alignment.

8. Existing infrastructure and services should be maintained to ensure the sustainability of the existing built environment.

9. Particular attention should be paid to the maintenance of infrastructure which services economic activities (income and employment-generating).

10. Significant cultural, historical and natural sites and built structures should be identified, enhanced and preserved.

### 3.6 DEVELOPING A SPATIAL DEVELOPMENT PLAN

This section has presented a **broad understanding** of the key spatial elements and the **guiding principles** to be used in translating them into a Spatial Development Plan. Section 4 outlines how the information and understanding gained by the various local council IDP processes and metro sector initiatives have informed the translation and testing-out of spatial concepts at a metropolitan level.
4. TRANSLATION OF SPATIAL DEVELOPMENT POLICY

4.1 APPLYING SPATIAL POLICY

The application of spatial elements requires addressing problems and identifying opportunities at both metro and local levels. The following sections illustrate the application of the spatial elements and as such have provided the basis for a DMA spatial strategy and actions outlined in Volume 2.

The detailed work of Local Council IDPs and the various Metro sectors (refer to Volume 3 Annexure 3) has provided an understanding of how to apply spatial concepts. This section presents an understanding of how the guidelines presented in section 3 translate to spatial representation for each spatial element.

4.2 TRANSLATION OF THE SPATIAL CONCEPT

Putting into practice spatial principles and concepts requires identifying a framework within which to test out and allocate land demand. Map 8 identifies the areas within the DMA that have a greater degree of access to a wide range of urban services (employment, shopping, health etc.) than do areas more geographically removed from major urban centres and movement routes.

Maps 9 to 13 illustrate how each of the elements are spatially represented at a metropolitan level. In translating the elements to practical actions emphasis is given to how the elements relate and link to one another and how they each relate to issues of equity, efficiency and sustainability. Together the elements provide the tools that release a network of opportunities that can be used to respond to the challenges facing the DMA.

4.2.1 ACCESSIBILITY FOOTPRINT

The accessibility footprint is based on the identification of existing and potential nodes and corridors and indicates the desired growth pattern of the DMA. It provides the basis for defining areas that, with specific interventions, could initiate the growth and development in the most accessible spatial form. Map 8 is based around the main commercial and industrial

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6 The areas of the nodes range from 2km in diameter to 4km in diameter - depending on the expected growth of the nodes. The corridors were, by and large, determined to be 2km wide.
areas and the transport routes which attract clusters of urban services or improve access to high order services in the areas linked by these routes. Nodes and corridors account for 59% of the DMA (existing nodes 24%, potential 5%, existing corridors 21% and potential 9%). Table 14 highlights the amount of land available for development within the accessibility footprint.

### Table 14: Usable Land Within the Accessibility Footprint

<table>
<thead>
<tr>
<th></th>
<th>Developable Land*</th>
<th>Sugar Cane</th>
<th>Other Agriculture**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Nodes</td>
<td>3 248</td>
<td>2 241</td>
<td>1 175</td>
</tr>
<tr>
<td>Potential Nodes</td>
<td>457</td>
<td>2 987</td>
<td>143</td>
</tr>
<tr>
<td>Existing Corridors</td>
<td>2 098</td>
<td>2 770</td>
<td>3 405</td>
</tr>
<tr>
<td>Potential Corridors</td>
<td>1 296</td>
<td>2 180</td>
<td>803</td>
</tr>
</tbody>
</table>

* Excludes steep and D’MOSS  
** Includes Market Garden, Forestry and Other Farming

#### 4.3 NODES

Public investment in existing and potential nodes has a twofold result:

- **It lays the foundation for meeting people’s basic needs**
- **It provides a firm basis for attracting private investment**

Nodes provide significant opportunities for restructuring the spatial structure of the DMA. Investment in nodes near peripheral and isolated areas improves overall access to facilities and services for people in those areas. Channelling public investment into targeted projects, such as housing and the provision of services such as health, welfare, safety and security not only improve access to such facilities for those living in the node, but enhances the benefits available to the surrounding community as a whole. Besides directing public investment into projects within existing and potential nodes, nodes provide opportunities for prioritising environmental areas for sustaining the natural environment and protecting the services provided by the natural environment.

Supplying supporting infrastructure such as shelters and signage for public transport encourages the provision and location of public transport facilities such as taxis. Furthermore, public investment in nodes identifies and frees up spaces for informal trading and SMMEs as well as identifying areas for industrial infill and development. The economic significance of nodes can be used to guide investment and direct growth. Economic benefits may be derived from nodes through encouraging revitalization and regeneration in some areas, and industrial infill and expansion in others. The facilitation of mixed uses, infill and intensification in

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7 Note: not all nodes are discussed in this section, for a detailed assessment of all nodes see Volume 3.
existing and potential nodes by and large improves access to services and reduces travel distances. Furthermore, nodes can build upon existing urban agricultural capacity by providing markets.

The amount of land in **existing nodes** is approximately 35 000 hectares. The land uses within existing nodes not only indicate current uses, but also highlight potential for development on undeveloped land, or agricultural land, should it be required. One third of existing nodes comprise urban formal residential, whilst only 3% is attributed to informal residential. Although only 9% of the land uses within existing nodes are agricultural in nature, a significant amount of land is undeveloped (17%), indicating a large amount of land available for future development in nodes. The future development of developable land in existing nodes will greatly enhance the spatial transformation of the DMA in terms of ensuring greater access to services.

The area comprising **potential nodes** measures approximately 7000 hectares. Of all the land uses, sugar cane constitutes the largest amount of land (43%), with urban formal residential comprising 20%, informal residential equating to approximately 6% and undeveloped land amounting to 18%. At present, economic activities within nodes only amount to 1.5%, highlighting the importance of stimulating economic growth in potential nodes by providing economic activities, as well as residential and other uses.

**4.3.1 HIERARCHY OF NODES**

The hierarchy of nodes within the DMA is important in terms of identifying areas which may serve varied catchments of people for different purposes (refer to Map 9). For example, a nationally important node such as the CBD/Inner City, fulfills a number of functions for a wide spectrum of end users because of the convergence of the national transport routes N2 and N3. The spinoffs from this large scale intersection benefit the national economy as well as being the fulcrum of economic development within the Province. At the other end of the scale,
“local” nodes (such as Chatsworth) meet the daily requirements of a smaller population in a particular area, which may include the provision of local shopping and/or local public sector services. Existing and potential nodes have been identified in accordance with their metropolitan significance - nationally important, regional, sub-regional and local. Within this range, nodes may currently perform certain functions, but have the potential to provide greater needs and undertake other roles.

Although the physical area of the nodes was quantified in this study, there are no criteria for defining the physical extent of nodes, and these will have to be decided upon by local councils in the short term. There are a number of criteria that may be used to define the extent of nodes, which are discussed below. This assessment of nodes should contextualise nodes in terms of local impacts, needs and conditions. For example, the uses provided within nodes will be informed by the socio-economic structure of the community served by the node.

The physical definition and land use mix of nodes should take the existing transportation infrastructure and points of greatest accessibility for cars, minibus taxis and public transport into account. Uses fronting the activity corridor should ideally be “fine grained” and not space extensive (car sales rooms/lots, parking lots, shopping centres, warehouses, for example) in order to encourage a wide range of activities. Mixed use developments should be contained within an appropriate distance of the transport infrastructure to maximise accessibility. Parallel to this, land uses need to ensure efficient movement, and developments that may negate the effectiveness of corridors, such as congestion or land uses that would negatively impact on the economic or physical stability of the node should be discouraged and lower intensity uses encouraged. High intensity uses should be encouraged however, if the transport infrastructure can absorb the impacts from such uses. In addition to transport infrastructure, pedestrian movement must be stimulated through appropriate urban design mechanisms to link with transport routes and accessibility points in an efficient manner.

Considering that private developments will be attracted to areas they consider most suitable to their needs, civic and public facilities should be encouraged to locate within existing and potential nodes. Potential nodes could be stimulated via the establishment of public buildings such as police stations, clinics and banks. Other urban design structuring elements such as squares, fountains and pleasant public spaces could also be used to stimulate the growth of the node. In this way, private developments would be attracted to the node.

Strategies of infill and densification should be applied so that all parcels of land within nodes are used in the most efficient manner. Only when under-used or vacant parcels of land within nodes are fully developed, can outward expansion of development be permitted. In summary then, initial development should focus on priority nodes and particular areas along accessibility corridors that are to be developed. Once the development potential of these areas is realised, growth can then expand into other nodes and portions of accessibility corridors. Examples and information regarding existing and potential nodes are highlighted below.
4.3.1.1 National

Nodes of national significance are generally those of an industrial or business character which meet the needs of a large population stretching outside of the metropolitan boundary. They include the current airport, the Southern Industrial Basin (SIB) and the CBD/Inner City. Although these areas have been separated out for the purpose of this study, in reality, the CBD/Inner City, SIB and airport are integrally linked with each other functionally and spatially.

The CBD/Inner City node with its business/industrial typology has a wide range of mixed uses, including its CBD role, recreation, formal and informal residential, and tourism. The primary function of the node is its port operations and associated transport activities which service the region and beyond as a multi-modal transport hub. The port is the foundation upon which the economic success of the DMA depends (see Section 4.8.3 for greater detail). The area falling within the CBD/Inner City comprises a range of nodes and corridors which, because of their agglomeration and proximity to each other, create a large mixed-use node. Furthermore, these nodes and corridors have particular foci and characteristics, such as the port operations and industry focus, CBD focus, residential focus, entertainment focus and sports focus. Proposals for the CBD/Inner City include the rationalisation and re-arrangement of harbour activity (see Section 4.8.3), the encouragement of mixed uses and medium to higher residential densities within the CBD, encouraging varying densities within the residential areas of the Berea and Umbilo areas, building on the beachfront tourism focus to stimulate further leisure activities and facilitating the development and rationalisation of sporting activities within the Kings Park area to encourage a sports node.

The Southern Industrial Basin (SIB) combined with the port give the DMA its comparative advantage over other South African cities (see Section 4.8.4 for greater detail). Although the SIB is symbolically represented as a node on Map 9, in reality, the SIB stretches down along the south coast, encompassing areas such as the airport, Isipingo, and Prospecton. The SIB is overwhelmingly characterised by heavy industry and large blighted areas in need of regeneration/revitalization. Besides the heavy industry located here other uses such as formal and informal residential, recreation and protected areas are located adjacent to each other in an incompatible manner. Potential uses envisaged for the SIB include a world class industrial area, brownfields development and specialized industrial uses, e.g. a petro-chemical cluster. There is also significant potential for industrial infill to accommodate demand for additional land (see Section 4.8.4 for greater detail). The D’MOSS areas situated within the SIB include the Clairwood racecourse, and the Bluff Dune Slopes. The primary focus of public investment in the SIB node will be regeneration and revitalization of industrial

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uses and ameliorating the negative effects of incompatible land uses. Other interventions should include locating trading facilities and small business units in established industrial and business spines and corridors.

The Airport which currently is of national transport significance, has the potential to be of national industrial importance because of its redevelopment opportunity. This, however, is linked to the expansion of the port, which if and when expansion occurs, the airport could be relocated to La Mercy. This will free up a significant amount of land for development (see Section 4.8.4 for greater detail). Possible uses mooted for the area include a dig-out portion to absorb the growth of the port, and petro-chemical clusters. Potential uses include mixed-uses, high density residential, upgrading of under-invested areas, and improved integration between the business and industrial uses and adjacent residential uses. The interventions to achieve these uses include the prioritization of housing, infrastructure and service delivery in under-invested areas and informal settlements, the investigation of the intensification and densification, and the establishment of an intermodal transport hub.

4.3.1.2 Regional

The existing regional nodes in the DMA include Prospecton, Pinetown, Westmead and New Germany. Regional nodes meet the needs of large areas within the DMA, and generally have a focused typology, for example, Prospecton is overwhelmingly industrial in focus, whilst Pinetown is a business and service node.

Prospecton is an industrial node located within the SIB, focusing on manufacturing. Incompatible uses are present in the area, such as formal and informal residential, recreation and market gardening located adjacent to industrial uses. Other complications are presented by the existence of some pristine dune and protected areas. The D’MOSS areas located in the Prospecton node includes the Isipingo mangroves, Isipingo Lagoon, Reunion Park beach, Reunion Rocks, Dakota Beach, Isipingo Golf Course and Athlone Park amongst others. Potential uses for this node include business and office park developments, light industry and primary commercial activities. Appropriate forms of mixed uses are also envisaged for this area, although primary commercial developments are expected to be substantive. Prospecton has been identified as a priority area by the South Local Council. Public expenditure related to the future development of this node is envisaged to include intensification and densification of all uses in the node, the expansion of the waste water treatment works and the rationalization of facilities and installations. A greenfields residential development is proposed to the west of Prospecton to benefit from the close proximity of employment opportunities.

Pinetown is a regional retail and service industrial node supported by the regional industrial nodes of New Germany and Westmead. The Pinetown CBD is currently experiencing significant disinvestment and outflows of capital, whilst traffic congestion also poses severe problems. One of the D’MOSS areas falls within the northwest of the Pinetown node.
covering a portion of the Clive Cheesman Nature Reserve. Key interventions envisaged for Pinetown include the revitalization and consolidation of the CBD through the refurbishment of old buildings, the sub-letting of portions of existing industrial sites and attracting other uses such as high-tech industrial. There is also potential in developing Pinetown as a regional intermodal transport hub, although the movement between Pinetown and other areas would need to be resolved. Other projects requiring public investment include rehabilitating areas impacted on by industrial pollution, and locating trading facilities and small business units in established industrial and business spines, amongst others.

Nodes with the potential to play a regional role include Umhlanga, Amanzimtoti, Mount Edgecombe and Southmead.

The existing local node of Mount Edgecombe has been identified as a potential regional node because it forms part of the northern industrial expansion path. Mount Edgecombe is presently changing from a sugar mill to a high income residential area and light industry park with service industry and commercial. This industrial park is well-established and likely to continue to take up land. There is potential for industrial infill to accommodate demand for additional land. Additional potential exists for the densification of residential development along the expansion path. Future development should focus around the railway station with strong linkages to the R102 accessibility corridor. Other interventions should include locating trading facilities and small business units in emerging market areas.

4.3.1.3 Sub-Regional
Existing sub-regional nodes include Verulam, Umhlanga, Umbogintwini, Springfield, Hammarsdale, Harrison, Isipingo, Westville (Pavilion) and Hillcrest. These nodes fulfill the needs of a smaller population in terms of a limited threshold and goods and services provided.

Verulam is an industrial/commercial node with some retail uses. A formal residential population resides in the node, with very little informal residential settlement present. Agricultural uses are also present in this node, and include market gardening, sugar cane and agriculture. The D’MOSS areas include the Umdloti River and floodplain corridor extending in a northwest-southeast orientation through the node, as well as the linkage of the Black Mhlasini River with Verulam through the west of the node. Verulam has been identified as a lead project by the North Local Council, and a pivotal node along the R102 accessibility corridor. Public expenditure will focus on urban renewal, densification, and utilizing vacant or under-used pieces of land to encourage infill. Other interventions include the promotion of industrial and commercial development, as well as community facilities.

Umhlanga is of potential regional significance. It is characterised as a business node and land uses include civic, offices, tourism, commercial, residential and some sugar cane. D’MOSS areas are found in the northeast of the node (Hawaan Forest) and along the shoreline.
Potential uses for this node include world class commercial and niche tourism, with the conversion of the Umhlanga CBD to niche tourism currently underway. The Gateway regional shopping centre, A-grade office park, school and residential is also currently underway. Key public investment requires the continued maintenance of public environments and the creation of world class environments, residential densification through appropriate planning regulations and the expansion of tourism and recreational facilities.

**Umbogintwini** is an industrial node seen as a linkage to the SIB. Activities within the node generally focus on chemical, light service industry and manufacturing. The node also includes formal and informal residential settlement, as well as recreation and a number of protected areas. D’MOSS areas located in the node include, the Mbokodweni River and floodplain, including the Mamba Valley, the Umbogovango Nature Reserve and the AECI Umbogintwini Golf Course. There is potential for additional industrial development, the intensification and densification of uses in the area, and the integration of social and commercial development. Other possible uses envisaged range from office and business parks, to holiday and tourism. The interventions will largely be dependant on market demand, and thus a study into densification and intensification has been identified as a priority by the South Local Council.

The potential sub-regional nodes within the DMA are Cato Ridge, Link City and Shongweni.

Existing uses within the proposed **Link City** include retail, community and social facilities with significant informal residential and some formal residential land uses. D’MOSS areas are the Ottawa and Piezang Rivers and floodplains in the central portion of the node. Potential uses have been identified as upgrading under-invested areas and informal settlements, integrating Inanda as an area of need with other areas in the marginalised north-western sector of the DMA as well as responding to the needs in Inanda, Phoenix, KwaMashu and Ntuzuma. Key public sector investments are required in housing, infrastructure and service delivery in under-invested residential areas and informal settlements, upgrading of services, ensuring public facility investment, and locating trading facilities and small business units in emerging market areas. Of further importance is the provision of rail to extend back into the City line and up to the North line, which will act as a catalyst to the development of the node.

### 4.3.2.4 Local Nodes
The local nodes in the DMA are Chatsworth, Tongaat, Kingsburgh, Canelands, Clermont, Umdloti Beach, Phoenix, KwaMashu, Malvern, Queensmead, Umhlatuzana and Kloof. Southmead and Mount Edgecombe are currently local industrial nodes, but because of their proposed uses, have been classified as potential regional nodes.

**Tongaat** is an agricultural service centre with some industrial activities and informal residential settlements. D’MOSS areas in Tongaat include the Hlawe River and floodplain.
Potential uses identified include the upgrading of under-invested residential areas, tourism, residential densification and urban renewal. Public sector investment required ranges from prioritising housing, infrastructure and service delivery in under-invested residential areas and informal settlements to developing well-located low income housing projects in Tongaat.

**Kingsburgh** is a business node, characterised by coastal tourism and a small amount of retail. There is very little informal residential settlement in the node. Protected areas are found in the southern half of the node including the Illovu River floodplain and Illovu North beach. Potential uses in Kingsburgh include additional tourism and supporting activities, primary commercial development and mixed uses. The required interventions include the development of the tourist industry and the development of medium density residential settlement.

**Potential local nodes** include the Umdloti/N2 intersection, Ottawa, Avoca, MR197/MR242, Effingham-Avoca, KwaDabeka, Milkyway, Inchanga, Illovu, Illovu Beach, Bothas Hill, Tongaat Beach, Mount Moreland and La Mercy.

**Mount Moreland** has been identified as a potential node for high tech industry related to the La Mercy Airport, and is clearly dependant on the construction of the Airport. The node is currently underdeveloped and has a small number of residents living in the area. D’MOSS areas within Mount Moreland include the southeast tip of La Mercy airport and part of the Umdloti River and floodplain. Interventions in this node will promote an industrial and office park development, although alternative land for the Mount Moreland residents will need to be identified in consultation with the community.

**Effingham-Avoca** is an industrial node catering to light and service industry, as well as meeting residential demand. The D’MOSS areas include the Umhlangane Vlei, Umhlangane River and floodplains, and Huletts Bush. Potential uses include “world-class industry” with public investment targeting industrial infill, the provision of transport infrastructure and residential densification where appropriate.

The potential local node of **Illovu** is currently undeveloped. Uses in the node include a mill and large tracts of sugar cane. D’MOSS areas located in the south of the node include the Illovu River and floodplain. Potential uses envisaged are industrial in nature, providing light and service industry as well as retail, civic and residential uses.

**KwaDabeka** is located on the periphery of the DMA. Potential uses include the provision of retail, public and institutional facilities to the surrounding community, the facilitation of emerging economies, informal economies, as well as emerging, small, micro and medium enterprises. The necessary interventions required will prioritize investment in housing, infrastructure and service delivery. The stimulation of this node will also involve the provision of rental stock, the improvement of social facilities and hostels and locating trading facilities and small business units in emerging market areas.
4.4 CORRIDORS

Although the existing framework of corridors fulfills particular functions with regard to the DMA, additional corridors need to be developed to ensure maximum accessibility to goods, services and destination points for all residents. The identification of such corridors will alter the spatial structure of the DMA, thereby encouraging a wider range of activities, and improving life choices and opportunities for residents. Furthermore, the development of corridors on the periphery of the DMA will facilitate opportunities for poorer people located in these areas, open up the rural hinterland and improve the interconnectivity of the DMA with its surrounding areas. Possible key initiatives include:

• MR579 construction
• MR80 extension to the N2
• Stapleton Corridor from Northdene to Otto Volek Road
• Interchange improvements at N2/Inanda Arterial/Umgeni Road
• MR577 construction from Duffs Road to KwaDabeka
• Point/Shepstone one way pairing
• Umhlatuzana Arterial from N2 to South Coast Road/Umbilo Ext.
• Bayhead Extension over the Southern Freeway to Umbilo Arterial (Portnet)
• Silverpalm Road from Alpine-Ridge to M17

The guidelines in Section 3.5.2 have indicated the necessity of defining corridors in terms of “accessibility” and “mobility” corridors, which together form integrating elements across the DMA. Accessibility corridors are linear mixed-use areas containing a concentration of facilities such as retail, office, work, residential, entertainment and community facilities. Mobility corridors are primarily high speed routes used to access different areas within the DMA. Examples of existing and potential accessibility and mobility corridors have been identified below. The emerging pattern of nodes and corridors comprises an accessibility footprint that facilitates improved access to areas throughout the DMA. The accessibility and mobility corridors have been arranged hierarchically in terms of metropolitan significance into: national, regional, sub-regional and local corridors (Refer to Map 10).
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**Existing corridors** comprise 21% (31 000 hectares) of the Durban Metro, with the primary land use within corridors being urban formal residential settlement (37%). Informal residential settlement makes up 16%, undeveloped land amounts to 15% and agricultural uses comprise 19% of the existing corridors. Commercial activities within existing corridors also amount to less than 1%, indicating the importance of encouraging economic activities in existing corridors to improve the accessibility to employment and other facilities.

**Potential corridors** are important components of the accessibility footprint in that the development of these corridors will improve access to jobs, reduce the spatial inequalities inherent in the region, and contribute to improving transport efficiency across the region. Nine percent of the DMA constitutes potential corridors. Almost 20% of potential corridors amount to informal residential settlement, whilst economic activities that would provide employment, amount to less than 1%. Undeveloped land comprises nearly 20% of potential corridors, and agricultural uses are in the region of 22%.

The little areas of land used for rail, road, institutional and recreational purposes indicate a dearth of transport and social amenities. These figures imply the need for service provision and economic generative uses, and the formalization of informal settlements.

### 4.4.1 ACCESSIBILITY CORRIDORS

Accessibility corridors are priority areas for densification, integration, intensification, and improvement of environmental quality. Proposed accessibility corridors should therefore be targeted for public and private investment to promote intensive, mixed use development.

The existing accessibility corridors along the north, south and west axes (e.g. the R102, M41, South Coast Road and the M5) provide opportunities for a greater concentration and diversity of activities. The extension of these corridors and the emergence of specialized corridors (e.g. Assagay to Inchanga tourist corridor and Cato Ridge to Mpumulanga agricultural service corridor) provide additional opportunities around which to attract investment.
The development of potential accessibility corridors on the periphery of the DMA can **improve the rural urban linkages**, as well as providing opportunities for **promoting local economic** activities and **integrating previously isolated and fragmented parts of the DMA** into the core urban area (e.g. Inanda MR93). These areas therefore need to be supported by public investment and targeted for the encouragement of private sector involvement on some joint basis. Similar to accessibility nodes, the **hierarchy** of accessibility corridors within the DMA indicates areas which serve different purposes in the DMA according to their metropolitan significance. For example, nationally significant corridors fulfil national level functions, whilst local corridors meet the needs of both a smaller catchment area and population.

Considering that nodes are connected to each other and the rest of the metropolitan area by corridors, it would be inappropriate to encourage the development of all corridors at the same time. In the short term, local councils need to identify priority portions of corridors for development. Suitable areas may include the following: areas in which existing economic activity is to be additionally stimulated; degraded areas requiring revitalisation; sites or areas which are targeted for growth due to their role in terms of restructuring; and areas that need to have limits enforced to their economic expansion.

The **phasing of development** within corridors should be established by local councils in accordance with the stimulation of desired land uses. The mix of land uses within corridors should reflect the desired character of the corridor and portions of the corridor e.g. space extensive uses (warehousing, car sales rooms/ lots, car parks, etc) should be prohibited and finer grained uses stimulated. Vacant and under-utilised parcels of land along the accessibility corridor should however be identified for appropriate development.

Appropriate development within accessibility corridors includes high density, mixed use and compatible land uses within corridors. The core area of accessibility corridors (the single row of lots abutting the transport route) should include retail, commercial, civic, institutional, services, open space uses, and where applicable, residential. The land uses along the length of the corridor will vary in accordance with the surrounding land uses, and it may even be desirable in some instances to encourage concentrations of activity at certain intervals along the corridor. Most importantly, the land uses along the corridor should integrate with each other and the neighbouring area. As such, office/industrial parks would be inappropriate because of their insular nature. Similarly, shopping centres with a strong inward focus would be unsuitable, although carefully designed shopping centres incorporating urban design features may be more appropriate. Local councils may also have to revisit issues such as signage, landscaping, pedestrian scale architecture and interesting streetscapes.

Areas beyond this spine may comprise residential and other low impact uses suitable to the surrounding area. An important factor is that the characteristic of corridors should change along the length. In light of this, some portions of accessibility corridors may be
overwhelmingly pedestrian in character, and others, more transport oriented. In addition, historically important areas should be clearly identified as precincts along the corridor.

Corridor development should be **incremental and ordered** - “leap frog” developments along the corridor should be discouraged. Developments should emanate from the spine. Although the accessibility and mobility corridors were attributed certain widths (2km) for the quantification study, the widths of accessibility corridors are dependant on a number of factors. These include the compatibility and scale of surrounding land uses and the ability of the land uses to integrate and connect with the surrounding area. In summary then, initial development should focus on priority nodes and areas along accessibility corridors that are to be developed. Once the development potential of these areas is realised, growth can then expand into other nodes and portions of accessibility corridors.

The brief analysis of the accessibility corridors below examines both existing and potential corridors. Details of these and other corridors may be found in Volume 3.

### 4.4.1.1 National
The juncture of national transport routes, Durban-Pietermaritzburg-Johannesburg (N3) and South Coast - Durban-Richards Bay (N2) are significant, because at a national level, these corridors focus activities into the Durban node at a macro scale, facilitating economies of scale. At a more detailed level, these corridors are important mobility corridors because they expedite the rapid movement of people and goods east-west and north-south.

### 4.4.1.2 Regional
**Existing regional accessibility corridors** within the DMA include the: R102, M4, M41, MR93, M13, M1, MR80 and MR197. These access routes can facilitate economic generation potential in the DMA by developing appropriate spaces for the stimulation of emerging economies. Discussed below are examples of corridors significant at a regional scale. Although these roads are continuous and stretch across the DMA, particular sections enjoy different characteristics, and examples of these segments are examined below.

**North Coast Road** extends roughly from the Umgeni River to the N2 providing road and rail access into the Inner City from Phoenix, KwaMashu, Ntuzuma and Inanda. The estimated population in this corridor is in the order of 24 000 people. The road is characterised by mixed uses including business, industrial and commercial uses. D’MOSS areas located within this corridor include the Umhlangane River and floodplain with a number of other areas. The North Coast Road corridor has great potential in facilitating easy movement between areas of need and wider metro areas to access opportunities. To achieve this, the necessary interventions include promoting nodal developments as “beads on a string” and encouraging residential infill and densification.
The MR93 corridor extends through Inanda to the Newlands Expressway. There is a large amount of informal residential settlement within this area, and a significant number of in situ upgrade housing projects have been approved for this corridor. In line with the residential growth, taxi traffic has increased significantly, and prompted the upgrading of the road and the provision of taxi ranks and shelters. D’MOSS areas within this corridor include areas located in the Amatikwe area amongst others. The Ohlange node has been identified as a focus for developing spaces to facilitate emerging economic activity, including informal trading economy as well as small, micro and medium enterprises. The necessary interventions to improve the accessibility of this corridor include concentrating public sector investment as a lever to attract economic activities.

The MR80 extends from the MR197 south of Isipingo, through Umlazi to connect with the MR21 west of the Metro boundary. The linkage with the MR21 provides access to communities located in the southern portions of Umlazi, Folweni, adjacent urbanizing communities west of Folweni and the MR579. The MR80 corridor is overwhelmingly residential in nature, comprising formal, informal and peri-urban communities. A D’MOSS area is located along the western edge of the corridor, comprising the Camazane River valley. Potential uses include those ranging from social and community development, office and business parks, to light industrial. Thus, economic development will be stimulated in the area, addressing the surrounding communities’ needs. Other interventions would be to encourage residential densification and the establishment of supporting social, civic and commercial developments at nodal points. The successful development of this corridor however, is dependant on the extensions to the N2 and MR579.

The land uses of the MR385 Hammarsdale corridor include a large informal residential population with formal residential and some peri-urban settlement. Limited commercial and agricultural uses also occur. The MR385 extends from Cato Ridge to Hammarsdale and then along the Mpumulanga corridor to the N2, providing a circuitous accessibility corridor between Cato Ridge, Hammarsdale, the N2, Inchanga and Harrison. The development of this area through investment in social services and infrastructure would meet the needs not only of those living within the corridor, but also those outside the area to the north, such as Ximba and Fredville. Primary attention should be given to upgrading the roads in this area. Furthermore, the linking of Hammarsdale with Shongweni will open up the peripheral areas of the DMA to much needed services and facilities.

**Potential regional accessibility corridors** include the link between Shongweni and Hammarsdale, the R102 Hambanati and M4 Zimbali.

The route between Shongweni and Hammarsdale encompasses a range of uses, such as informal residential, urban agriculture, some formal residential and large tracts of undeveloped land limited by the steep topography in the area. D’MOSS areas are found in the southeastern end of the corridor and include: the Shongweni conservancy, Msinsi Reserve,
Sterkspruit recreational area, along Sterkspruit Kwadlwembe and Emalengi areas. The significance of the Shongweni-Hammarsdale corridor being upgraded and linking up to the MR385 was highlighted earlier, as the route would provide an almost continuous linkage from the Outer West to the Inner City areas. The concentration of investment in terms of upgrading the road and providing social services and facilities along this corridor would improve the integration of those living in the periphery of the DMA with the rest of the metro area.

The R102 Hambanati corridor extends from Tongaat in a northerly direction. The corridor includes areas such as Hambanati, Magaveni, Maveni and Wewe. Land uses in the area include some industrial, formal residential, sugar cane and informal residential settlement. Housing projects are to be encouraged within the R102 Hambanati corridor and commercial opportunities facilitated. Densification and infill need to be encouraged in the corridor to ensure that the housing projects are well integrated within the corridor. It is envisaged that the construction of the Airport will further stimulate residential and commercial uses in and around Tongaat near Hambanati. In line with the increased numbers of people and uses in the area, the R102 will need to be widened.

The M4 Zimbali corridor links Tongaat Beach with Westbrook Beach and other developments along the northern coast, such as Port Zimbali. The area is characterised by ribbon development along the coast and large tracts of sugar cane. Residential densification is expected to occur along the northwestern edge of the corridor near Tongaat Beach and extending to Westbrook Beach. Tourism development is expected to continue within the M4 and this route will need to be upgraded in anticipation of this.

4.4.1.3 Local
Existing local accessibility corridors in the DMA include the: MR242, M1, Mpumulanga, M43, M27, Inanda Verulam, M30 and Stapleton Road.

The M27 connects Verulam with Umdloti, and has been identified as an east-west accessibility corridor by the North Local Council. The area is predominantly characterised by agriculture although the Umdloti River and floodplain in the north of the corridor comprise parts of D’MOSS. Development needs to consider integrating residential areas and improving access to coastal economic opportunities and amenities. Public sector investment should upgrade and widen the M27 to cater for the increased commuter traffic from Verulam, and view sites and picnic sites should be established along the road to maximize the panoramic views. Residential densification should be targeted in and around Verulam and the Umdloti/N2 intersection.

The M30 Umlazi is an example of an accessibility corridor with some level of mixed use, formal, informal and peri-urban residential uses. D’MOSS areas are found in the Umlazi River and floodplains within the eastern end of the corridor. The successful development of this
corridor requires attracting private sector economic activity. Public sector investment should create the spaces suitable to facilitating emerging economic activity, including informal trading economy as well as emerging small, micro and medium enterprises.

The M1 connects Mariannhill with Westmead and is an important route for people living in and beyond Pinetown South to facilities and services provided by the Pinetown area. The corridor has a mix of formal and informal residential settlement, with agriculture comprising a key component of the land uses in this corridor. D’MOSS areas are found in the northwest of the corridor, and include Mahogany Ridge south of the N3, and the Umhlatuzana River south of Toll Plaza. There is conflict between the environment and housing at Nazareth, and a number of severe geological constraints to development. The significant amount of vacant land in this area provides potential for infill, densification and mixed uses along this corridor. Catalytic interventions in this corridor would include the sale of Mission land for industry and giving consideration to a revision about the M1 as a limited access route, as activities adjacent to the Mariannhill Mission are restricted.

The only future local accessibility corridor is the Newlands East Link & KwaMashu Effingham Link, labelled as the “Effingham Avoca” corridor.

The corridor comprising the Newlands East and KwaMashu Effingham Links are mostly clear of informal settlement, although some industrial and institutional uses are present. A critical factors relevant to the successful development of this corridor is the construction of the N2 interchange.

4.4.2 MOBILITY CORRIDORS

Mobility corridors are primarily high speed routes used to access different areas within the DMA. A strategic assessment and prioritization of mobility corridors (potential new and existing linkages in need of upgrading) would assist in maximizing the objectives of restructuring and the creation of economic viability. An assessment of mobility corridors must be done in the context of an integrated transport plan and should include commitment to developing strategies and mechanisms to encourage improvements in public transport.

4.4.2.1 Regional and National Mobility Corridors

The existing mobility corridors within the DMA include the N2 and the N3, as well as the various rail corridors.

The N2 is a national north-south route which has been identified as a provincial growth corridor. At a national level, the corridor is an accessibility corridor and at a local level, the focus of the N2 is increasingly as a mobility route. As with all freeways, the N2 is a high speed, limited access route linking the South Local Council with the North Local Council, as
well as linking the Durban Metro area with the northern and southern parts of KwaZulu Natal. The N2 is the primary carrier of freight, commercial and tourist traffic along the Durban-Richards Bay corridor. The proposed interventions by the North and South Local Councils advocate developing nodes at intersections of the N2.

The N3 is the primary vehicular route from Durban to Gauteng. It is a high speed, limited access route and the primary carrier of freight, commercial and tourist traffic along the Durban-Pietermaritzburg-Gauteng corridor.

The railway lines throughout the DMA are regional mobility routes, servicing the north and south coasts, Isipingo, Amanzimtoti, Inanda, KwaMashu, Umlazi, Chatsworth, Southern Pinetown and beyond to Johannesburg (the Mariannhill “new” line), Pinetown and beyond (the emergency “old” line). There is significant potential in integrating the rail system appropriately with the road-based public transport system, although this would depend on the co-ordinated management between MTAB and Metro Rail. Linkages with the rail system would be improved through the development of intermodal transport hubs associated with railway stations. Commuter facilities are often positioned close to rail stations, and should be encouraged further, to stimulate modal changes (taxi, bus and rail). Residential densification should be encouraged around nodes and commuter interchanges where possible to encourage adequate thresholds and improve access to public transport.

4.4.2.2 Regional Mobility Corridors
Two potential regional mobility corridors have been identified - the MR577 and MR579.

The MR577 will link KwaMashu with Clermont/KwaDabeka, providing a much-needed cross link to the Pinetown area. The corridor is generally characterised by peri-urban settlement, and it is envisaged that this corridor will open up the peripheral areas of the DMA, to link the northern parts of the DMA with the western portions, thereby improving access and stimulating economic potential in these areas. Although construction of this route is only foreseen in 2010, much is dependant on finances. The MR577 will potentially provide appropriate spaces for emerging economic activity, including the informal sector, as well as small, micro and medium enterprises. It is envisaged that the construction of the road will encourage transportation efficiency as well as facilitating movement between areas of need and wider metropolitan opportunities.

The MR579 will connect Umlazi with Pinetown South and is seen as an “arm” that together with the MR577 will provide an outer ring road that will facilitate movement between areas of need and wider metropolitan opportunities. This route is largely outside of the Metro boundary, and is therefore expected to open up the rural hinterland adjoining the DMA. Although construction has been mooted for 2010, the significance of this corridor for housing and other uses is still uncertain, as the terrain is largely oversteep and industrial effluent will be prohibited. The construction of this corridor will also provide opportunities to develop
spaces to facilitate emerging economic activity, such as the informal trading economy and emerging small, micro and medium enterprises.

### 4.4.2.3 Sub-Regional Mobility Corridors

The MR21 Illovu provides the only example of a sub-regional mobility corridor, which presently comprises a mix of formal and peri-urban residential settlement, with significant amounts of farming and sugar cane present. This corridor extends out of the Metro boundary and provides sub-regional access and linkages for urbanizing areas. Although it is a mobility corridor possibly requiring improvement, there are opportunities for appropriate interventions within the corridor to improve its accessibility. Public sector investment should be targeted at encouraging appropriate forms of mixed use development, and development, infill and densification to occur at nodes. A critical factor in the intensified development of this accessibility corridor is the construction of the MR579.

### 4.4.2.4 Local Mobility Corridors

**Future local mobility corridors** include the Inanda Northern Expressway and Newlands Expressway.

Both areas have a significant amount of informal settlement and a limited number of industrial and institutional uses. Possible timings for both corridors are expected to be long term projects, dependent on financing. These corridors provide opportunities for developing spaces to facilitate emerging economic activity, such as informal trading, small, micro and medium enterprises. Furthermore, these routes are also envisaged to facilitate movement between areas of need and wider metropolitan opportunities.
4.5 THE DURBAN METROPOLITAN OPEN SPACE SYSTEM (D’MOSS)\textsuperscript{10}

The D’MOSS plan prepared in 1989 has been reviewed and extended to encompass the entire DMA. Metropolitan open space has been identified, mapped and quantified to establish an inventory of the open space assets contained within the DMA. This catalogue of natural and urban open spaces is defined in Table 15. Of the following, the dominant land cover types characterising the DMA include the coastline, rivers and other waterbodies, forests and grasslands, recreational grasslands and geological features.

Table 15: Definition of Open Space Typologies

<table>
<thead>
<tr>
<th>URBAN OPEN SPACE TYPOLOGIES</th>
<th>NATURAL LAND COVER TYPOLOGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECREATIONAL OPEN SPACE</td>
<td>TERRESTRIAL LAND COVER</td>
</tr>
<tr>
<td>Sports fields</td>
<td>Forests</td>
</tr>
<tr>
<td>Parks</td>
<td>Grasslands</td>
</tr>
<tr>
<td>Nature Reserves</td>
<td>Geological</td>
</tr>
<tr>
<td>SURFACED OPEN SPACE</td>
<td>RIVERINE LAND COVER</td>
</tr>
<tr>
<td>Public squares</td>
<td>Rivers and streams</td>
</tr>
<tr>
<td>Pavements</td>
<td>Floodplains</td>
</tr>
<tr>
<td>Markets</td>
<td>Vleis</td>
</tr>
<tr>
<td>UTILITY OPEN SPACE</td>
<td>COASTAL LAND COVER</td>
</tr>
<tr>
<td>Road reserves</td>
<td>Sand dunes</td>
</tr>
<tr>
<td>Rail reserves</td>
<td>Rocky shores</td>
</tr>
<tr>
<td>Utility servitudes</td>
<td>Sandy beaches</td>
</tr>
<tr>
<td>PRODUCTIVE OPEN SPACE</td>
<td>MARINE LAND COVER</td>
</tr>
<tr>
<td>Agriculture</td>
<td>Estuaries</td>
</tr>
<tr>
<td>Dams</td>
<td>Bay</td>
</tr>
<tr>
<td>Pastures</td>
<td>Near-shore ocean</td>
</tr>
<tr>
<td>PRIVATE OPEN SPACE</td>
<td>POTENTIAL LAND COVER</td>
</tr>
<tr>
<td>Private gardens</td>
<td>Degraded land with potential to be rehabilitated</td>
</tr>
<tr>
<td>Privately owned land</td>
<td></td>
</tr>
</tbody>
</table>

Source: Environmental Branch

The D’MOSS extends across the entire metropolitan area occupying a total area of 38 207ha, or 28\% of the total DMA land area. Approximately 50\% of this open space landcover is undevelopable due to physical and legal constraints such as unstable land, steep topography, open water surfaces, road and rail reserves or land zoned as parks and conservation areas.

\textsuperscript{10} The Durban Metropolitan Open Space System Draft Framework Plan has been produced by the Environmental Branch in conjunction with a multidisciplinary consortium lead by Markewicz English cc. This plan has 2 components: a summary report which discusses the aims and methodology of the plan, and a report titled Management Framework Tables which documents in detail for each of the 14 catchments within the DMA, the strengths/weaknesses/opportunities/threats pertaining to the catchment as well as the biophysical resources and management actions required.
The main objectives of the D’MOSS plan are to\(^\text{11}\):

- Develop the range of services which open spaces provide for people.
- Conserve, protect and develop natural resources in the DMA.
- Create a viable network of open spaces throughout the DMA.
- Create a sustainable management structure for the D’MOSS.
- Provide a basis for all scales of land use and infrastructure planning.
- Provide opportunities for all residents within the DMA to access natural resources that improve the quality of urban life.

### 4.5.1 OPEN SPACE SERVICES

D’MOSS is comprised of 14 natural catchment areas or self-contained river systems, the largest of which are the Umgeni and Umlazi systems. Each of these catchment areas contains functional ecosystems, partially functional ecosystems as well as isolated pieces of ecosystems, which together deliver a wide variety of services to the DMA population. The open space services provided by the open space in the DMA has been categorised into seventeen different types. The services, their ecosystem functions, and examples of their application are identified in Table 16. Understanding the value of open space services will help inform the trade-offs being made in allocating resources throughout the DMA. The allocation of such resources is taking place through economic and political processes where the value of open space is compared to the value of alternative land uses, such as housing or industry, and ignoring the monetary value of those services. The replacement value of the open space services in the DMA is conservatively estimated to be R1, 83 billion per annum (excluding the value of Durban’s tourism sector), thereby making it a significant service provider for the day to day functioning of the DMA.

**Table 16: Open Space Services**

<table>
<thead>
<tr>
<th>SERVICES</th>
<th>ECOSYSTEM FUNCTIONS</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas regulation</td>
<td>Regulation of gases and chemical make up of the atmosphere</td>
<td>Production of oxygen to breathe, ozone to protect from UV and isolation and breakdown of carbon dioxide</td>
</tr>
<tr>
<td>Climate regulation</td>
<td>Regulation of temperatures</td>
<td>Reduce heat load from hard surfaces in urban environments, reduce and absorb noise and generation of wind</td>
</tr>
</tbody>
</table>


DMA Spatial Development Plan December 1998
<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disturbance regulation</td>
<td>Regulation of large environmental fluctuations on the functioning of the ecosystem</td>
<td>Reduces impacts from severe environmental events such as flood control and drought recovery</td>
</tr>
<tr>
<td>Water regulation</td>
<td>Regulation of water flow</td>
<td>Absorption of water by vegetation and gradually released for use</td>
</tr>
<tr>
<td>Water supply</td>
<td>Storage and retention of water</td>
<td>Absorption of water and release into rivers and reservoirs for agricultural, industrial and household use</td>
</tr>
<tr>
<td>Erosion control</td>
<td>Retention of soil within an ecosystem</td>
<td>Vegetation prevents loss of soil, soil is trapped in wetlands</td>
</tr>
<tr>
<td>Soil formation</td>
<td>Soil formation processes</td>
<td>Rock is broken down by water and temperature changes, organic material is trapped and broken down in woodlands and wetlands</td>
</tr>
<tr>
<td>Nutrient cycling</td>
<td>Storage, recycling, capture and processing of nutrients</td>
<td>Nitrogen is cycled through food chains, nitrogen fixation</td>
</tr>
<tr>
<td>Waste treatment</td>
<td>Recover nutrients, remove and breakdown excess nutrients</td>
<td>Breakdown waste and detoxify pollution</td>
</tr>
<tr>
<td>Pollination</td>
<td>Movement of floral gametes</td>
<td>Pollination of plants necessary for their reproduction by insects, birds and rodents</td>
</tr>
<tr>
<td>Biological control</td>
<td>Regulate plant and animal populations</td>
<td>Control of species such as rodents, insects and bats</td>
</tr>
<tr>
<td>Refugia</td>
<td>Natural habitat for natural and animal resident and migratory populations</td>
<td>Habitat for migratory birds, nurseries e.g. fish, regional habitats for species</td>
</tr>
<tr>
<td>Food production</td>
<td>Primary production for food</td>
<td>Fish, crops, fruit etc. By non-commercial farming</td>
</tr>
<tr>
<td>Raw materials</td>
<td>Primary production for raw materials</td>
<td>Production of natural fuels, craftwork materials, house building material, fodder, etc.</td>
</tr>
<tr>
<td>Genetic resources</td>
<td>Unique biological materials and products</td>
<td>Unique material includes plant medicine and ornamental species, genes are important for resistance to disease</td>
</tr>
<tr>
<td>Recreation</td>
<td>Opportunities for recreation activities</td>
<td>Ecotourism, sport fishing, swimming and other outdoor recreation activities</td>
</tr>
<tr>
<td>Cultural</td>
<td>Opportunities for aesthetic, educational, spiritual, intrinsic and scientific use of ecosystems</td>
<td>Scenic views, environmental education, research opportunities, sense of place, attractive live environment</td>
</tr>
</tbody>
</table>

Source: Environmental Branch
4.5.2 CLASSIFICATION OF ECOSYSTEMS WITHIN THE DMA

Ecosystems can be described as the factories of the open space goods and services in the DMA. Examples of the goods and services produced include water for domestic consumption or industrial use and open spaces which are used for recreational purposes and which also perform a stormwater control function. In order to ensure that the supply of open space services continues to be available, there is therefore a need to maintain the factory in working order. In other words, to keep the ecosystem functional. If open spaces are to continue to provide the services required, then the ecological viability of these ecosystems need to be maintained in the long term to ensure that they function effectively. In light of this, the optimal structures, sizes and locations for the various ecosystems need to be provided for. The ecosystem components need to be retained and protected because effective ecosystem functioning is dependent on the interaction between various elements.

Furthermore, the widest diversity of open space types needs to be maintained. The urban environment is placed within the natural environment, and can be likened to a continuum. In general terms, isolated pieces of ecosystems are found in dense urban environments (such as the park adjacent to the City Hall), partially functioning ecosystems are located within dispersed urban environments (such as suburbs), and functional ecosystems are located in undeveloped areas (see Map 11). The classification of ecosystems within the DMA clarifies how each category should be effectively managed.

4.5.2.1 Functional Ecosystems

Functional ecosystems have a relatively full complement of ecosystem functions that enables them to be major service providers and keystones in maintaining regional ecological functionality. Functional ecosystems are the primary source of plants and animals, are generally large areas and predominantly comprise natural surfaces with little built landscape present. They are also characterised by limited human disturbance and a large diversity of plant and animal species. Functional ecosystems form spatially continuous systems that are heterogenous and interconnected with ecosystem processes intact. A key element of functional ecosystems is that a wide range of ecosystem services are delivered, and they provide corridors within which a large variety of ecosystems function. Functional ecosystems in the DMA include existing nature reserves (such as Virginia Bush, Beachwood Mangroves, Hawaan Forest, Silvertgen and Palmiet Nature Reserves etc.) and potential core conservation areas (such as the large open space areas in the Outer West Local Council, portions of major river valleys like the Umgeni and Umlazi and portions of the coastal/marine edge of the DMA).

4.5.2.2 Partially Functional Ecosystems

Partially functional ecosystems (in association with a built environment) are important intermediate landscapes between the functional systems and smaller, more isolated, pieces of ecosystems. These areas may have some of the functional attributes of ecosystems but do not
have a full complement that allows them to be major service providers and keystones in maintaining regional ecological functionality. For example, they may be a source of plants and animal species or provide a resource for plants and animals. Partially functional ecosystems generally comprise a mix of both natural and built environments and may consist of small to large areas. In contrast to functional ecosystems, there are moderate to high levels of human disturbance, and as to be expected, moderate to low diversity of species. These ecosystems are vital to the built environment in that they supply a range of ecosystem services as well as providing a corridor for a moderate variety of ecosystem functions. Partially functional ecosystems operate as buffers to sensitive functional ecosystems and are therefore essential to the ecological viability of these ecosystems and the open space system as a whole. Examples could include major recreational areas, small but diverse natural areas or large open areas lacking species diversity.

4.5.2.3 Isolated Pieces of Ecosystems
Isolated pieces of ecosystems are small parcels of open space which are not physically connected to the broader open space system and could include public parks, sports fields, road verges, private gardens etc. These ecosystems provide a resource or refuge for indigenous plants and animals as well as a sink for animals and plants moving from the functional and partially functional areas. Isolated pieces of ecosystems are islands within a generally hard environment, and as such, have a limited diversity of species. They are characterised by small areas and intensive human disturbance. They are spatially fragmented and may comprise a disconnected cluster of natural elements instead of a functional system.

Although a small number of ecosystems services are supplied, isolated pieces of ecosystems provide a corridor for a limited number of ecosystem functions. Isolated pieces of ecosystems are important to the successful functioning of the open space system as a whole in that they provide stepping stones between more functional ecosystems. This facilitates the movement of species and genetic material which maintain the ecological viability of these functional and partially functional ecosystems.

It is important to note that the categorisation of open space above does not imply varying degrees of importance. The viability of the open space system as a whole is dependent on the inclusion of all three of the above ecosystem categories into the open space network.

The distribution of D’MOSS within the accessibility footprint reveals that 19% of D’MOSS is located within existing nodes and 3% of D’MOSS lies within potential nodes. Sixteen percent of D’MOSS is situated within existing corridors and 8% of D’MOSS lies within potential corridors, while 16% of D’MOSS is located within formal areas. Future development is likely to be concentrated within corridors, nodes, formal areas and areas of greatest need. Such development will not only compete for land earmarked for D’MOSS but as new development occurs it places new pressures on the existing open space system resource.
The quality of goods (such as water for consumption) and services (such as waste treatment) supplied by the D’MOSS is directly related to the impacts that the system must assimilate and the quality and extent of the system itself. If the system is not acknowledged as being an asset that must be conserved and managed and if the system is continually eroded by urban development it will not be able to properly fulfil its role and the overall quality of urban living will decline. Until areas of conflict over land and methods of resolving such conflicts have been identified, it would be most effective and prudent to identify uncontested vacant land for development. It is essential to manage the ecosystems in open space. The general management actions required are to:

- Control the human disturbance of wildlife in ecosystems.
- Increase the flow of water to or within ecosystems.
- Control soil erosion.
- Prevent water, air and land pollution.
- Establish corridors for the movement of water, wildlife, genetic material, nutrients and energy e.g. by linking open areas with natural vegetation to allow wildlife to move between areas.
- Provide functional wildlife habitats.
- Control harvesting of natural products.
- Promote species diversity within open space ecosystems.
- Promote habitat diversity within ecosystems.
- Maintain the scenic attractiveness of the open space.
- Control alien plants and animals.
- Establish boundaries of open space assets to as to reduce conflicts.
- Limit development of sealed surfaces in open space such as from open space to a built environment.
- Promote access to open space.

These actions are seen as necessary to create and maintain a sustainable open space asset and viable open space services in the DMA. Each catchment requires specific management actions related to the current circumstances of the catchment and ecosystems it supports. Therefore, there is a need to create an overarching body capable of co-ordinating and assisting local level organisations and activities at a metropolitan level with appropriate powers and responsibilities. Such an entity would also resolve conflicting demands on land. Similarly, at a catchment or local level, there is a need to create a body capable of co-ordinating the agencies and activities within each catchment area.
4.6 AREAS OF GREATEST NEED

Our understanding of Areas of Greatest Need has been greatly enhanced by the work of the RDP Urban Renewal processes which in turn have informed local council IDP processes with respect to redressing past imbalances and promoting spatial restructuring. Areas of Greatest Need\textsuperscript{12} as they have come to be known, are characteristically located on the outer peripheries of the major cities to which they are functionally related. In the case of the DMA, extreme boundary locations include Hambanati in the north, Magabeni in the south, Mpumalanga, Fredville and Ximba in the outer west, Inanda and Ntuzuma in the north west, and Pinetown South and Umlazi in the south west (see Map 12).

Whilst the enforcement of legislation created the \textit{spatial marginalisation} of these areas, the relaxation of legislation such as influx control ushered into the cities large numbers of people escaping poverty, evictions and violence from the rural areas. This has resulted in the overcrowding of formal townships and hostels, as well as the mushrooming of informal settlements around and within them. The excessively \textit{high densities} prevalent in some of the informal settlements is indicative of the desperate scramble to locate close to urban opportunities. Densities of up to 50 households per hectare are not uncommon in several townships and informal settlements, including parts of KwaDabeka, KwaMashu and Inanda. It is estimated that the current DMA informal population is approximately 750 000, representing almost one third of its total population\textsuperscript{13}. Of these, 36% live in backyard shacks and infill areas occurring within the formal settlements. Resources which were previously meagre have depleted further, with the result that stark poverty has progressively thrown these areas into sharper focus in terms of their relative deprivation.

In spatial terms, the fact that only 3% of existing, and 5% of potential nodal development in the DMA comprises informal and peri-urban residential settlements, is indicative of the degree of this deprivation. Nodes represent areas of high accessibility and contain the greatest concentration of urban activity and opportunity. People living close to nodes therefore enjoy a more convenient lifestyle, and save on transport costs. Moreover, it is estimated that 16% of existing, and 28% of potential corridor development accommodates informal and peri-urban settlements. The impact of this, however, is diminished when it is translated into real terms because existing corridor development constitutes only 21% of DMA land use, whilst potential corridor development constitutes 9%. Like nodes, corridor developments contain high concentrations of activity, albeit organised in a linear fashion.

\textsuperscript{12} Also referred to as ‘under-invested’, ‘previously marginalised’, ‘previously disadvantaged’ or ‘priority 1’ areas.

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The physical infrastructure which accompanies areas of greatest need has become part of the DMA spatial heritage, compelling planning to occur in relation to the constraints and opportunities it presents. All local council IDP processes have identified the fact that the integration of areas of greatest need into the metro constitutes an enormous challenge that must be approached in an holistic manner.

The task of the SDP as it impacts upon these areas therefore, is two-pronged. Firstly, it concerns itself with the spatial restructuring of the apartheid space-economy, and the generating of income-earning opportunities in appropriate places, and secondly, the provision of supporting infrastructure and services, including housing opportunities and adequate community facilities. Such interventions will help not only in alleviating the excruciating poverty experienced in these areas, but also in improving the overall access to urban opportunities and lifestyles.

The primary motivation of the development process is the attainment of a more equitable distribution of resources in favour of the disadvantaged and consequently effecting a narrowing of the huge poverty gap. It must be acknowledged however, that major issues in the disadvantaged areas such as crime, the incidence of AIDS, capacity building and community organisation and participation, cannot be directly addressed in spatial planning terms. Issues pertaining to the soft infrastructure which are of crucial significance, such as capacity building and community participation fall essentially outside the realm of spatial planning. Spatial strategies, however, can be tailored to successfully impact directly or indirectly, to varying degrees on these objectives.

Drawing on the work of the RDP urban renewal projects, this section examines the key spatial challenges in relation to areas of greatest need, and the implementation of strategic responses in relation to these challenges. It must be noted, however, that the creation of appropriate conditions for implementation are largely institutional in nature, and entails the horizontal as well as vertical integration of all spheres of governance.

4.6.1 MAJOR CHALLENGES

The major problems identified in areas of greatest need in the DMA have a very similar focus: they relate essentially to poverty, inadequate housing and infrastructure, land tenure, unemployment, crime, lack of basic skills, institutional and environmental issues.

The new directions in planning aimed at addressing these challenges must be viewed in the context of the apartheid city where the planning ideology generated an ethic governed by racial criteria which stereotyped groups and provided generic “solutions”. The present challenge, given expanded planning opportunities and facilitating mechanisms, is to critically assess these and re-shape them to become more sensitive to the diversity of needs and cultures prevalent in the Durban Metropolitan Area.
At a policy level, it is important to take into consideration that whilst the disadvantaged areas are essentially poor and black, they are not homogenous entities, and the differences their populations display in terms of socio-economic, cultural and political characteristics should not be overlooked. Unfortunately, with the rapid changes taking place, information in these respects has become dated and is largely inadequate, compelling planning to occur within the context of what is available.

### 4.6.1.1 Land and Housing

Land tenure and housing have been identified as priority issues in most of the areas of greatest need. The restructuring which occurred with the local government election in 1996 incorporated large tracts of tribal and privately owned land into the metro boundary. This presents a major problem in several areas such as the South Local Council, Pinetown South, Mpumalanga and Umlazi where substantial tracts of land are owned by the Ingonyama Trust and private land owners. In several cases land owners cannot be reached or there are no records as to who owns the land.

Not only are people living on such land incapacitated by being precluded from applying for Provincial Housing Board (PHB) subsidies, but upgrading is also severely restricted. Available information indicates that almost all black households are dependant on PHB subsidies. In terms of income levels, only 4% living in townships qualify for housing loans, whilst none of the informal or peri-urban dwellers do. This means that residents are denied basic infrastructure and services such as local roads, water, electricity and waste disposal, until such time that land is released for development. Delays are also encountered as a result of complex bureaucratic procedures relating to land acquisition and transfers. Related to this is the legitimate concern as to whether the capacity generated over the past four years in housing construction can be sustained.

**Legal mechanisms** have recently been put into place for land belonging to the Ingonyama Trust to be released through a Land Availability Agreement.\(^{14}\) Land in Folweni has just been acquired by the South Local Council which has set a precedent in circumventing this obstacle. However, until such time that more land is released, the opportunity to access suitable land for low cost housing will be considerably restricted. The process is further complicated when viewed in the context of budgets operating within time frames. Directing the location of housing delivery therefore remains a major challenge.

Whilst genuine attempts exist to situate low cost housing close to employment destinations, affordability does not always permit it. As a result, low cost housing in the North Local

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\(^{14}\) In terms of the KwaZulu-Natal Ingonyama Trust Amendment Act, 1997, land belonging to the Trust and situated in a township, would vest in the local authority having jurisdiction over the township. This would obviate the need for a Land Availability Agreement.
Council for example, which is absorbing some of the housing backlog, continues to be located away from major urban centres and prime coastal locations. Whilst this pattern is perpetuating the previous low density sprawl based at distant locations, the apparent imbalance is partially countered by attempts at improved accessibility and the creation of nodal and corridor developments within close proximity. Whilst compaction promotes efficiency, the excessive cost of construction makes high density housing for low-income families unattainable.

The shortage of land in certain areas such as Clermont/KwaDabeka is extremely acute. The problem is exacerbated by the mushrooming of informal housing in infill areas reserved for the erection of community facilities. These settlements have often undermined township developments, necessitating changes in plans to accommodate in situ upgrading. Invasion of reserved open space is facilitated in some ways, by the lack of development controls. An implementation strategy therefore, would need to put in place adequate development controls, which would function to effectively curtail this practice.

The absence of adequate controls also contributes to the problem of accessibility by indirectly encouraging the establishment of informal settlements in peripheral locations. This has the additional impact of eroding the limited resources of the poor. Hence, upper and middle-income families benefit significantly more from government expenditure than lower income households because of the longer distances the latter have to travel to receive services.

Apartheid planning used the topography of the DMA to relegate black housing to inaccessible areas. Most areas of need are characterised by extremely steep topography. This not only makes accessibility difficult, but incurs excessive cost in building and development, and makes the process of integrating these areas into the DMA difficult. The constant cutting of platforms into steep open spaces is indicative of the fact that topography is hardly a deterrent in the context of a desperate need to locate close to urban opportunities. The consistent invasion of steep open spaces impacts adversely on the environment by further depleting scarce resources and exacerbating the pollution problem. Steep and fragmented topography also contributes to low density development and inefficient land use.

Overall, the existing shortage of housing has to acknowledge the fact that the greatest share of the population increase on a national scale is expected to occur in the urban areas. However, the problem of meeting the current housing backlog will be substantially alleviated with the predicted decrease in the rate of increase of the black population. It is estimated that the current growth of 3.78% will decline to 2.87% by the year 2011. The situation will be further affected by the high incidence of AIDS in the province as a whole, but it is impossible to say with certainty what the precise impact of this is likely to be.
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Key Interventions

- Expedite land release programme, including identification of land suitable for housing within reasonable access to urban opportunities.
- Promote efficiency by curbing low-density sprawl.
- Implement appropriate development controls governing land use.
- Facilitate a broad-based collaborative alliance between various stakeholder interests in housing.

4.6.1.2 Physical Infrastructure and Services

This category spans a vast number of amenities, including not only basic needs such as water, electricity and sanitation, but also transportation, communication and community facilities, all of which have a direct bearing on the social, natural as well as the built environment. As such, this category of services has the greatest developmental impact in terms of its transformative potential. Since the informal component of the disadvantaged population far exceeds that of the formal townships, (approximately 750 000 to 500 000), it follows that upgrading of services to the former category supersedes other priorities. In terms of PHB subsidy allocation, 79% will be utilised for in situ upgrade projects.

Areas of greatest need continue to be largely characterised by grossly inadequate physical infrastructure and services. This not only contributes to further poverty, and vulnerability to crime, but also diminishes people’s productive capacity. The fact that almost one third of land falling into ‘Service Improvement Areas’ comprises informal residential settlement, and 42% of the informal settlement component of the DMA occurs in these areas highlights the need for services. The objective of creating safe, convenient, clean, healthy and good quality living environments is currently pursued by all relevant sectors and local authorities. Thus, there is general consensus that locating people close to corridor developments not only improves mobility and accessibility, thereby promoting efficiency, but also proves more cost-effective both from the point of view of installation of infrastructure as well as usage. Although significant proportions of local authority capital budgets are now channelled into these areas, delivery processes are fraught with major problems. For example:

- In Pinetown South, land tenure restrains the provision of services because pockets of land occurring between already acquired tracts continue to be privately owned.
- In the South Local Council the fragmented nature of the territory makes Folweni and Magabeni difficult to service.
- In the North Local Council, the informal settlements have mushroomed on privately owned land.

A formalised land release programme and the finalisation of the local authority and metro boundaries will substantially aid the resolution of these problems.
The lack of adequate development controls in townships and informal areas has implicitly encouraged informal settlements to mushroom and spread on any available vacant tract of land. Evidence of this phenomenon occurs in areas such as Umlazi, Clermont and KwaDabeka where land allocated for community facilities in the original design of these townships, has since been invaded by informal settlements. Constraints of this nature pose immense challenges and are compounded when coupled with a severe shortage of land and low affordability levels.

**Key Interventions**

- Upgrade existing informal settlements.
- Create social service centres, with a clustering of activities in accessible places.
- Create transport hubs.
- Make concerted efforts to inculcate a culture of payment for services to ensure sustainability.
- Consider more affordable alternatives. Although an accelerated electrification programme has been embarked upon, it has been argued that current initiatives continue to be inadequate, and need to be supplemented with a consideration of alternative forms of energy, such as biomass and liquid fuels.
- The extent and quantity of service provision needs to be commensurate with quality. Whilst affordability is crucial, initial compromises on quality of materials and labour used, prove more costly and frustrating in the longer term. Perpetually dripping taps in many areas create a huge and unnecessary drain on resources.
- Adopt a distinct gender focus, especially in the case of the disadvantaged because of the predominance of women and children in the population.

**4.6.1.3 Economic Development**

Globalisation and the accompanying phenomenon of jobless growth have focused the spotlight on job creation as a priority goal at all levels of government. This new emphasis has incorporated the redistributive aspect of the urban renewal programme by stimulating local economic development and expanding employment opportunities.

Areas of greatest need are basically of a dormitory nature, with residents earning and spending the bulk of their incomes outside these areas. The potential for economic growth and development is therefore severely limited. These areas are devoid of employment opportunities, major shopping and recreation, with the possible exception of sporting facilities. Umlazi for instance, which is home to approximately 300 000 people, and is the largest township in the DMA, has no major shopping centre or cinemas. Whilst this economic vacuum has cast the spotlight on the informal business sector, it has also generated illicit income-earning enterprises, thus exacerbating already high levels of crime and violence. Consequently, the development of suitable operating conditions necessary for inducing
outside investment is further impeded. It has become imperative that economic development occurs in the areas of greatest need, not merely for purposes of employment creation, but also to enhance the asset base of these areas and make them more sustainable.

In most of the townships and informal areas, levels of unemployment are much higher than the South African average of 30% of the economically active population. Whilst Mpumalanga is an extreme example, where the level approximates 80%, in KwaMashu the figure stands at 60%.

Poverty alleviation initiatives have been substantially aided by the new focus on social security benefits for the elderly, who contribute significantly to household incomes through their pensions. The downside of this improvement in their economic situation, however, is that they have become highly vulnerable to criminal elements, making the establishment of accessible pension pay out points crucial. Economic initiatives also need to target other more vulnerable groups, such as female-headed households in informal settlements.

Restructuring the apartheid space-economy requires direct intervention in bringing about a convergence between centres of employment and residential location. This will alleviate the stresses of previous commuting patterns. However, private stakeholders will need adequate incentives to locate in disadvantaged areas, where the only current asset is a huge unemployed population.

Local Economic Development initiatives require local authorities to become more entrepreneurial by forming partnerships with the private sector, NGOs and the community. Certain partnerships of this nature with significant impact in terms of job creation, service provision as well as income generation, are already under way. For example at Mahogany Ridge, an industrial area situated in the Inner West, some 31 000 square metres of industrial space was erected, increasing the council’s tax base from R3000 to R17 million per year, and creating 3000 jobs which are being sustained by the neighbouring population. Such partnerships are indicators that municipalities are gradually transforming from being mere service deliverers into development facilitators.

Current interest and activity prevailing in the tourism sector also creates an opportunity where such initiatives can be explored, with areas of greatest need providing major attractions largely through the promotion of indigenous African culture. More recently, however, economic recession, crime and violence, overcrowding on the beaches, as well as the aggressive marketing strategies of the other centres, especially Cape Town, have impacted negatively on Durban’s position as the premier tourist destination.

Areas of greatest need have the potential to contribute in terms of cultural tourism - art, craft, music and dance, traditional healing practices, etc. Most Local Councils have adopted tourism as a major strategy, which will have considerable multiplier effects on the areas of greatest
need within their boundaries. Areas such as Inanda with its historic sites, Ntuzuma with its “stunning natural environment” and Mpumalanga, within close proximity to the Shongweni Dam, could all benefit directly or indirectly from tourism. Moreover, community-based tourism is a recurring theme in current tourism development initiatives.

The field of traditional medicine and healing practices is also an important area of opportunity for collaborative intervention, that will have significant impact not only on job creation and health, but also on environmental conservation. This is a substantial industry currently providing in excess of 12 000 income-earning opportunities in Durban alone. It has been estimated that 40% of health care visits and services in Durban are to traditional healers, representing a saving of R600 million per year on the health bill. Should the current trend persist, demand for medicinal herbs will exceed supply, inflating the cost of what is considered a basic consumer item. Furthermore, herbs and plant material will become in short supply as areas are over-picked. The cultivation and harvesting of indigenous plant material lacks organisation and management which could be provided with collaborative intervention. Prospects of managed cultivation could be explored in conjunction with urban agriculture in areas such as Inanda and the Outer West.

Economic sustainability on the whole, will have to focus not only on the creation of more jobs, but also on the creation of better jobs, as well as the development of an educational and skills base commensurate with the requirements of such employment opportunities.

Key Interventions

• Maximise job creation through the promotion of local economic development, with a focus on labour intensive activities.
• Improve the skills base through the provision of appropriate facilities.
• Redress spatial marginalisation through improved transport linkages and enhanced accessibility to centres of employment.
• Improve basic infrastructure.
• Create appropriate trading areas that are conducive to promoting marketing opportunities for emerging as well as established businesses.
• Sustain the natural environment and resources that provide the basis for economic prosperity.
• Promote urban agriculture as part of land use policy.
• Attract new investment by creating robust and crime-controlled environments.
• Improve communication systems, as well as accessibility to them.

4.6.1.4 Environmental Aspects

The ‘environment’ encompasses various aspects that impact on public health, safety and security, as well as the visual appeal of active and passive open spaces, all contributing to the spatial profile, viability and sustainability of an area.
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Open space is important not only in terms of recreation but also in providing effective stormwater control and preventing flooding and its costly impacts. Healthy ecosystems also perform useful functions in enhancing water quality and providing raw material for medicinal purposes. All areas of greatest need experience problems of polluted and degraded open spaces to varying degrees, that contribute to a poor visual and conceptual image.

The problem stems partly from the traditional conception of open space as “left over” space, and partly from the major preoccupation of planning with the built environment of the city. The natural environment has now ascended into prominence with Durban’s Local Agenda 21 project. For implementation to be effective, spatial restructuring will have to be accompanied by a concomitant change in values and attitudes which can be achieved through a prolonged period of targeted education in this sphere. Whilst people can be “educated” out of the practice of littering and dumping, smoke pollution in the longer term will be countered by widespread electrification which is already occurring in informal areas.

Key Interventions

- Integrate with Local Agenda 21 objectives aimed at attaining an efficient, viable and sustainable city in the long term, by highlighting what issues are to be resolved, and where investments should occur.
- Promote the integration of open space in the disadvantaged areas with D’MOSS, and establish consistent levels of maintenance.
- Establish security measures such as mobile police stations.
- Implement appropriate controls that would effectively manage the environment, preventing informal settlement in areas earmarked for other land uses.
- Appropriate measures should also be taken to control industrial effluent and emissions.
- Make adequate provision for the installation of garbage disposal facilities at strategic points which are accessible and visible.
- Provide appropriate bicycle and footpaths, and introduce traffic calming measures.
- Urban design should allow for areas to be sufficiently exposed and as ‘safe’ as possible. Safety should be improved through the installation of public telephones.
- Improve the utilisation of existing resources and explore use of alternative resources.
- Promote the managed cultivation and harvesting of medicinal plants used in traditional healing practices.

An important challenge facing local authorities and relevant sectors, is to effect the delivery of basic environmental, social and economic services without jeopardising the viability of the natural, built and social systems. Effective environmental management would entail close co-ordination between various sectors to be able to strike a balance between sustainability of livelihood of the poor on the one hand, and environmental conservation and development on the other.
4.6.2 SPATIAL DEVELOPMENT FOCUS

Map 12 highlights the areas of greatest need and the key spatial interventions from a metropolitan perspective. The strong focus on accessibility is indicative of the need for integration of these areas into the DMA, as well as creating linkages between them and adjacent areas. Intermodal transport hubs are located at strategic points in densely populated areas which could generate the necessary thresholds for the efficient functioning of the city. The proposed social service nodes are situated adjacent to major housing developments for convenience, economy and accessibility.

Figure 3 summarises the key areas of concern and necessary responses in terms of the three principles underpinning the spatial development plan for the DMA - equity, efficiency and sustainability.

On the whole, the challenges facing areas of need in the DMA are enormous and deep-seated. Success in uplifting and integrating these areas lies in drawing together the resources of the various sectors and levels of government in a focused manner. Volume 2 reflects this understanding by focusing actions across sectors. Volume 3 provides more detailed areas of need that were the subject of RDP urban renewal IDF's.
4.7 INFILL, DENSIFICATION

4.7.1 CURRENT DENSITIES

Density can be defined in a number of ways. It can refer to either the gross and net density of residential dwellings per square unit area, or to the density of population per square unit area. In terms of the SDP, “densification” refers to achieving an increased number of dwelling units per hectare (gross). Densification also refers to the intensification of all land uses and the provision of additional public facilities and implicitly, the retention of all public open spaces because as densities increase, so will the demand for open space.

The Settlement Study of 1995 and the Land Use Study of 1997 were used to obtain some legibility of the densities being achieved in the DMA. Of the formal residential areas, only the Link City node achieves densities of more than 20 households per hectare. On the whole, higher densities are found in areas previously regarded as “Indian”, “black” or “coloured” (with ranges from 11 to 20 households per hectare), although most of the CBD/Inner City achieve densities within this range. Densities ranging from 1 to 10 households per hectare are generally found in areas previously regarded as “white”, such as Westville and Durban North.

Urban informal residential areas generally achieve higher densities than formal residential because of smaller houses, smaller lot sizes, fewer roads, lower levels of service provision and hence less land required, and the fact that people settle closer together for safety and access factors. Portions of Inchanga and Milkway achieve densities of more than 50 households per hectare, whilst areas within Southern Pinetown, KwaDabeka, KwaMashu and Inanda have densities ranging from 21 to 50 households per hectare. The areas with densities less than 10 households per hectare include: parts of Umbogintwini, parts of the MR197/MR242 potential node, parts of the potential MR197 corridor, a small portion of the Airport/Umlazi node, parts of Mariannhill, Chatsworth, Shongweni, Hammarsdale and a portion of the potential Inanda Verulam corridor. The spatial representation of the higher densities clearly illustrate apartheid planning, and has been referred to as “doughnut” pattern, whereby higher densities are found in the centre and outer ring of settlement, whilst the area between is characterised by very low densities. The evolution of the accessibility nodes and corridors facilitates spatial restructuring of the DMA by focussing activities, services, employment and facilities in these areas of concentration.

The densities of peri-urban settlements are low, ranging from 1 to slightly more than 10 households per hectare. Considering that the nature of peri-urban activities is generally subsistence farming, these low densities are to be expected.

15 Refer to the SDP Quantitative Study, October 1998
4.7.2 THE COSTS OF SPRAWL AND CASE FOR DENSIFICATION

The concept and consequences of sprawl need to be contextualised within sustainable urban form theories and the debates on achieving compact cities. Issues requiring resolution and agreement, particularly against the backdrop of developing countries, are highlighted below:

- The significance of moulding the spatial structure of the DMA for sustainable urban development. Linked with this is the need to clarify the relationship between compact city concepts and that of sustainability, as well as interpreting notions of sustainable urban form, sustainable urban development, and sustainable urban systems and regions suitable to the DMA.
- The effect and significance of globalization on the DMA, with particular emphasis on the most appropriate size, structure and form that Durban should take. Interrelated with this is the necessity to examine the effect of spatial dynamics on arrangements within the DMA in terms of institutional, legal, and economic processes.
- The significance of compact city policies, such as export-processing zones, with regard to the global competitiveness of the DMA.
- The relationship between housing, the ability of people to pay and the hidden costs borne by the Metro Council in terms of service and utility provision.
- The effect of global information technology, such as the Internet, on the spatial structure of the DMA. Issues related to this include the need to understand whether or not this virtual compaction negates physical compaction of people.
- The social and political feasibility of implementing compaction is not known, and uncertainty lies within large scale receptiveness to lifestyle changes, social, political and cultural factors, as well as institutional capacity.

Existing patterns of suburbanisation, peripheral housing developments and urban sprawl are increasingly being regarded as inefficient and unsustainable. In addition, serious negative externalities are placed on the urban structure, resulting in social, economic and environmental costs which are hidden, ignored or quietly borne by society as “part and parcel of urban living”. Examples of such effects include the following:

- Increased traffic congestion in suburban areas and associated “suburban gridlock”.
- Longer commuting journeys, which seriously impact on people’s quality of life (a person travelling 40 minutes to work a day, spends on average 6,5 hours a week, 26,5 hours a month, and 320 hours a year travelling to and from their place of employment).
- Increased reliance on road based transport increasing energy consumption and emissions which impact on the DMA, and more globally in terms of pollution.
- High transport costs borne by those who can least afford it.
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- The constant demand for roads and services effectively draining Local Governments’ much needed financial resources.
- A constant erosion of the CBD/Inner City, and the abandonment of existing infrastructural investments which are expensive to build and install in new areas.
- A decrease in peripheral rural land, urban agricultural output and low income survival strategies which are so necessary for the very poor to survive.

The debates surrounding compact cities are highly complex, and include the following counter-arguments:

- Densification policies may impact negatively on services such as water supply and demand, sewage disposal, capacity of roads, and availability (and quality) of open spaces for public recreation and amenity.
- Problems related to the increased quantity of solid waste disposal.
- Increased air, water and noise pollution in dense urban environments.
- Higher rental and purchasing prices for housing stock in compact areas due to limited supply.
- Compaction may impact negatively on the quality of life of people in the following ways: the identity and heritage of certain nationalities may be forever lost; decreased physical and mental health; and increased crime.
- Urban densification and intensification may also negatively affect the provision of education, health, recreational and cultural facilities and services.

Sprawl however continues unabated, and compaction efforts are often resisted because of people’s perceptions regarding low density development, such as the notion that suburbs are safer for their families, as well as having better schools and services. These perceptions are expressed by land use policies that implicitly encourage sprawl through the application of large lot sizes, low Floor Area Ratios (FARs), low coverage factors and high standards of road widths, parking spaces, etc. Present regulations control density in the following manner:

- Floor Area Ratio - this limits the size of buildings, thereby impacting on the number of units achievable.
- Set backs - these control the distance of a building from the plot boundary. Setbacks waste space as well as providing barriers to developing attached and semi-detached units. It encourages upward development when combined with height regulations.
- Height - controls the number of storeys allowed in a development, but is affected by setbacks, FAR and coverage. Limited coverage and setbacks will stimulate high rise buildings. Furthermore, a limited height, coverage, setbacks and FAR limit the format a building can take on the piece of land, as well as limiting the number of units permissible.
- Coverage, when applied with FAR and height regulations forces the heights of buildings upwards and also determines the spread of buildings on lots, wasting space.
Minimum lot sizes - limits subdivision of larger parcels of land. It also restricts the number of units that may be developed in an area.

Zoning - the current practice encourages detached dwelling units and when combined with minimum lot sizes, ground floor development is stimulated. Land use zoning restricts mixed land use development within buildings as well as with the surrounding built environment.

People ultimately pay for urban sprawl through a poor quality of life and higher rates imposed by Local Councils to offset the costs incurred in providing new infrastructure and services. Although the actual land cost may be cheaper for those people purchasing land in peripheral areas, it is only a short term saving. The financial cost of building and maintaining limited access roads and other roads to connect these far flung areas with work opportunities located elsewhere, for example, the CBD and SIB, as well as the costs of infrastructure provision (lengths of sewerage/water pipes) will have to be recovered by the Metro Service Units in some way. Simply put, a sprawling city’s resources are often “sucked” into providing new roads, schools, sewers, leaving little/no money for revitalisation and regeneration - resulting in decaying urban cores.

Market forces indicate a growing trend towards higher density development amongst medium to higher income groups. Increasing numbers of younger and older people are moving into such developments due to affordability, convenience, and increasingly, safety. This trend however, is not yet a characteristic amongst lower income groups. Although it has been argued that lower income groups desire the single unit/single lot that has epitomised South African city development, many people have never had a chance to indicate their preferences. In addition to encouraging a greater choice of housing developments and types, people need to be educated about trade-offs and costs, such as longer journeys to work, increased transport costs, rates and distances from services and facilities.

Higher density development cannot simply be interpreted as “high rise”. Densification can be achieved by low-rise development and smaller lot sizes which is compatible with surrounding detached residential development. Higher density residential development can be made compatible with neighbouring uses so that the impacts are mitigated. Similarly urban design techniques can ensure an acceptable integration of land uses and income groups.

4.7.3 STRATEGIES

All Local Council IDP processes have identified the importance of infill and densification in achieving sustainable urban environments. However, of all the spatial elements promoted by the SDP, the specific mechanisms for utilising opportunities for infill and densification have been given the least attention and are possibly the most misunderstood aspect of achieving
sustainable and compact cities. In principle, nodes and corridors have been identified as key areas for densification (refer to volume 3 for more specific information). Local IDP’s identified areas suitable for infill and densification (refer to Map 13) - generally, higher densities are being encouraged in areas with good access to physical, economic, social and cultural resources and services.

From a transport and economic perspective, priority is being given to achieving thresholds that will support viable public transport\textsuperscript{16} and higher-order economic activities. As well as increasing densities in key areas, this includes achieving an adequate response to spontaneous unplanned densification (e.g. Cato Crest, Besters) in order to retain the benefits of the thresholds already achieved. Increasing densities and improving the efficiency of the urban form will help to reduce servicing costs. More information is needed on the capabilities and existing capacity of infrastructure systems in order to identify where infrastructure is underutilised or where it needs upgrading to accommodate more households.

The Housing Unit\textsuperscript{17} has estimated that the current gross densities being achieved in new housing projects across the DMA is, on average, 10 dwellings per hectare. If remaining developable land is to be used effectively, densities need to double as a starting point. While the Housing Unit is exploring opportunities for infill and densification in well located areas, only 5% of the housing subsidies will be utilised for infill. A key issue is the affordability of land. The limit set by the PHB for the purchase of raw land is R900 per housing opportunity. While higher densities could offset the land costs, they may result in higher building costs, especially in terms of row housing and walk up flats. On the other hand, many well located tracts of land have land claims attached to them or compete with other interests in the land market, such as Block AK. Thus, the opportunities for infill and densification within developed areas are fraught with conflicts. However, possible options identified by the Housing Unit include:

- Focusing low income housing on state owned land.
- Seeking alternative funding to purchase land over and above subsidy money received from national government.
- Requesting Council to sell council owned land in accessible locations at below market price.

Linked to issues of affordability, suitable land for higher density development within accessibility corridors and nodes must be secured early on, as the demand for well located

\textsuperscript{16} “Fundamental Restructuring of the Planning, Management and Operation of Urban Public Transport Networks”, (CSIR 1998), Durban Metropolitan Area pilot project will explore issues of thresholds.

\textsuperscript{17} Metro Housing Strategic Framework, 1998
land will increase, driving up land prices and reducing affordability of lower income groups. Housing policy in this regard is vital to the success of ensuring the availability of land in corridors and nodes for lower income groups.

4.7.4 OTHER EXPERIENCES

Johannesburg Metro\textsuperscript{18} is encouraging densification and infill through the transformation of the existing land use management system, in conjunction with consolidating the 13 town planning schemes in Johannesburg, their local Idp's and appropriate legislation. Johannesburg Metro has acknowledged that their town planning schemes do not encourage densification, nor are they linked to the land value system. The Council is in the process of changing the town planning schemes and combining a number of other processes: namely, removing the valuation cost for subdivision of properties, and trying to link the valuation system with land uses and service provision.

An example of this is the current payments for refuse removal - all properties pay the same, regardless of the size of the property so that smaller properties are subsidizing larger properties. Johannesburg Metro has outlined a flat community rate for refuse removal, but with an increased road frontage, property owners have to pay proportionately more for refuse removal. This is not only applicable to refuse removal, but also to electricity provision, water provision etc. Concurrently, the various service units have been encouraged to amend their processes so as to ensure densification and infill. An example of this is the identification of “priority areas” in which bulk infrastructure will be subsidized or paid for by the Johannesburg Metro. Developers will have to pay the full costs of service and infrastructure provision for developments outside of these areas.

Cape Metro\textsuperscript{19} has highlighted the importance of political will in encouraging densification strategies. The activity system was adopted by Council in 1996 and achieved major political support from councillors. Development proposals not falling within the ambit of the plan are blocked by politicians so as to prevent any precedent being set. The issue of political will behind the policy is vital because it prevents the collapse of the activity system in the face of huge financial pressure to do otherwise. The Cape Metro encourages densification by indicating where infrastructure will (or not) be provided to guide development, as well as establishing an urban edge and providing density targets. Other measures include encouraging development around railway stations, and valuing land only rather than land and improvements for rating purposes.

\textsuperscript{18} Discussions with Melissa Whitehead, Johannesburg Metro, November 1998.

\textsuperscript{19} Discussions with Francois Theunissen, Japie Hugo and Shahid Solomon, Cape Town, Nov 1998.
4.7.5 INTERVENTIONS

Although densification is encouraged throughout the developed areas of the DMA, the SDP strategically encourages the development of higher densities within nodes and corridors. The objective of this is to improve overall access to employment, opportunities, services and facilities, as well as protecting the natural and financial resources of the DMA. Encouraging densification in strategic nodes and corridors would encourage higher population thresholds to support existing uses and activities and promote higher order facilities, including viable public transport.

Vacant pieces of land within nodes and corridors should be developed at higher densities to initiate processes of densification within the DMA. Densification should be intensified around intersections and abutting transport routes in nodes and corridors. As the distance from these areas increase, so the density decreases. Densities in identified areas within nodes and corridors should be in the order of 30 to 70 dwelling units per hectare e.g. lots directly abutting transport routes or intersections should be developed at 30 to 70 dwelling units per hectare (gross). Considering that the proposed width of accessibility corridors is generally 2km wide (1km on either side of the transport route), targets for densities within this 1km stretch on either side of the transport route should be set. The target of 20 to 30 units per hectare is suggested for this area. Higher densities should be phased to start in nodes and corridors in an incremental manner to avoid “leap frogging” processes.

As indicated previously, densification should not only occur within nodes and corridors, as efficiency, equity and sustainability could be encouraged throughout the entire DMA, such as in all suburban areas and within the 30 minute taxi ride from the CBD. The suburban areas previously regarded as “white” currently achieve average densities of 10 dwelling units per hectare. Densities ranging from 20 to 30 dwelling units per hectare are to be encouraged in the long term. These higher densities should however be contextually appropriate with the surrounding land uses and conditions. It is therefore inappropriate to encourage a blanket approach to suburban densification, and this issue will need to be looked at in more detail in terms of phasing, appropriate densification mechanisms, densities, etc.

The conditions that should guide densification processes are:

- There should be no impacts on image, scenic aspects and views. In this regard, the impacts on the natural environment need to be taken into account.
- Higher density developments should not destroy or damage the natural environment or sensitive environments.
- New buildings and conversion of buildings should be compatible with the surrounding built environment in terms of aesthetic qualities, architectural design and urban design features.
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- Higher density developments should be compatible with the height and scale of the surrounding built environments.
- The nature of surrounding activities also need to be taken into consideration - higher density development may be inappropriate in a predominantly agricultural area. Similarly, high rise flats are incompatible within an area overwhelmingly characterised by detached dwelling units.
- Issues of vehicular access, impacts on traffic circulation, capacity of bulk infrastructure and locations of infrastructure should be taken into account.
- There are a range of urban design factors that will need to be resolved such as appropriate heights, formats etc.

The process of densifying areas may be facilitated by densifying the existing built environment; developing vacant or under utilised parcels of land through and “infill” process and containing urban growth. The preconditions to densification include:

- Suitable development controls and building regulations such as FAR, coverage, set backs, coverage, minimum lot sizes, zoning, parking regulations, height, restrictive title conditions.
- Market demand.
- Local plans and metro plans.
- The availability of vacant land, land for redevelopment, suitability of buildings for conversion and the surrounding environmental quality.

The consolidation of all the town planning schemes in the DMA, and the creation of a common land use management system provides an opportunity to put into place densification initiatives. In line with the Town and Regional Planning Commission Draft “Urban Sprawl Policy” (1998), generally IDPs and Metro sector plans discourage:

- The application of urban growth boundaries.
- Development of ad hoc or island type settlement outside developed urban areas.
- Development of low cost housing on the urban periphery.
- Subsidisation of capital expenditure in new developments on the periphery through rates levied on existing developments.
- Application of transport subsidies contributing to the viability of urban development on the periphery.
- Occurrence of unchecked land speculation.
Key **policy decisions** that have been identified for increasing densities include:\(^{20}\):

- The revising of current regulations to promote increased residential densities. The current study being undertaken by the Town and Regional Planning Commission\(^{21}\) provides for policy intentions to be read in conjunction with land uses allowing flexibility and densification over time. The Town and Regional Planning Commission also encourage a finer grained zoning of uses and a move away from broad categories, such as “residential” and “general residential” to very low density residential; low density residential; medium density residential (30 dwelling units per hectare); medium/high density residential (50 dwelling units per hectare); and high density residential (70 dwelling units per hectare). The establishment of mixed use zones to stimulate the growth of nodes and corridors, as well as encourage densification and infill are also provided for.
- Fuller utilisation of existing infrastructure and facilities.
- The promotion of small-scale and home-based economic activities.
- The development of an appropriate inner city housing policy.

The different **methods of achieving densification** can occur via:

- Infill development on vacant or under-used parcels of land at higher densities. A range of infill processes have been used to varying degrees of success around the world. Examples include: transfer of development rights; land swops; land consolidation; public housing projects; vacant land taxation and financial incentives.\(^{22}\)
- New development on vacant or under-used land at higher densities.
- Cluster development on large parcels of land through a consolidation process.
- Conversion of existing buildings (sometimes vacant/derelict) to other uses.
- Subdivision of large pieces of land to encourage higher densities.
- Allowing additional units to be developed on a single piece of land.
- Redevelopment of poorly functioning areas to encourage and facilitate infill.

\(^{20}\) The Town and Regional Planning Commission’s Draft Policy for Densification of Urban Areas (1998) sets out an evaluation matrix to guide effective planning and management of the densification processes in the urban context.

\(^{21}\) Scott Wilson, Atelier von Riesen, Professor Michael Kahn. ”KwaZulu-Natal Appropriate Planning and Land Use Controls Project”, Town and Regional Planning Commission, September 1998.

Of these processes, infill is more successful in encouraging higher density development than densification of developed areas. In addition to these, the DMA could implement a number of possible measures to promote densification. These would include:

- **Defining areas suitable for development and future growth**
  A clear identification of where development should and should not occur in the DMA to guide development linked with infrastructure provision. Those developments outside of the defined areas will have to pay the full costs of services and infrastructure provision. Further barriers to inappropriate development may also involve processing applications slower. Developers would pay less for infrastructure provision in appropriate areas, and their applications could be “fast tracked”. At a larger scale, the metro boundary could be used to demarcate limits to growth.

- **Revised town planning scheme regulations**
  Revise regulations that implicitly limit density, such as FAR, lot sizes, coverage etc., and increase those bulk factors. Review frontages and side and rear spaces in particular areas to achieve specific densities and/or character areas. Move away from monofunctional zoning. Encourage mixed uses where appropriate, such as in transitional areas, in nodes, along corridors and at multi-modal transport hubs. Revise and reduce parking standards to encourage the reuse of existing buildings as well as encourage densification. Adopt minimum densities within nodes and corridors. Facilitate densification and infill by allowing and encouraging dual occupancy and subdivision of lots to encourage infill developments. Conditional rezoning. Provide planning guidelines that ensure developments relate to and support the character of the community in which it is located. Set density targets.

- **Encourage changes in land use to stimulate densification**
  Encourage residential infill clustering, such as the consolidation of “back yards” for medium density housing development. Encourage brownfield development rather than greenfield development.

- **Explore the valuation system to encourage densification**
  Link the land uses in the town planning scheme to land values. Rate the land rather than the building value to encourage smaller lots. Remove financial penalisation for subdivisions of property to encourage the process of subdivision. Allow and encourage subdivisions. Amend minimum lot sizes.

- **Making more efficient use of land that has already been developed**
  Set minimum densities to be achieved in proposed projects within nodes and corridors. Encourage all residential types such as semi-detached housing, townhouses, walk up flats, row houses, simplexes, duplexes and triplexes rather than only detached houses. Promote internal densification through the following conversions: attached, semi-detached and double storey development (maisonette) within existing residential areas. Property taxation on
undeveloped pieces of land. Stabilise struggling areas by encouraging the rehabilitation of existing buildings experiencing decay, such as the Albert Park area.

The proposals highlighted above and experiences of other metro councils point to encouraging densification and infill mechanisms via the consolidation of the town planning schemes and formulation of a town planning scheme for the Durban Metro Area. This process would not only allow for the identification and definition of new land use zones, but could build a system of land use management that would encourage a compact city. In parallel with this, the success of the accessibility footprint depends upon political will. The councillors have to understand and fully support the processes of densification. Although there is a great deal of work still to be done on how to implement densification and infill and the impacts thereof, by not undertaking a proactive approach, the status quo of inefficient sprawl will simply continue. In light of this, the spatial transformation required will not occur, resulting in the continuation of the DMA as a socially inequitable, functionally inefficient and environmentally unsustainable city.
4.8 STRATEGIC SPATIAL INVESTMENT AREAS

The DMA has several highly significant spatial investment areas that support the economic and social wellbeing of the people who live in metropolitan Durban. Various planning initiatives are underway to underpin these areas. The initiatives are outlined below.

4.8.1 DURBAN INNER CITY

The inner city of Durban encompasses the CBD, port, South Durban Basin and the sporting and recreation district north of the CBD. Collectively, this entity performs a vital function in the DMA and national context due to its role as:

- A trading port - containing South Africa’s most important trade hub in terms of value of goods handled.
- A tourism centre and gateway - containing South Africa’s premier convention centre and a large stock of hotel facilities and infrastructure.
- An industrial centre - containing one of South Africa’s largest industrial districts
- A commercial and retail centre - containing Durban CBD which serves large parts of the Southern Africa.
- A transport and communications hub - situated at the confluence of development corridors linking Durban to Johannesburg and Richards Bay.

Since the 1970's the Inner City of Durban has seen major changes in most of the sectors on which it is built. These changes include:

- Jobless growth in the formal economy, most notably manufacturing.
- Increasing demands being made upon infrastructure by economic expansion, notably at the port and in the Southern Industrial Basin.
- Changing location patterns of economic activity, particularly the relocation of some forms of industry, retailing and office activity.
- Changing nature of economic markets, resulting in the emergence of the informal and small scale economy and transformation of mass tourism and leisure markets.
- Changing demographic and social profile of people who live in and use the facilities found in the inner city.
- The threat to the natural environment of poor environmental control and management.
- Changing travel patterns and modes of transport used by people living and working in the inner city, leading to a greater reliance on road-based public transport.
- Changing form of the built environment as a consequence of a process of decline and renewal driven by economic, functional and frictional factors.

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Against the background of these changes and challenges, an Inner City Development Framework Plan is presently being prepared which aims to:

“Establish and maintain the Durban Inner City area as a world class port-city complex which is responsive to the opportunities and demands of the global economy and to the needs of local business and the metropolitan Durban community, by offering a living environment which is safe, clean, attractive, efficient vibrant, development orientated and administratively streamlined”.

4.8.2 DURBAN BEACHFRONT

Durban’s central beachfront is arguably the most significant tourism and recreation resource in the DMA. The increase in beachfront use and the transformation of the tourism market since the 1980s has placed increasing pressures on the Durban beachfront, and has compounded the task of managing it. General problems facing the beachfront include:

- Public perception of poor safety and cleanliness.
- Poorly managed peak December periods.
- Lack of consolidated beachfront funds.
- Lack of co-ordination between the management, planning and servicing of the beachfront.
- The fragmentation of authority between two Councils.

In response to these problems, a new institutional structure has been put in place to maximize the public sector’s contribution to a successful beachfront. In the longer term it is envisaged that this institutional arrangement should provide the vehicle to a “public-private-partnership” to effectively manage, maintain and market the beachfront according to the principles of resort management.

The Beachfront Committee draws representation from the private sector, North and South Local Councils, as well as Metro Council. This management structure will outline policy, plan, manage and develop activities on the beachfront in an integrated manner to ameliorate the problems identified above. It is envisaged that the careful management of the beachfront is a pre-requisite for reviving the area as a major destination attraction.
4.8.3 PORT OF DURBAN

As South Africa’s premier port, the Port of Durban handles most of the country’s trade in high value goods principally in the form of general cargo and containers. In the 1990’s South Africa’s trade with the world grew at an unprecedented rate leading to concerns about the port’s capacity to handle trade demands in the longer term, particularly with regard to the handling of containers. There have been two responses to this situation. The first is concerned with enhancing the capacity of Durban’s port to handle container trade in the short and medium term. The second response is concerned with making provision for handling container traffic in the longer term.

With respect to the short and medium term capacity of the port, the port authority has undertaken an investigation, in consultation with stakeholders, to identify options to provide for further capacity. The options being considered by the proposed plan aim to minimise environmental impacts and maximise economic development. The proposals are based on several sequential phases:

• Phase 1: Extend Pier 2 Container Terminal.
• Phase 2: Relocate SA Cargo Depot and develop the site for container operations.
• Phase 3: Provide new deepwater berths at the Point.
• Phase 4: Develop the new container terminal by the eastward expansion of Pier 1.
• Phase 5: Develop a new small craft harbour.

The proposals should ensure sufficient container handling capacity in the Port for the next ten to fifteen years, following which, additional facilities will need to be provided outside of the existing Port boundary. It is expected that port expansion will result in additional jobs (1164 direct jobs and 11642 indirect jobs) and expenditure (R1.5 billion direct and R3.4 billion indirect) in the DMA. The longer term issues of Port growth need to be addressed in terms of a program for the management of South Africa’s eastern ports collectively. This program might include the consideration of the Durban Airport site as a potential candidate for a second port to accommodate the envisaged expansion of trade at Durban.

Long term solutions such as those identified above, are not only related to space, but also depend on optimising space usage and maximising technology through the use of computer systems. In light of these issues, effective quay length, quayside cranes, effective stacking area and handling equipment are envisaged to enable the more efficient handling of containers. It is envisaged that the replanning of quays and the implementation of the computer system COSMOS, will improve stacking capacity and efficiency.

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The longer term question of where and how to accommodate container traffic is an issue that touches upon the future planning of South Africa’s east coast ports. A central issue in this debate concerns the respective roles and relationship of Durban and Richards Bay. In the absence of a national ports plan to provide long term guidance on the question of port development and trade infrastructure, an investigation under the auspices of the joint Durban and Richards Bay Spatial Development Initiatives (SDI) is attempting to establish a framework for assessing how container handling needs might be met. The options would appear to revolve around (a) expanding Durban’s existing port by dig-out; (b) establishing a second port at Durban by dig-out (potentially on the airport site) or (c) building up container handling facilities at another port (possibly Richards Bay).

4.8.4 SOUTHERN INDUSTRIAL BASIN AND SPATIAL DEVELOPMENT INITIATIVE

The SIB extends south from Durban’s port to encompass the industrial areas of Clairwood, Jacobs, Mobeni, Genref, Prospecton and Umbogintwini as well as the existing airport site. It differs from every other industrial zone in the country, due to its unique locational advantage, which is based on:

- Its proximity to Africa’s busiest port.
- Its proximity to the airport, as well as national road, rail and pipeline networks.
- Many of the industrial areas are contiguous and collectively support a considerable amount of infrastructure and services.
- The fact that the length of the SIB is served by arterial routes.
- Its proximity to the financial and commercial services of Durban's CBD.

The SIB is a significant economic driver in the national and regional contexts, being the engine of the DMA’s economy. It contains South Africa’s leading port, Durban’s most established industrial areas and the airport. Many of the country’s leading firms, operating in nationally important manufacturing sectors, are located in the SIB. These include Engen, Sapref, Island View Storage, Bayer, AECI, Mondi, Toyota SA, SA Breweries and Robertsons amongst others. There are more than 1 100 firms located in the SIB and overall, account for 69% of employment in the SIB.

The SIB has the potential to become a globally competitive industrial centre and world-class investment zone due to its unique coastal location, proximity to the Port, existing levels of infrastructure and availability of undeveloped land. Such a world-class investment zone would include:

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- World-class infrastructure and services.
- Cutting edge technologies.
- Top class zonal management.
- High quality environment and control.

If the SIB is to fulfil its potential as a world-class investment zone a concerted regeneration initiative is required. The primary issues facing the SIB are:

- Degraded or obsolete infrastructure and services.
- Little renewal of aging and non-functional infrastructure, which has led to the relocation of primarily light manufacturing and service industry sectors.
- Weak investor confidence in the SIB, compounded by weak economic conditions generally.
- The loss of investment due to the decline of the textile, clothing and footwear sectors, although this has been offset by rapid growth in the petro-chemical, automotive, paper and pulp and food and beverage sectors.
- Poor planning and weak enforcement of environmental controls has resulted in degraded living and working environments.
- Social and environmental conflict because of inadequate environmental management.
- Very little cohesion exists between communities and business.
- Local government management for the SIB is split between three authorities.
- A poor facilitative and proactive ethic in local councils, which has contributed to long lead in times for businesses establishing or the expansion of existing businesses.

The South Durban Strategic Environment Assessment (SEA)\(^2^6\) and Spatial Development Initiative (SDI) have clarified the role of the SIB and outlined possible scenarios for the area. Proposals have been made for the SIB Technical Support Team to draw up a regeneration program for the SIB which would include the following elements:

- Co-ordinate the planning and implementation of infrastructure and development.
- Develop urban renewal programs for residential and industrial areas in need of upgrade.
- Develop social management and mitigation programs for residential areas affected by existing and future industry, which may necessitate the relocation of settlement.
- Develop risk management strategies for hazardous installations.
- Co-ordinated environmental management system for the area aimed at improving overall environmental quality.
- Promoting and marketing the SIB as a world-class investment zone.
- Streamlining investment procedures.

\(^2^6\) Refer to Draft Durban South Basin SEA Development Options: Mixed Use, Petrochemical Expansion and Port Expansion.
Such a program would benefit residents adjacent to and part of the SIB, as well as for residents throughout the DMA. At a broad level, the regeneration program would ensure long term economic growth in the manufacturing sector, with benefits in the form of employment, household incomes and rates for local councils. The program would secure long term comparative advantage for the port and the SIB. At a local level, the program would indicate commitment by local governments to urban renewal in the SIB, a commitment to pollution reduction in the SIB as well as providing an explicit program for industrial development. The program would provide a safety and risk strategy for the SIB to manage disasters and it would provide a structured and committed community consultation process. Furthermore, the program would create a centralized and identifiable authority in the area.

4.8.5 DMA COASTAL REGION

Uncoordinated development of the DMA coast poses a major threat to tourist assets thereby reducing economic potential as well as closing down development options in the future. Addressing the development of the coast in an holistic and integrated manner is essential if potential investment is to be directed or attracted and scarce opportunities for local growth capitalised on. The domestic and international tourist trends indicate that there is a need to:

- Ensure that existing tourist assets are retained, maintained and upgraded, but also that new assets and attractions are identified, created and developed which meet the wide ranging needs of domestic and international tourists.
- Provide a wider range of accommodation types and settings in locations which expose more of the coast’s attractions and qualities.
- Ensure that tourists have easy, quick and safe access to a wide range of attractions, experiences, amenities, services and facilities.
- Increase visitors’ exposure to natural and ecological experiences.
- Increase visitors’ exposure to cultural and historical attractions and experiences.
- Improve the environmental quality, character and identity of existing prime tourist precincts.
- Improve and maintain safety and security.
- Provide for an increasing business, sport and events related tourism market.

An assessment of the inherent character, qualities and potential of the coast, in terms of aspects relating to settlement pattern, environmental quality, townscapes, land availability and infrastructure, resulted in the identification of three coastal "regions", which are:

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27 Refer to the Draft Coastal Tourism Development Plan, November 1998 which is currently available for comment and is due to be finalised in February 1999.
• Northern region - Tongaati River to Umgeni Estuary Reserve.
• Central region - Umgeni Estuary Reserve to Umlaas Canal.
• Southern region - Umlaas Canal to Msimbazi River.

A number of smaller, but discrete areas within these three regions, have been identified, each of which has a distinctive character. These areas have been assessed in terms of their development potential and have been classified into one of the following types of "development zone".

• High Intensity Tourism Precinct / Recreation Zone.
• Local Recreation Zone.
• Conservation & Low Intensity Recreation / Tourism Zone.
• Industrial Tourism Zone.
• Tourism Linkage Zone.
• Low Density Development Zone.

Three key roles can be identified for the DMA coast to perform in terms of tourism. These are:

• Primary gateway to the DMA and the KwaZulu-Natal Region for international and domestic tourists.
• Primary vacation destination for domestic and international tourists.
• Primary domestic and international business, sport and events destination and venue.

The four strategies identified by the Coastal Tourism Development Plan attempt to direct future physical development in a manner that integrates the imperatives for tourism development with the need to ensure the protection and the development of coastal resources and thereby to contribute to the creation of an efficient, equitable and sustainable DMA.

1. Consolidate the Inner City into the Core Tourist Precinct in the KwaZulu-Natal Region.
2. Consolidate Existing and Create New Identifiable Coastal Tourism "Villages" and Recreation Nodes.
3. Establish a Coastal Park System.
4. Improve the Gateways into the KwaZulu-Natal Region and the DMA and to Establish High Quality Tourism Routes through the DMA.
4.9 TOWARD AN IMPLEMENTATION FRAMEWORK

This document has provided an assessment of the current development context and established guidelines for the key spatial elements. It also presented the emerging picture with respect to translating spatial elements and testing out the spatial concepts. In translating the elements to practical actions emphasis is given to how the elements relate and link to one another and how they each relate to issues of equity, efficiency and sustainability. Map 14 reflects the composite of the various elements and provides the basis for identifying the set of integrated strategies identified in Volume 2. It is necessary to conceptualise the spatial elements as providing the tools that release a network of opportunities that linked together can be used to respond to the challenges facing the DMA.

The strategies and actions identified in Volume 2 reflect this approach and give emphasis to the spatial elements as tools for achieving desired outcomes of the spatial principles and guidelines.