BACK OF PORT
CONCEPT, FRAMEWORK, PRECINCT PLANS AND ZONING FRAMEWORK REPORT
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- A – Previous Studies
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- L – Updated Transnet Development Plans for the Port of Durban
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GLOSSARY
This glossary is a brief description of some of the terms and abbreviations used in this report.

**BoP** - **Back of Port** - is refers to the areas surrounding the Port of Durban within the South Durban Basin. For this exercise it refers directly to the study area comprised of Congella, Umbilo Industrial, Ros Basburg, Clairwood, Jacobs and Mobeni.

**CBD** - **Central Business District** - is the commercial and geographic heart of a city.

**ETA** - **eThekwini Transport Authority** - Is the Transport Authority within eThekwini Municipality that oversees all transport related matters.

**ETM** - **eThekwini Municipality** - is a metropolitan municipality which comprises the City of Durban and other surrounding towns.

**LUMS** - **Land Use Management System** - includes all the various systems and plans used to manage land; viz. licensing, rating systems, and in particular the zoning (or land use scheme) that manages and regulates land uses. The term “LUMS” has, unfortunately, commonly become synonymous with only one component of the “system”, i.e. the scheme. The scheme is directly linked to the requirement of municipality to prepare an IDP, followed by a SDF, which in turn is followed by the scheme.

**SDB** - **South Durban Basin** - is an area that stretches from the Port of Durban through to Umbogintwini, south of Durban. It has a mix of land uses from noxious and light industry to commercial and residential uses. It is a key manufacturing and industrial zone of the city. The area is noted for its historical legacy and there is continued tension between the residents and the petro-chemical industry located with the area.

**SDF** - **Spatial Development Framework** - This is a tool, a spatial plan to manage growth and development within a city. It is required by law as part of Municipality’s Integrated Development Plan (IDP).

**TPS** - **Town Planning Scheme** - Enables the management of property through the implementation of certain general guidelines. Each local council must formulate and implement town planning schemes in their area of jurisdiction. It indicates zoning, restrictions, development rights, etc. The term TPS refers to the older zoning system. This is now replaced with the term “Land Use Scheme” or “Planning Scheme”.

**DIA** - **Durban International Airport** - the now vacant former airport site at Reunion.

**Market Value** – The market value of a property is the gross value in rands that the seller of a property can expect to realise in an arms length transaction between a willing buyer and a willing seller.

**Expropriation** - The Expropriation Act allows for an added amount over and above fair market value of 10% on the first R100 000, and 5% on the value up to R500 000, 3% between R500 000 and R1,0 million, and 1% of the value exceeding R1,0 million, but not more than an additional R10 000.
INTRODUCTION

0.1 INTRODUCTION: THE PORT OF DURBAN

The Port of Durban is built on the estuary of several small rivers that flow into a large bay protected by a range of coastal dune hills spreading north-east into the Indian Ocean and ending with the Bluff headland. The estuarine system is the prime marine nursery on the KwaZulu-Natal south coast and as such is of high environmental value. The bay is a popular recreational area for residents of Durban and is frequented by significant numbers of fishermen, yachtsmen, canoeists, rowers and windsurfers, especially over weekends.

In addition to port facilities, the harbour side accommodates restaurants, taverns, theatres, ferry and tourist launch jetties and retail outlets at several locations around the bay, including the Point Waterfront, near the harbour entrance, the Bat Centre and the Yacht Mole, adjacent to the Durban central business district, Wilson’s Wharf, near Albert Park, Buds-on-the-Bay restaurant at Bayhead and several recreational clubs for fisherman, yachtsmen, canoeists and rowers adjacent to the Silt Canal opposite Bayhead, where the AmanzinyAMA River flows into the bay.

These facilities, furthermore, double as valuable tourism assets – supporting one of Durban’s prime industries.

The Port of Durban is a significant harbour for a variety of cargo types, including coal, chemicals, steel, citrus products, sugar, grain, minerals, steel, rice, forest products, petro-chemicals and motor vehicles. The container terminals see an annual movement of some 2 million twenty-foot equivalent units (TEUs) which makes Durban Africa’s leading container port.

The port covers a land area of 1 854ha, with a total distance around its shoreline of 21km. Port infrastructure includes 57 berths and 302km of rail track linked to the national rail network.

In 2001 the former Portnet changed its operating structure to reflect two separate divisions within Transnet, the parent company: Transnet National Ports Authority (TNPA) and Transnet Port Terminals (TPT).

The TNPA fulfils a function as landlord for South Africa’s seven major ports and provides infrastructure, development, safety and security, environmental protection and marine and lighthouse services.

0.1.1 Maydon Wharf

Transnet Port Terminals (TPT) multi-purpose facilities are housed at Maydon Wharf, which handle a throughput of more than six million tonnes of cargo per annum. There are also a number of private terminals handling a significant proportion of Port of Durban’s cargoes, including the:

- South Africa Sugar Association terminal – here some 1.3 million tones of raw sugar are exported annually
- Agriport Terminal – within which a 34 500 tonne grain elevator and a 32 000 tonne Brunner Mond soda ash warehouse is situated
- Pure Cane Molasses Terminal – which houses 46 000 tonnes of liquid bulk tank storage
- Bidfreight Port Operations & Grindrod dry bulk terminals – between which a wide range of forest products, steel, minerals and chemicals are handled

0.1.2 Durban Container Terminal

This is the largest container handling facility in Africa with 19 quay cranes, with a lifting capacity of 45 tons, along its 2128 metres of quayside. These are in almost continuous operation serving six berths and utilising 120 modern straddle carries. This container yard has 14941 TEU ground slots and 1117 reefer plug-in points. On average some 300,000 TEUs were handled per month from April 2009 to Mar 2010.

Connection to surface landside transportation is via rail sidings and other nearby connections to South Africa’s national road network.

0.1.2 The Point Multi-Purpose Terminal

Previously this was made up made up of two separate facilities on opposite sides of the harbour: the Point Terminal, located on the city side and the Combi Terminal at Pier 1. These two have since been combined in an enhanced facility at the Point, while the old terminal area at Pier 1 has been absorbed into the Durban Container Terminal.
INTRODUCTION

The Point Terminal operates out of four berths at the entrance to the harbour. It is located in close proximity to the Durban central business district, and thus often is linked with the T-Jetty and Maydon Wharf, under the generic title of the City Terminals.

There is some 20 hectares for cargo handling and stack space, with six new modern berthing facilities for larger deep-draught vessels. A comprehensive range of mechanized equipment is used for cargo transfers but loading and discharge from vessels is done by ship’s gear.

A fair proportion of the landside delivery to the terminal is by rail – some 40% of the total. Major commodities handled include steel products, granite, rice, timber, fruit, maize, wheat, general cargo and containers.

0.1.3 Durban Car Terminal

The car terminal handles a throughput of some 570 000 units per annum. These facilities comprise a 366 metre quay with a depth alongside of 10.9 metres, backed by 8.5ha of surface storage with road and rail access, vehicle inspection facilities and an administration block with state-of-the-art cargo tracking system as well as CCTV surveillance.

Its dedicated berths (berths Q and R) are able to accommodate the largest deep-sea car carriers.

Durban’s location makes it ideal for this trade and the terminal has been designed to take account of the special nature of its cargo: motor vehicles on own wheels – a high value, roll-on/roll-off (ro-ro) transit cargo, coupled with the need for a large, secure storage area. The present storage facilities have a capacity of 14 000 vehicles.

0.2 DEVELOPMENT CONSTRAINTS

There are significant constraints to development at the Port of Durban. The extensive sandbanks and remnant mangrove forest in the bay are of high environmental value as the major marine nursery on the KwaZulu-Natal south coast. The recreational, tourism and retail facilities dotted around the bay can be more easily relocated, if necessary but space demand for such facilities is likely to increase substantially in future years and will compete more intensively with port activities for space as development intensifies.

Beyond the immediate port precinct, the city is virtually fully developed, with a mix of residential, commercial and tourism developments in the Point, Addington Beach and South Beach areas north-east of the port; the Durban central business district, Albert Park and a major transport corridor comprising railway lines and a motor freeway to the west; Edwin Swales VC Drive (the main arterial route to the Bluff suburbs) backed by the mixed use Clainwood suburb to the south and the steep forested slopes of the Bluff headland to the east and south-east.

Port expansion is therefore a significant challenge, necessarily involving re-development of brown field sites, realignment of traffic corridors and even the possible relocation of residential communities, rather than simple expansion onto vacant, unoccupied or undeveloped land.

0.3 CHARACTERISTICS OF PORT DEVELOPMENT

In this section we characterise the typical phases of port development, based broadly on the phases of the “Anyport” model developed by James Bird, and updated for 21st century advances in port structuring and development.

Bird’s “Anyport” model is a widely accepted as the landmark conceptual perspective on port development. This model has three major port development phases: settling, expansion and specialization. These phases depict the development of large traditional ports, where a port starts initially with lateral quays adjacent to the city (setting phase), then expands to deal with increasing volumes of general cargos (expansion phase) and then a port will typically expand to deal with specialized cargos such as containerized cargo and bulk cargos (specialization phase).

This model falls short when explaining modern port developments. It doesn’t explain the rise of seaport terminals that primarily act as transhipment hubs on island locations (such as Singapore or Hong Kong); or the rise of ports utilising inland freight distribution centres. Therefore to account for these changes a fourth phase to the Anyport model is proposed, termed the regionalization phase.

This fourth or regionalization phase helps explain stronger connections to the hinterland typical of contemporary port development. Two factors favour the emergence of this phase, namely:

• Local constraints – Ports lack available land for expansion and with increased port traffic, local road and rail systems are overburdened. Often environmental constraints and local opposition to port development are also of significance. Port regionalization thus bypasses these local constraints by externalizing them.
INTRODUCTION

- Global changes – No single locality can efficiently service the distribution requirements of such complex regional production systems and large consumption markets. Port regionalization thus permits the development of a distribution network that corresponds more closely to fragmented production and consumption systems.

Corridors and inland terminals are the cornerstones in port regionalization phase. The corridor is the main paradigm of inland accessibility as it is through major axes that port terminals gain access to inland distribution systems. Since loading/discharging operations form fundamental components of intermodal transportation, regionalization relies in the improvement of cargo terminal activities along and adjacent to the corridors.

In the past logistical movements and intermodal transport systems were performed by a number of different entities (ranging from maritime shipping lines, shipping and custom agents, freight forwarders and rail and trucking companies) that were often fragmented within this system, because regulations prevented multimodal ownership. This causes unnecessary additional costs and delays (administrative or physical) when cargo is moved from one segment of the logistical chain to another or from one mode of transport to another, making inland cargo movements costly. Globally, inland access costs account for 18% of total logistics costs, and “shipping lines consider inland logistics as the most vital area remaining in which to cut costs” (Notteboom, T. and Rodrigue, 2005). It is widely claimed that appropriate regionalization strategies can reduce these costs by up to one third.

Regionalization strategies are focused on increasing the level of functional integration of the inter-related segments of the logistics chain (removing many intermediate steps in the transport chain). This move is typically a gradual and market-driven process, imposed on ports by competition and can be achieved by:

- Logistics integration with larger companies merging and acquiring several logistics entities in the logistics chain and the emergence of large logistics operators that control and integrate the segments of the supply chain that they control.

- IT (information technology) and inter-modal integration (control of the flows).

- Improved loading/discharging operations at inland and port terminals at either end of a given freight corridor.

- Dedicated port-inland linkages, such as on-dock rail transshipment facilities

The regionalization phase advocates the establishment of inland terminals accommodating new port-inland linkages that typically utilise rail and barge. These divert road freight transport to rail and barge, reducing overcrowding in the limited seaport area and on national motor highways. The size of these inland terminals depends on the service frequency, the tariffs of inter-modal shuttle services by rail or barge and the efficiency and price of pre- and end-haul by truck.

Inland terminals fulfill multiple functions in the emerging regional load centre networks:

1. Inland terminals function as cargo bundling points in extensive transportation networks. Large load centres typically generate enough critical mass to install a number of direct inter-modal shuttles to a limited number of destinations in the hinterland. Where there are insufficient volumes for full trains, bundling concepts provide the answer and that is where inland hubs come into the picture. Inland terminals can help load centre ports to preserve their attractiveness and to fully exploit potential economies of scale. The corridors towards the inland terminal network create the necessary margin for further growth of seaborne container traffic.

Inland terminals, as such, acquire an important satellite function with respect to seaports, as they help to relieve seaport areas from potential congestion. However, extreme forms of cargo bundling in seaports and inland centres could decrease the efficiency of transport systems because shipments would significantly be delayed, although have low transport costs. Hence, the current development and expansion of inter-modal transportation relies on efficient synchronization of cargoes across wide geographical scales. But when the synchronization level increases, the sea-land network as a whole becomes unstable.

2. Inland terminals have become cargo consolidation and deconsolidation centres, where shippers can synchronize import cargoes with production lines and distribution networks. These terminals have also acquired an important position with respect to export cargoes, as the inland terminal develops into a natural location for the empty depot function. The function of an inland terminal as empty depot can also ease one of the most difficult and wasteful problems of container transportation, that is, the non-value adding empty container transport leg. In this way inland terminals can help to optimise container logistics.
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3. Inland ports become broader logistics zones attracting diverse logistical related services, because of lower land costs and land availability when compared to congested land close to the main ports. Logistics services attracted to the inland port can include low-end and high-end value-adding logistical services, distribution centres, shipping agents, trucking companies, forwarders, container-repair facilities and packing firms.

In the regionalization phase an important consideration (when developing inland terminals and port-inland corridors) is that logistics service providers favour locations that combine a central location (i.e. proximity to the consumers’ market) with an inter-modal gateway function. Once these areas are set up they exert a pull on logistic service providers to locate themselves around these sites because of the inter-modal and cluster advantages. This geographical concentration of logistics companies, in turn, creates synergies and economies of scale that make these locations even more attractive.

However, concerns and risks exist during the evolution of the regionalization phase of a port:

- “Triggers a too optimistic attitude among planners in terms of the future development potential of specific port and inland sites. This can lead to over-capacity situations, redundancies and cut-throat competition between incumbent sites (ports or logistic zones) and newcomers in the market.” (Notteboom, T. and Rodrigue, 2005).

- Time is needed to develop inland terminals and the regionalization phase even when benefits are quite obvious. This could take years of hard work, marketing and incentivising schemes by market players local government and port authorities.

- As the hinterland and inland terminals become come competitive locations the question is raised as to which logistic activities are truly port related. The following logistics activities typically find a good habitat in ports:
  - Logistics activities related to cargo that needs flexible storage for the purposes of creating a buffer (products subject to season dependent fluctuations or irregular supply).
  - Logistics activities with a high dependency on short-sea shipping.

A major advantage of developing the local port towards the regionalization phase is the spreading of wealth creation from a concentrated port area to a much wider network of communities in a larger geographical area.

The concept of regionalization is clearly demonstrated in Figure 1, with the port (the semi-circle) being linked by corridors (blue and red lines) to the inland terminals (the circles). Both the circles moving out from the port and around the inland terminals are intended to show the areas the port and terminals are serving.

**FIGURE 1 PORT REGIONALIZATION – CORRIDORS AND INLAND TERMINALS**

Source: Adapted from “Port Regionalization: Towards A New Phase In Port Development”; Notteboom, T. and Rodrigue, J.-P, University of Antwerp, 2005
The Port of Durban finds itself somewhere between the expansion and specialisation phases of port development described by Bird’s Anyport model. Port planners in Transnet in recent times have acknowledged that the Port of Durban plays a strategic and crucial role as southern Africa’s premier container, motor vehicle and liquid bulk port. As such, Transnet’s future plans for the development and expansion of the Port of Durban look to increase the specialisation of these freight categories.

Regionalisation is a definite possibility for the Port of Durban. However, because the regionalisation phase of port development depends on the existence of efficient barge or rail corridors and the rail corridors emanating from the Port of Durban are constrained, slow and outdated and no barge possibilities exist, this phase is still to be initiated and realised. Furthermore, the land surrounding the Port of Durban has not yet reached its full potential and much of the developed land can be converted from existing non-logistics use to logistics activities.

Therefore, it is an absolute essential that the back of port area be prioritised in the short and medium term for redevelopment and road and rail upgrades. A regional inland intermodal hub is a future possibility that can only exist when the rail infrastructure emanating from the Port of Durban is upgraded or replaced with modern rail technology. The regionalisation phase should therefore be only be prioritised in the medium to long term. Furthermore, freight being moved by logistics companies needs to shift away from bulk and liquid bulk towards manufactured products and industries that improve South Africa’s export beneficiation initiatives, as these cargoes are best suited to regional intermodal hubs and would thus improve the feasibility of a container hub in an inland location.

0.4 LOGISTICS MOVEMENTS IN AND AROUND eTHEKWINI MUNICIPALITY

Container data sourced from Transnet National Port Terminals Authority, Transnet Freight Rail and the KwaZulu-Natal Department of Transport (KZN-DOT) has afforded the study team a detailed understanding of the historical and current cargo movements of the container logistic industry in and around the Port of Durban. The data has helped the study team to determine the number of containers that remain in the city environs and the number of containers that leave eThekwini Municipality. This data reveals the actual container movements in and beyond eThekwini Municipality and as such should be elevated to the highest planning levels and should drive future port and back of port planning in and around the eThekwini Municipality and in particular, in the back of port area.

Table 1 below shows the information. KZN-DOT has supplied traffic information from 2005 when counting took place on various routes around the province. This count was conducted over a period of a few weeks and counted the number of containers passing through the various survey points; this data was then estimated over the entire year. For the purposes of our study we needed to calculate the number of TEUs being moved on truck and we therefore calculated the container to TEU factor based on the number of six metre and 12 metre containers landed and shipped over the last seven year period1 (the container to TEU factor used for shipped containers was 0.7252 and for landed containers was 0.7251.) The counts enable us to estimate the number of containers that leave or enter eThekwini Municipality on heavy vehicle along the N3, M13 or N2 (this includes both full and empty containers.) The Transnet port data excludes all transshipment containers landed and shipped from DCT and Pier 1, i.e. all containers that were moved in or out of the two terminals. The rail data has been broken down into containers exported directly out of eThekwini Municipality and containers directly imported from outside eThekwini Municipality. The column labelled “Internal DBN” lists all container movements made by rail within the eThekwini Municipality.

### Table 1: Transnet & KwaZulu-Natal Department of Transport container statistics

<table>
<thead>
<tr>
<th>Year</th>
<th>Port (excl. all trans-shipment cargo)</th>
<th>Rail</th>
<th>Road</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Landed</td>
<td>Shipped</td>
<td>Total</td>
</tr>
<tr>
<td>2004</td>
<td>98,935</td>
<td>135,009</td>
<td>233,944</td>
</tr>
<tr>
<td>2005</td>
<td>673,132</td>
<td>1,979,113</td>
<td>1,931,245</td>
</tr>
<tr>
<td>2006</td>
<td>857,001</td>
<td>1,708,844</td>
<td>2,566,845</td>
</tr>
<tr>
<td>2007</td>
<td>915,370</td>
<td>1,978,113</td>
<td>3,953,483</td>
</tr>
<tr>
<td>2008</td>
<td>902,882</td>
<td>2,051,514</td>
<td>3,004,396</td>
</tr>
<tr>
<td>2009</td>
<td>905,708</td>
<td>1,701,132</td>
<td>2,606,840</td>
</tr>
</tbody>
</table>

Source: Transnet National Port Terminal Authority, Transnet Freight Rail and KwaZulu-Natal Department of Transport

Table 1 shows that in 2005, only a small portion of containers were moved in and out the eThekwini Municipality. The vast majority of containers remain in the municipality where they are packed, unpacked and stored in empty container depots.

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1 SANRAL and N3TC are currently undertaking a comprehensive analysis of traffic flows along the N3. This study will calculate the actual number of vehicles utilizing the N3 over a year long period. The study will become available during 2011.
INTRODUCTION

Table 2 displays the proportion of container destinations inside and outside eThekwini Municipality. This is based on the information shown in Table 1. It can be seen that of all containers shipped or landed at DCT and Pier 1, 57.08% are transported by truck to or from a packing or unpacking facility, an empty container facility, or importer / exporter located somewhere within the eThekwini Municipality (this totals 842,622 containers being moved internally within the city in 2005, equalling roughly 2315 TEU being dealt with locally per day); only 27.76% are transported by truck to or from a packing or unpacking facility, an empty container facility, or importer / exporter located somewhere beyond the borders of the eThekwini Municipality. These statistics have been corroborated by a number of logistic sector experts and operators, who unanimously agree that between 60 – 80% of all containers landed or shipped at DCT and Pier 1 are transported by trucks to or from packing, unpacking and empty container facilities within the eThekwini Municipality.

Considering the large numbers of containers being moved internally around the eThekwini Municipality, it is important to analyse the areas in which the various logistics activities are occurring and the distance trucks have to travel from DCT to these areas. This will give insight into distance and location requirements for port related logistics. To conduct this analysis the Maritime Cluster 2008 Brady’s Database has been utilised. This database takes all shipping and logistics activities into account and not only differentiates between the various logistics sectors, but also lists the companies and their locations around the eThekwini Municipality. Using the Google Maps route planner, the distance from DCT to each suburb where logistic activities are located has been estimated. Knowing the distance to the areas and the number of logistics companies located there, the research team has been able to calculate the average travelling distance from DCT for each of the logistics sectors.

Table 3, below, shows the number of logistics companies, the average distance per logistics sector to DCT, and both the minimum and maximum distances to DCT. It can be seen that the total average travelling distance to DCT for a logistics company is 16.07 km and the distances range from 9.88 km to 22.49 km. The closest logistics companies are 3.4 km from DCT, while there is one logistics company that is 60.3 km from DCT. These figures would seem to indicate that logistics companies seek to site their operations as close to the port as they can possibly get.

### Table 2 Containers from DCT/Pier 1 Destinations Inside and Outside eThekwini Municipality

<table>
<thead>
<tr>
<th>Year</th>
<th>Containers outside eThekwini Municipality</th>
<th>Containers inside eThekwini Municipality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rail</td>
<td>Road</td>
</tr>
<tr>
<td>2005</td>
<td>12.0%</td>
<td>16.0%</td>
</tr>
<tr>
<td>2006</td>
<td>11.0%</td>
<td>12.3%</td>
</tr>
<tr>
<td>2007</td>
<td>10.1%</td>
<td>12.0%</td>
</tr>
<tr>
<td>2008</td>
<td>10.0%</td>
<td>12.1%</td>
</tr>
<tr>
<td>2009</td>
<td>10.3%</td>
<td>12.4%</td>
</tr>
<tr>
<td>2010</td>
<td>12.3%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

An imported container is likely to unpacked within eThekwini Municipality, with the contents being shifted to a flat bed, tipper truck or smaller distributing truck before being transported to final destination (usually outside of the municipality) Export cargo is likely to be brought into the municipality on a flat bed or in tipper truck, where it will then be packed into container and taken to the port for shipment.

Table 2 above shows that the proportion of containers being transported by rail over the period 2005 to 2009 has decreased, which means the number of trucks moving containers to and from the port has grown. From the 2005 road data and the information supplied by logistics experts and operators, we can assume that the number of containers being sorted in the eThekwini Municipality has increased. This is creating massive congestion around the port and in areas where logistics activity is concentrated.

### Table 2 Logistics Companies and Distances from DCT

<table>
<thead>
<tr>
<th>Logistics Company</th>
<th>Number</th>
<th>Average Distance (Km)</th>
<th>Minimum Distance (Km)</th>
<th>Maximum Distance (Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>42</td>
<td>14.21</td>
<td>7</td>
<td>38.4</td>
</tr>
<tr>
<td>Cartage &amp; Transport Consultants</td>
<td>9</td>
<td>22.49</td>
<td>10.4</td>
<td>37.3</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>152</td>
<td>20.52</td>
<td>3.4</td>
<td>60.3</td>
</tr>
<tr>
<td>Cleaning Equipment &amp; Systems</td>
<td>16</td>
<td>22.36</td>
<td>7.6</td>
<td>41.2</td>
</tr>
<tr>
<td>Commodity Brokers</td>
<td>7</td>
<td>18.31</td>
<td>7.6</td>
<td>31.1</td>
</tr>
<tr>
<td>Container &amp; Cargo Repairs</td>
<td>4</td>
<td>8.525</td>
<td>7.5</td>
<td>10.4</td>
</tr>
<tr>
<td>Container</td>
<td>18</td>
<td>19.48</td>
<td>7.5</td>
<td>38.4</td>
</tr>
<tr>
<td>Customs Clearing &amp; Forwarding</td>
<td>205</td>
<td>12.07</td>
<td>3.4</td>
<td>34.1</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>219</td>
<td>17.77</td>
<td>3.4</td>
<td>60.3</td>
</tr>
<tr>
<td>Freight &amp; Transport Containers</td>
<td>2</td>
<td>17.50</td>
<td>7.5</td>
<td>27.5</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>149</td>
<td>14.17</td>
<td>7</td>
<td>39</td>
</tr>
<tr>
<td>Marine Cargo Surveyors &amp; Loss Adjusters</td>
<td>10</td>
<td>15.80</td>
<td>3.4</td>
<td>41.2</td>
</tr>
<tr>
<td>Pallet Manufacturers &amp; Distributors</td>
<td>16</td>
<td>19.87</td>
<td>8.1</td>
<td>32.3</td>
</tr>
<tr>
<td>Ship Changers</td>
<td>22</td>
<td>9.88</td>
<td>7.5</td>
<td>18.7</td>
</tr>
<tr>
<td>Ship Owners &amp; Operators</td>
<td>17</td>
<td>13.64</td>
<td>7</td>
<td>44.3</td>
</tr>
<tr>
<td>Shipping Companies</td>
<td>21</td>
<td>11.64</td>
<td>3.4</td>
<td>25.9</td>
</tr>
<tr>
<td>Shipping Lines &amp; Agents</td>
<td>78</td>
<td>12.66</td>
<td>3.4</td>
<td>37.3</td>
</tr>
<tr>
<td>Storage &amp; Warehousing</td>
<td>52</td>
<td>16.42</td>
<td>5.6</td>
<td>38.2</td>
</tr>
<tr>
<td>Tanker Services</td>
<td>5</td>
<td>12.22</td>
<td>7.5</td>
<td>19.2</td>
</tr>
<tr>
<td>Transport Brokers</td>
<td>6</td>
<td>18.92</td>
<td>10.4</td>
<td>38.4</td>
</tr>
<tr>
<td>Transportation Companies</td>
<td>257</td>
<td>17.51</td>
<td>5.6</td>
<td>55.6</td>
</tr>
<tr>
<td>Warehouse &amp; Distribution</td>
<td>13</td>
<td>16.82</td>
<td>7</td>
<td>32.3</td>
</tr>
</tbody>
</table>

TOTAL | 1230 | 16.07 | 3.4 | 60.3 |

Source: Brady’s Database 2008
INTRODUCTION

The research team’s consultation with the private logistics sector confirms this. Companies explained that increased distances from the port reduced the flexibility needed to cope with two significant issues:

1. Port entrance congestion; and
2. Unpredictable berthing times of ships.

These two factors strongly incentivize logistics companies to locate themselves as close to the port as possible so that they can move freight to and from the port with flexibility as slots become available in limited time frame. Also, a sudden decongestion at the port entrance can often result in operators who are waiting to gain access suddenly flooding the gate with their trucks.

Table 4, below, gives a detailed view of the distance between various logistics companies and DCT. The distances have been broken down into 5 km intervals and it can be seen how many companies fall between the various intervals. Table 4 clearly demonstrates that logistics companies are unlikely to be located further than 40 km from DCT. In fact, the large majority of logistics companies can be found no further than 30 km from DCT. Most interestingly, office bound logistics activities such as customs clearing and forwarding agents, marine cargo surveyors, loss adjusters and transport brokers are mostly located no further than 15 km from DCT. Only a small proportion of cartage contractors, export and import services, and transportation companies have located themselves further than 30km to DCT. The reason for this could be due to certain outsourced logistics companies locating themselves near to their inland clients in order to secure future contracts (explained in detail further in report), or the high cost of buying and redeveloping property closer to DCT.

Figure 2 displays the number of firms located at each 5km interval from DCT. It can clearly be seen that the majority of firms are located in the first 15km and then within the next 15km from the port. The numbers of logistic firms locating a distance of greater than 50 km from DCT (the distance from DCT to Cato Ridge or Camperdown) is extremely slight.

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**TABLE 4 DETAILED OVERVIEW OF DISTANCES BETWEEN THE VARIOUS LOGISTICS SECTORS AND DCT**

<table>
<thead>
<tr>
<th>Logistics Company</th>
<th>0 - 10 km</th>
<th>10 - 15 km</th>
<th>15 - 20 km</th>
<th>20 - 25 km</th>
<th>25 - 30 km</th>
<th>30 - 35 km</th>
<th>35 - 40 km</th>
<th>40 - 45 km</th>
<th>45 - 50 km</th>
<th>50+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cargo Handling &amp; Container Services</td>
<td>18</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>Cartage &amp; Transport Consultants</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Cartage Contractors</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Cargo Handling &amp; Transport Services</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Clearing Equipment &amp; Systems</td>
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<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Commodity Brokers</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Container &amp; Cargo Repairs</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Containers</td>
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<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Customs Cleaning &amp; Forwarding</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Export &amp; Import Services</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Freight &amp; Transport Companies</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Freight Services &amp; Warehousing</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Marine Cargo Surveyors &amp; Loss Adjusters</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>TOTAL</td>
<td>252</td>
<td>469</td>
<td>104</td>
<td>134</td>
<td>140</td>
<td>80</td>
<td>34</td>
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</tbody>
</table>

Source: Braby’s Database 2008
INTRODUCTION

Table 5 shows only purely trucking related logistics companies and where they’re located with respect to DCT. Firstly, it must be noted that of the total 1,320 logistics companies analysed, 1,021 (77%) are trucking related. The most important facts gleaned from Table 5 (below) are:

- that approximately 90% of all trucking related logistics companies are located within a 30km distance to DCT; and

- that 54.2% of all trucking related logistics companies are located within a 15km distance to DCT.

This once again demonstrates the trend that in order to operate efficiently and cost effectively in South Africa, logistics companies ideally want to locate as close to the port as possible.

TABLE 5 TRUCKING RELATED LOGISTICS COMPANIES

<table>
<thead>
<tr>
<th>Logistics Companies</th>
<th>0 - 10 km</th>
<th>10 - 15 km</th>
<th>15 - 20 km</th>
<th>20 - 25 km</th>
<th>25 - 30 km</th>
<th>30 - 35 km</th>
<th>35 - 40 km</th>
<th>40 - 45 km</th>
<th>45 - 50 km</th>
<th>50+ km</th>
<th>Total</th>
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<tbody>
<tr>
<td>232</td>
<td>321</td>
<td>135</td>
<td>110</td>
<td>122</td>
<td>54</td>
<td>33</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>1021</td>
</tr>
<tr>
<td>% of Total</td>
<td>23.73%</td>
<td>21.44%</td>
<td>12.22%</td>
<td>10.77%</td>
<td>11.88%</td>
<td>5.28%</td>
<td>3.22%</td>
<td>0.88%</td>
<td>0.65%</td>
<td>0.49%</td>
<td>100%</td>
</tr>
<tr>
<td>Cumulative %</td>
<td>23.73%</td>
<td>45.16%</td>
<td>57.42%</td>
<td>68.19%</td>
<td>79.07%</td>
<td>85.49%</td>
<td>88.91%</td>
<td>93.59%</td>
<td>94.15%</td>
<td>94.64%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 6 summarises the number of logistics companies per geographic area and the distance from that area to DCT. Once again it can be seen that logistics firms are most concentrated within the first 10 km travelled from DCT. If you consider that 30km is the approximate boundary for the location of logistics companies, then Westmead, Southgate Industrial Park and Riverhorse Valley are the outer limits of port related activities along the N2 and N3 corridors. This means that players in the current logistic industry are unlikely to locate at Cato Ridge or within the Outer West Corridor in eThekwini Municipality. To unlock these areas for logistic development, further infrastructure, planning and negotiating will be required.

TABLE 6 AREAS, KILOMETRES AND NUMBER OF COMPANIES

<table>
<thead>
<tr>
<th>Area</th>
<th>km DCT</th>
<th>Number of Companies</th>
<th>Area</th>
<th>km DCT</th>
<th>Number of Companies</th>
<th>Area</th>
<th>km DCT</th>
<th>Number of Companies</th>
</tr>
</thead>
<tbody>
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<td>3.4</td>
<td>6</td>
<td>Durban</td>
<td>15.1</td>
<td>4</td>
<td>Chatsworth</td>
<td>21.1</td>
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<td>Fynd仨rdia</td>
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<td>3</td>
<td>Durban East</td>
<td>15.1</td>
<td>2</td>
<td>Ellerforth Heights</td>
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<td>Meyden</td>
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<td>Ashville</td>
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<td>26.5</td>
<td>7</td>
</tr>
</tbody>
</table>
The key points noted in the best practice report are:

1. The area required for back of port activities is large.

2. Areas inside the port boundary (Zones 1 & 2) must be secured in order to comply with customs and excise and international anti-crime requirements. This means that where the back of port zone is located in a functioning city environment, provision has to be made for general traffic to pass through the zone without compromising security. This is generally achieved by separating public roads and port/trucking roads through the back of port zone through tunnels, over bridges or on overpasses.

3. The key consideration must be to avoid (at all costs) the building of sub-optimal design into the logistics chain. This means avoiding wherever possible:
   a. Double handling (moving cargo more than once at the same location);
   b. Moving empty trucks, trains or containers;
   c. Intra-modal switches (moving cargo from one truck to another);
   d. Delays of all kinds.

This is achieved by good design and investing in infrastructure:

   a. Designing in direct loading from the quayside onto trucks or trains wherever possible (Zones 1 & 2);
   b. Where this is not possible and the cargo needs to be temporarily stored (Zones 2 & 3) or de-stuffed and repacked before onward transporting, the storage, unpacking and re-packing facilities must be nearby and accessible by dedicated truck roads (or modern efficient rail if being stored, unpacked or repacked facility is located around intermodal hub);
   c. Ensuring that both rail and public and dedicated truck road options are available at all berths. The dedicated truck road option is important so that cargoes can be transported to storage areas efficiently and minimal time frames, avoiding private and peak traffic congestion;
INTRODUCTION

1. Stuffing and de-stuffing of containers should also take place in close proximity to optimise the movement of empty containers and respond to change stack date changes. These facilities should be able to access the dedicated truck roads. However, in the medium to long term these activities should be encouraged around an inland intermodal hub and there should be dedicated truck routes and modern efficient rail connections to this hub;

2. Manufacturing and assembly operations involving the import and export of raw materials, components and finished goods, should also be allowed to continue operating in the back of port vicinity, preferably with an overarching plan to achieve a balance of import and export container requirements. This is to minimise transport costs to and from the quayside and also to optimise (minimise) the movement of empty containers;

3. Having an export stacking buffer area (Zone 3) close to the quayide where cargoes arriving early for shipment can be stored in an organised manner, logically grouped for shipment. This buffer will negate the changing stack date times and avoid potential port entrance congestion;

4. Having an import storage and loading area (Zone 3) where cargoes that are not ready for pick-up can be temporarily stored until transport out of the back of port area is available;

5. Imposing a control system on trucks involving the pre-booking of time slots for drop-off and pick-up of cargoes; penalties for empty legs and for the carriage of empty containers; charges to ensure that the truck operator pays the full costs of using public un-tolled roads; and staging areas where trucks can wait until the pre-booked time slot arrives;

6. Investing in a highly effective electronic communication system using state-of-the-art technology that effectively integrates the various shipping, clearing and forwarding, road, rail, air and site management systems to facilitate seamless communication and co-ordination of cargo flows.

7. SA Revenue Service (SARS) facilities to be located on site and to be fully integrated into the logistics stream to facilitate the efficient and quick fulfilment of customs and excise requirements.
The land use map (Map 1) to the right shows the spread of economic activities in the study area. At this scale there are some striking features in the study area:

- The large extent of warehousing, storage, freight and transportation services (logistics) in the area, shown in the bright pink (15.9% of the economically productive land). This is unsurprising given the proximity of the area to the Port of Durban;
- Pockets of Government services in Mobeni, shown in dashed orange include the military premises and Telkom warehouses;
- Large undeveloped open space in Mobeni (Clairwood racecourse) as well as the large residential complex in the west;
- Certain areas exhibit dense clustering of varied economic activities on small sites (parts of Jacobs, Clairwood and Congella) relative to the larger industrial sites of Mobeni.
0.5.3 STUDY AREA – PRESENT LAND VALUES

Land with the highest value is depicted in shades of blue and the lowest value in reds and oranges (yellow is in the middle range of prices) on Map 2 to the right. The study area-wide land value map above shows that clusters of the most valuable land in are found in Jacobs, certain parts of Mobeni, the western portion of Clairwood, parts of Rosburgh, and in Congella. The more valuable sites range in value from R 1501 per m² to more than R 3500 per m².

The least valuable land (frequently less than R 500 per m² and at times less than R 200 per m²) is found amongst the residential portion of in Clairwood and several of the particularly large sites (e.g. Clairwood Racecourse, playing fields in Clairwood and the Tongaat-Huletts refinery)
0.5.4 Density of Employment: Employees per Hectare

Map 3 to the right shows the density of employment across the study area according to land uses (refer to Map 2-2).

The map clearly shows the very wide range of employment densities across the whole study area. Dark purples into blues indicate the highest densities, found predominantly in Jacobs as well as parts of some of the other areas, notably Congella, Mobeni, Rossburgh and the part of Clairwood south of the Amanzimyana Canal (e.g. the Defy factory).

The large sites with low density of employment dotted throughout the area stand out. They indicate where the lowest opportunity costs lie in terms of displacement.)
0.5.5 DENSITY OF UPSTREAM GDP

The map to the right depicts the upstream GDP per hectare as determined by the activities per site according to the land use analysis. The key detail to be drawn from this map is as follows:

- The high density of economic activity in Jacobs (particularly), as well as pockets of Mobeni, the southern portion of Clairwood and pockets of Congella (oranges and reds).

- The several areas with relatively lower density of upstream GDP, particularly several large sites in Clairwood, several government-owned sites in Mobeni, and the residential core of Clairwood.

- The map shows in general terms where the more valuable economic activity is concentrated, viz. Jacobs and parts of Mobeni.
BACKGROUND

Introduction and Background
Purpose and Report Objectives
The Study Area
Structure of the Report
The city of Durban is the second largest manufacturing hub in southern Africa, and the Port of Durban is the largest export and import gateway in southern Africa. Located within the city, the South Durban Basin (SDB), which includes the port, is Durban’s largest concentration of industrial activity. The SDB represents the prime international connector for the city of Durban, given the dominant presence of the port in the metropolitan area. This relationship can be extended further to include South Africa as a whole considering the important logistics links between Gauteng and the Port of Durban. The Port of Durban and the SDB can therefore be considered as a key international connector for the country. The strengthening of the economic base of Durban rests significantly on the success of the SDB to regenerate, grow, and create jobs and income. The structure of the SDB has been compromised by the impact of historical apartheid planning on Durban’s communities. Ensuring an acceptable quality of life for the residents of the SDB is a critical prerequisite for future economic development.

The SDB’s continued existence as fundamental to the backbone of the economy is critical to the city, province and country. An important element of continued success is enhancing the economic performance of the SDB, and in particular its linkages to key national and international ‘logistics’ infrastructure. This infrastructure includes the port as an important anchor and functional integration of the interface of the port, back of port and city presents a formidable development challenge. (Iyer Rothaug, 2002. SDB Strategic Agenda prepared for the Economic Development Unit – eThekweni Municipality.)

1.2 PURPOSE OF THE REPORT OBJECTIVES

The following report represents the PRECINCT PLANS AND LAND USE MANAGEMENT SYSTEM component of the project submitted by Iyer Urban Design Studio as part of a broader study team led by Graham Muller Associates. The first part of the report aims at illustrating the vision for the Back of Port area in greater detail, as well as prescribing the land use guidelines proposed for the port and the surrounding areas that define the Back of Port area within the South Durban Basin (SDB). The diagram on the following page indicates the relationship of this phase of the project within the overall project methodology. This report is intended to identify the broad land use framework; the urban form (local area plans); optimal land use in particular areas (precinct plans); and sets up the basis for preparing a zoning plan (in LUMS terms). This following are the project objectives and challenges:

- The juxtaposition and impacts of incompatible land uses such as various types of industrial and residential uses needs to be assessed and resolved within a framework of sustainability.
- The present development format, intensity and layout are not always compatible with current global trends in production and logistics. Outdated building stock, together with a generally poor public environment, compromises efficient business operations and economic activities in the SDB, and presents an important development challenge, which requires resolution.
- The juxtaposition of uses and an inadequate structure are acutely demonstrated in the case of Clairwood. Reconciling social and cultural capital with growing “logistics” and other industrial needs represents one of the most important challenges confronting the SDB and the study team.
- This study comes at an important stage in the ongoing life of the SDB, its functions and communities. A radical replanning of the SDB from a spatial structure and land use management point of view is now required.

This project has been led by Graham Muller Associates, (GMA) who is, responsible for project co-ordination, economic research and for primary interaction with eThekweni Municipality (ETM) and Transnet. Iyer Urban Design Studio is one of the five specialists employed as part of the GMA consortium. Iyer Urban Design Studio is responsible for the Planning component for the Back of Port Project.

An inception report was prepared by the team and outlined the process, methodology; timeframes and budgets for this project; and was provisionally adopted by the Municipality in May-June 2008. This report therefore represents the consolidation of the third, fourth and fifth deliverable of the project process.

SPATIAL PLANNING METHODOLOGY
1.3 THE STUDY AREA

The following six areas were initially identified as part of the study area.

These are listed below in no particular order:

- Congella;
- Umbilo Industrial;
- Rossburgh;
- Clairwood;
- Jacobs;
- Mobeni

These areas are indicated within a black boundary on the plan to the left.

The project team focussed on the area initially identified for this project, viz. the area from Moore Road through to the Umlaas Canal on the northern edge of the DIA site.

As the project evolved, it became clear that Transnet, the owners and operator of The Port of Durban, intended to construct a new port, to complement the Port of Durban, at the recently vacated Durban International Airport site at Reunion. It therefore became necessary to also incorporate plans and intentions for the DIA site and this area of influence has been demarcated in red on the plan to the left.

**STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE.**

**NOTE:** THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
The report is structured in the following manner:

SECTION 1 - Introduction and Background, Purpose and Report Objectives, The Study Area

SECTION 2 - Contextual Understanding - This section provides a summary and overview of policies of plans and of previous studies for the port area.

SECTION 3 - City Scale Assessment - This section presents a metropolitan or "city" scale assessment and evaluates the port position at a regional level and presents key findings emerging from this analysis.

SECTION 4 - District Scale Assessment - This section evaluates the structure and composition of the study area and its immediate neighbourhood for the Back of Port study area.

SECTION 5 - Study Area Assessment - This section evaluates the study area to understand the context in which the areas identified in the study within the SDB inform the Back of Port area.

SECTION 6 - Local Area Assessment - This section evaluates the various local neighbourhoods comprising the study area against the key informants relevant to a local scale of enquiry.

SECTION 7 - Spatial Findings - A summary of the key spatial findings arising from the situational analysis.

SECTION 8 – Summary of Trends and Issues
This section identifies a summary of some of the key trends and issues identified during the earlier phases of the project. It also highlights the teams objectives of the study.

SECTION 9 – The Overall Concept
The overall concept section explains deals with the basic conceptual ideas which was postulated for the Back of Port area.

SECTION 10 – The Spatial Framework
The spatial framework, is broken down into three broad sections and elaborates the concept. The three sections are;
  - Movement and Circulation Framework;
  - Open Space Framework; and
  - Land Use Framework.

It is important to note that the Spatial Framework has been developed for what is considered to be the most likely scenario and not all the scenarios originally identified in earlier reports in the Status Quo Report for the Back of Port area. Similarly, it addresses the 'full development or ultimate development'. In other words, the establishment of options, land uses and infrastructure are all addressed.

SECTION 11 – Precinct Plans / Local Area Plans
The precinct plan (or Local Area Plan) section presents greater detail in terms of land use structure, land use distribution and broad built form guidelines for each precinct. This section is intended to guide the preparation of the last component of the study, i.e. the Land Use Framework (or Schemes) for the Back of Port study area.

SECTION 12 – The Zoning Framework
This section presents the overall approach and the introduction of a revised Land Use Scheme within the study area. It deals with a rationalisation of zoning within the study area and puts forward ideas towards the introduction of new zones in the nomenclature of a zoning plan. This section makes recommendations in respect of zoning for the project area.

SECTION 13 – Public Participation and Recommended Actions
This section provides the public participation plan.

SECTION 14 – Conclusion
This section provides concluding statements.

SECTION 15 – Phasing
This section provides the phasing of the movement system

SECTION 16 – References
This section outlines reference documents used within the report.

SECTION 17– Annexures
This section provides various annexures within the report:
- A – Previous Studies
- B – City Structure And Growth Patterns
- C – Changes In The Nature Of Industrial Development
- D – Bop-spatial Framework Plan
- E – Bop-zoning Framework Plan
- F – Back Of Port Area - Social Issues
- G – Social Issues In Areas Lying On The Periphery Of The Bop Study Area
- H – Clairwood Property Market Assesment
- I – Environmental Report
- J – Real Estate Opportunity Analysis
- K – Traffic Report

Addendums (separate to this report):
CONTEXTUAL UNDERSTANDING

Introduction
Planning Context
Planning Informants
Macro Scale Strategic Setting
2.1 INTRODUCTION

PLANNING INFORMANTS & CONCEPTUAL UNDERSTANDING

There are a large number of informants that have influenced the understanding of the Study Area and have influenced the interpretation of the various findings.

These informants include:
- Findings and recommendations identified in previous studies
- Conceptual understandings as to the nature of the structure of the contemporary city
- Trends and changes occurring in industrial development.

The details of these informants are to be found in Annexures A, B and C.

PREVIOUS STUDIES

A large number of studies and reports have been undertaken within the designated Back of Port Study area. In addition, the study team was supplied with a number of slide presentations identifying the issues at stake in the general area of interest.

These studies, reports and presentations include:
- Socio-economic evaluations of the South Durban Basin and of Clairwood, in particular;
- The assessment of the local economic development potentials of the SDB and Clairwood;
- Position papers about the SDB;
- Traffic and Transport reports and plans;
- An assessment of the potential of the re-use of the old Durban International Airport site at Reunion; and
- A number of recommended plans for both Clairwood and the SDB.

These studies were completed during the period 2000 to date. Clearly, although the earliest of these documents are not more than 12 years old, elements embodied in the early studies are now superseded by newer realities and considerations.

Most of the abovementioned historical studies tended to be narrowly focussed in that they were orientated towards assessing the then current problems and recommendations were, in the main, formulated in terms of identifying planning interventions aimed at rectifying, retaining and maintaining the areas as they were currently interpreted.

It is only in the last few most recent studies that a “break” was achieved from the core thrust of previous studies. This deviation from previous findings grasps the basic dilemma and contradictory choice set facing development planners in the study area:

1. Does the Municipality attempt to address the current problems of the SDB and attempt to rectify them by finding a solution that essentially maintains the areas as they are currently; or
2. Does the Municipality recognise that the study area is undergoing radical change and that new economic activities and land uses must be accommodated and the changes implied have dramatic consequences for the longer-term nature of the area.

It is only in the most recent studies that the city planners recognise this reality and suggest that there should be a review of previous plans and that a new, albeit difficult, changing role for the study area, and the implications of this must be embraced and addressed.

There is an implicit and fundamentally important shift in strategic response required of the planners in accepting and formulating a response that will address the level of change both occurring and expected in the near future.

CONCEPTUAL UNDERSTANDING

The structure of any city is a consequence of several factors working in consort. These factors include:

- The topography and natural context of its location;
- The raison d’etre for its existence (or its economic base);
- Any changes or alterations to its economic base;
- The history and evolution of the city;
CONTEXTUAL UNDERSTANDING

2.1 INTRODUCTION

- The needs and demand for various different land uses (market forces) over time;
- The transport system that reacts to these land use demands and in turn directs the location of certain uses.
- Any proscriptive planning (political) intervention.

Several processes alter the nature and structure of the city, viz:
1. The new advances of technology;
2. The trends of modern organization towards complexes involving interdependent and hierarchical ordering of parts because of a process of specialization;
3. The magnitude of growth.

Essentially all of these processes and influences result in large modern cities being constantly dynamic. This means that many parts of the city are constantly subject to processes of change and many areas undergo substantial evolution.

Large cities, especially those that achieve metropolitan size evince a number of factors, viz:
- They tend to be socio-economically differentiated;
- They become polycentric;
- Some develop large scale "Edge City" formats.

Individual components or areas of the city will tend to reflect a number of stages of development, viz
- Stage 1 – "Rural";
- Stage 2 – First Wave of Development (sometimes referred to as "greenfields" development);
- Stage 3 – Fully Developed;
- Stage 4 – Packing;
- Stage 5 – Thinning;
- Stage 6 – Recapture.

This model of change is broad. An area will often have the characteristics of more than one stage, but the characteristics of one stage will dominate. As areas go through these stages, they tend to be stable for relatively long periods, and then shift quite quickly to the next stage. It is also possible that certain areas can skip certain of these stages. For example, depending on contextual situations and changing demands, a cycle can be arrested by "renewal" before a complete sequence is completed.

CHANGES IN THE NATURE OF INDUSTRIAL DEVELOPMENT

The size and shape of industrial development has altered over time. As a consequence, the size, shape and format of industrial sites have also evolved to accommodate these changes. The layout of industrial sites, blocks and industrial townships, have accordingly altered to meet these demands and changing expectations and needs.

The term “Industrial development” whether applied to “zoning” or “land use” classification has tended to be all embracing and somewhat crude. A large number of related but often different types of activities are included in these terms.

Zoning for industrial purposes, depending on the types on industrial development, and their impacts on each other and their impacts on adjacent developments, has been separated into several categories, viz
- Noxious Industrial Zones (in some cases also called Heavy Industry);
- General Industrial Zones;
- Light Industrial Zones; and
- Service Industrial Zones.
In addition, certain types of industry are permitted in Commercial Zones.

The most recent classification of industrial development emerges from the USA (Guide to Classifying Industrial Property & M Rene, ULI, 2003).

This classification lists Primary and Secondary Industrial Uses, viz.

<table>
<thead>
<tr>
<th>PRIMARY CATEGORIES</th>
<th>SECONDARY CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>Heavy manufacturing</td>
</tr>
<tr>
<td></td>
<td>Light manufacturing</td>
</tr>
<tr>
<td></td>
<td>Freight forwarding</td>
</tr>
<tr>
<td></td>
<td>Air cargo / Port cargo</td>
</tr>
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<td></td>
<td>Truck terminal</td>
</tr>
<tr>
<td>Warehouse distribution</td>
<td>Container Depots</td>
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<tr>
<td></td>
<td>Regional Warehouse</td>
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<tr>
<td></td>
<td>Bulk warehouse</td>
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<tr>
<td></td>
<td>Heavy distribution</td>
</tr>
<tr>
<td></td>
<td>Refrigerated distribution</td>
</tr>
<tr>
<td></td>
<td>Rack- supported warehouse</td>
</tr>
<tr>
<td>“Flex”</td>
<td>Research and Development (R&amp;D) Flex</td>
</tr>
<tr>
<td></td>
<td>Office showroom</td>
</tr>
</tbody>
</table>

Recent Trends in Manufacturing and Distribution:

A number of newer trends have emerged that are altering the nature of industrial development:

1. Consolidation of major manufacturing and distribution operations - fewer locations and larger facilities;
2. Speed-to-market demands and the logistics of "just-in-time" shipping;
3. Strategic importance of proximity to intermodal transportation and suppliers;
4. Flexibility to accommodate growth and change;
5. Sophisticated materials handling systems that support increasing market demands for efficiency, customization and "high touch";
6. A return to the urban centrality or core and adaptive reuse;
7. An increased awareness of energy and environmental issues.

The Evolution of the form of Industrial townships has also altered over time and can be identified in the following layout approaches:

Early formats - with high sites coverages and little or no on-site loading and parking;

Industrial Estates - with buildings set back from roads and levels of on-site loading and parking;

Contemporary logistics buildings – where buildings posses multiple docking and with substantial circulation and storage space;
INTEGRATED DEVELOPMENT PLAN

The Integrated Development Plan for the eThekwini Municipality is a documented approach to regional development within the municipal boundaries. The key challenges facing the Municipality are identified through the analysis of social, economic and environmental perspectives. The IDP is a strategic approach to addressing these challenges by refining the city vision and planning to achieve this through key actions and managing and evaluating performance.

An 8 point plan is the core of the IDP strategic approach. This is revealed through plans to:

- Sustain the natural and built environment;
- Economic development and job creation;
- Quality living environments;
- Safe, healthy and secure environment;
- Empowering citizens;
- Celebrating cultural diversity;
- Good governance;
- Financial viability and sustainability.

In order to achieve the vision, a number of key choices have been identified in order to create a sustainable city that is caring and livable. Most important in regard to this study is listed in Choice One: “Improving our port and logistics infrastructure”. It states, “Improving the city’s logistics infrastructure will ensure that we maximise the opportunities presented by the existence of the port and other enterprises to partner us in increasing economic opportunities. The port and its environs is the greatest job - creating opportunity at present.” The improvement of logistical infrastructure will:

- Improve connectivity in the municipal area;
- Increase the scope and opportunity for learning;
- Increase economic opportunities.

One of the programmes indicated in the 2008/2009 IDP review is the City Port Partnership programme (TEMPI) which in turn, refers to this study. It emphasises the need to achieve a common vision for the sustainable development of the port and the city and to ensure their successful coexistence. A joint planning exercise is vital. (See figure below)

Finally, the municipal budget responds to the IDP principles that is developed based on the priorities, programmes and projects of the IDP prioritising the key projects within the city.
SPATIAL DEVELOPMENT FRAMEWORK

Durban’s Spatial Development Framework Plan, as established through the Integrated Development Plan process, firmly seeks to reinforce the development, intensification and improved functioning of the existing “T” shaped development axes, running west from the CBD and port as well as north and south from the centre. The Spatial Development Framework depicts the thrust of the IDP indicating the Municipality’s investment intentions and development management approach.

Key principles of the SDF:

• Strive towards a compact City Model, being the urban core, which generally has servicing capacity;
• Emphasis on accessibility and convenience in compacted urban area;
• Durban CBD & Umhlanga as major investment areas which include harbour support, regeneration of existing areas such as Warwick Junction, Clairwood and Jacobs;
• Smaller priority nodes which provide social support;
• Supports high priority public transport network;
• Infrastructure excess capacities utilised;
• Utilisation of excess infrastructure capacity in developed areas inside the urban edge rather than extending the platform infrastructure to new areas;
• Upper catchment open space area continues to provide free services and supports health of entire metropolitan area;
• Suburban areas beyond the urban edge within which limitations in the current provision of services exist and generally it is not cost effective to provide additional services;
• A northwards investment direction in response to private sector development needs. Development outside the current urban edge in the next 5 to 10 years will be restricted.
• Urban edge concept used as tool to curb urban sprawl, promote compaction & achieve associated efficiencies, secure agriculture and upper catchment environmental assets.
• Rural development will be aligned with the intent of the SDF.

The SDF will respond to key spatial drivers that will determine investment and thus the plan specifically responds to these needs such as the Dube Trade Port in the north, Back of Port in the centre and in the west the Cato Ridge industrial precinct and Mpumalanga.
PORT EXPANSION SCENARIOS

The Port Development Framework Plan (2007) identifies that due to anticipated rapid growth in the demand for container and motor vehicle cargo, cargo capacity presents the primary challenge for the Port of Durban. The main constraints to the future expansion of the port include:

- The surrounding city developments;
- Existing long-term property leases;
- The environmentally sensitive areas in the harbour;
- Inadequate infrastructure, both rail and road, to service ‘existing traffic’ volumes within and around the port.
PORT EXPANSION SCENARIOS

Transnet’s Short Term (2014) Plan for the port envisages the extension of container storage into Salisbury Island and Maydon Wharf, and upgrading of the Durban Container Terminal to enhance capacity.

It is also envisaged that the boundary of the port be extended southwards to Edwin Swales Drive to include the existing railway marshalling yards to the south of the port.
Transnet have identified, also, that, the old Durban International Airport site at Reunion is a strategic port development option which could be exercised at any point beyond 2019. Transnet indicate that this option is capable of meeting future container demand from 2019 up to 2040.

Transnet’s longer term plan for the future of the port envisages a new ‘dig-out’ port at Bayhead which will cater for container demand up to 2040. To cater for vehicle demand it is envisaged that the Durban Car Terminal at Cato Creek will ultimately be relocated to the new port at Reunion.
TRANSPORT PROPOSALS

The southern transport network consists of railway lines, pipe-lines and road infrastructure. The road network comprises a mixture of roads that tend to carry port traffic only or a combination of port and public traffic. The current road network is as follows:

- Edwin Swales VC Drive – Major 6-lane dual carriageway arterial, mainly serving Pier 1, Pier 2 and Island View traffic;
- Old South Coast Road – Major 4-lane single carriageway arterial, mainly serving Pier 1, 2, Maydon Wharf and Island View traffic;
- Bayhead Road – Major 6-lane dual carriageway collector distributor serving Pier 1, Pier 2 and Island View traffic;

With some exceptions, these roads all suffer from congestion during peak periods due to the land-use types they serve. A graphic describing the road network is presented in the figure below:

Long Term Infrastructure Plans in the City

There are three major roads infrastructure projects planned for the eThekwini Municipality over the next 25 years to cater for the current capacity constraints and growth in development as well as traffic. These projects comprise:

- Khangel Bridge (opened 2010);
- Umhlatzana Arterial;
- South Corridor Capacity Enhancement.

These infrastructure upgrades are shown schematically in the figure below.
This macro context developed over several years and has bearing on the Back of Port Planning Study. However, in a broad sense, all of what is described in this section was anticipated by the planning team. The current reality is therefore an important aspect of the context of the Back of Port Planning Study and is included here to assist the reader in understanding the key issues at stake.

The Durban to Gauteng freight corridor forms the backbone of South Africa’s freight transportation network and is a vital national asset, facilitating economic growth for the country and for the entire southern African region. South Africa’s ability to improve efficiencies and lower logistics costs on the corridor, and to provide freight handling capacity in line with demand, will be critical to the country achieving its short, medium and long term economic objectives.

The national spatial priorities translate into the National Department of Transport 2050 vision which provides an integrated solution to the growing expansion requirements of the Durban to Gauteng freight corridor which will form the foundation for the establishment of a southern African regional freight network. The Durban Gauteng corridor is being pursued as a National imperative both and is reflected in the National Development Plan, and recently was announced as an infrastructure priority in the President’s State of the Nation Speech, as well as the budget speech.

**State of the nation**

“Secondly, we will improve the movement of goods and economic integration through a Durban-Free State-Gauteng logistics and industrial corridor. This project is intended to connect the major economic centres of Gauteng and Durban/Pinetown, and at the same time, connect these centres with improved export capacity through our sea-ports. In this regard, I am pleased to announce the Market Demand Strategy of Transnet, which entails an investment, over the next seven years, of three hundred billion rand in capital projects. Of this amount, 200 billion rand is allocated to rail projects and the majority of the balance, to projects in the ports.”

**Budget Speech**

“Government is looking at wider interventions to lower the cost of doing business. Improvements are being made to economic infrastructure such as ports, roads and electricity generation to cater for the needs of business. In addition, operational efficiency in ports and rail has been prioritised. There is a review of the regulatory regime and its effect on businesses in a number of sectors, as well as interventions in some institutions to speed up the issuing of licences and to improve transparency in government processes. Various strategies are also in place to deal directly with sector-specific issues.”

The Back of Port Planning Study largely predates, but fully anticipated, the main thrust of the 2050 Vision, which provides the macro strategic setting for this study. The implications of this vision for eThekwini Municipality and in particular for the South Durban Basin and for access corridors to and from the study area are immense. Realization of the vision implies enormous bulk infrastructure investment, spanning a period of forty years, in and around the existing Port of Durban as well as at the new port at Reunion (the former Durban International Airport site). Both seaports fall within the back of port study area.

**Social context**

There are a number of stable communities that live in South Durban, where residents have lived for a long time, have strong social connections with friends and family in these communities. They value the places that they live in. There are also strong work-residential linkages in the South Durban Basin, where people live close to work for convenience, cost and quality of life reasons. The lives of residents in the South Durban Basin are well contained within this area: residents indicate that almost all of their needs are met in this area - they live, work and play in this area or in areas immediately adjacent to it and this has a significant impact on their quality of life and social connections in the area. There are a large number of functioning social organizations operating throughout South Durban in these communities that add value and contribute to the social capital of the communities and neighbourhoods. Religious and sporting organizations are the most important social organizations in the area and residents want these organizations to be supported and further developed (especially sport) to provide healthy activities for the youth in the area, which are at risk of becoming deviant.

The back of port study area will be transformed by these developments. It is important therefore to acknowledge that South Durban is also home to a large population of residents who live and work in this part of the city. Residential areas in close proximity to the port are currently experiencing the impacts and loss of amenity due to port related industrial activity. New impacts will be felt on the environment and on communities living within the study area and on its periphery. Volumes of freight passing through the study area are projected to increase seven fold in thirty years (up to 2040). This trend is already firmly established with the number of 20 foot equivalent units (TEUs) handled by the Port of Durban rising 4% in the latest year (2011).

Annexure F contains a synopsis of the social value, social issues, and the social challenges and potential of the residential areas in the South Durban Basin that lie in the study area:

- Congella, Umbilo and Rosburgh
- Clairwood
- Jacobs
- Mboni West
- Merewent
- Isipingo Rail and Prospecton

Annexure G provides a brief overview of the value and social issues of areas lying adjacent to the study area. Both annexures are based on an extensive social assessment which was undertaken as part of the Back of Port Project. This situational analysis is based on extensive primary and secondary data and reports on the existing value that residents place on the areas they live in, their sense of place and the positive social dimensions that exist in the communities of South Durban.
ENVIRONMENTAL CONTEXT

At least 85% of the back of port study area has been transformed to urban land-uses. The remaining natural environments are degraded and highly stressed.

An initial assessment indicates that, excluding marine areas, there is in excess of 650Ha of terrestrial and aquatic habitat that is threatened by strategic projects in South Durban. These areas are located within the existing port, adjacent and within the old airport and within the back of port area. Habitat types include wetland, grassland and estuarine habitats. This habitat is both important from a local perspective and is critical to several rare and endangered species.

Proposed port expansion and associated infrastructure projects will result in significant loss of these habitat areas. A rough estimate indicates that 300Ha or more is likely to be lost due to proposed port expansion alone. Additional key areas are likely to come under threat from associated infrastructure such as the proposed freight route.

Meaningful replacement of such an important and extensive habitat area is not likely to be possible in close proximity to the area of impact.

The scale of this loss will be greater than that associated with any previous development possibly since the establishment of the original port and filling of land in South Durban for port and airport related development. The impact is likely to be extensive, irreplaceable and have national and possibly international significance. This potential biodiversity loss attendant upon the broad development proposals for the South Durban Basin as whole has not been addressed by the back of port plan which has appropriately focused largely on the development requirements of the study area.

The implication for strategic projects such as the planned port expansion and associated infrastructure is that there will be pressure from stakeholders during the planning and environmental impact assessment stages for retention of as much habitat area as possible. It is also likely that extensive off sets may be required both within the proposed development areas and in other areas. This pressure could significantly extend timelines for development.

The implication for planning of the back of port study area is that the importance of all existing and potential habitat will increase and more intensive protection and careful management of all natural areas will be required in future.

Addressing this issue in a co-ordinated manner taking into account all cumulative impacts is likely to be critical to both maintaining biodiversity value and minimising development delays.

2050 VISION

Key aspects of the 2050 Vision are summarized below.

The Durban to Gauteng (N3 / Natcor) corridor consists of the following key development components:

- The Port of Durban
- The Durban – Gauteng road corridor
- The Durban – Gauteng rail freight corridor
- Strategically located logistics hubs and terminals
- Supportive local area land use plans

Passengers and freight share the same infrastructure on the N3 / Natcor corridor. While at a demand and capacity planning level the development of the corridor considers the integrated impact of the growth of both passengers, freight, key players including national and provincial government, eThekwini Municipality, Transnet and SANRAL have formulated a 2050 Vision focused on freight transportation and logistics.

The 2050 vision is driven by three major phases of port development:

- Phase 1: 2010 – 2026 (current expansions in the Port of Durban)
- Phase 2: 2019 – 2023 (Old airport site development at Reunion)
- Phase 3: 2038 – 2050+ (Bayhead development)

Further detail of the individual project components of the 2050 Vision follow on page 44, below.
CONTEXTUAL UNDERSTANDING

2.4 MACRO SCALE STRATEGIC SETTING

- **HIGH GROWTH: 10%**
  - **PIER 1Ph 2 IN 2014**
  - **AIRPORT EXPANSION IN 2017**
  - **BAYHEAD EXPANSION IN 2028**

- **MEDIUM GROWTH: 8%**
  - **PIER 1Ph 2 IN 2015**
  - **AIRPORT EXPANSION IN 2019**
  - **BAYHEAD EXPANSION IN 2037**

- **LOW GROWTH: 5%**
  - **PIER 1Ph 2 IN 2015**
  - **AIRPORT EXPANSION IN 2024**
2.4 MACRO SCALE STRATEGIC SETTING

PHASE 1:
- Phase 1a: 2012-2017
  - From Port to N2 with new Interchange
- Phase 1b: 2014-2020
  - North South freight route to Dig Out Port
- Phase 1c: 2015-2020
  - East West freight route from Port to Mariannhill

PHASE 2:
- Phase 2: 2019-2023
  - East West freight route from Port to Mariannhill

Legend:
- 2012-2017: Implementation Phasing
- : Interchange
- : Freight Routes

Conceptual
Major Road Infrastructure Proposals for Port of Durban and Dig-Out Port
2.4 MACRO SCALE STRATEGIC SETTING

A. PORT OF DURBAN

1. Durban Container Terminal Re-engineering:
   - On programme for July 2012 completion
   - North quay cranes ordered; pre-construction activities on crane rails and berth deepening proceeding

2. Berth Deepening
   - Project proceeding into construction 2013 - 2017

3. Salisbury Island Acquisition
   - Agreement reached with the South African Navy in terms of Transnet’s acquisition of a portion of the naval base for container terminal

4. Pier 1 Phase 2 Container Terminal
   - Project proceeding into construction 2013 – 2017
   - Site investigations, sensitivity & terminal design work proceeding

5. Reunion dig-out port Phase 1
   (Includes: Land Acquisition, breakwaters, dredging, construction of four container berths)
   - Cabinet resolution on preferred use of site in context of 2050 vision (March 2011)
   - Adoption of role of dig-out port in context of national port strategy (March 2011)
   - SEA (March 2013)
   - Regulatory Approval (March 2014)
   - Negotiations for land acquisition proceeding - purchase of land / land assembly (Sept 2014)
   - Rezoning (Sept 2015)
   - EIA (Sept 2015)
   - Port concessioning (Sept 2016)

6. Reunion dig-out Phase 2 Completion 2023

7. Bayhead dig-out Port (all phases) (2038 - 2050)

Given identified interventions for port expansion over the next 30 years the Durban’s port capacity will grow from 3 million TEUs to 12 million TEUs as reflected in the middle scenario in the chart on page 42.

B. TRANSNET FREIGHT RAIL

Since the approval of Investment and Implementation Plan (April 2012), there are a thirty-four confirmed developments to freight rail up to 2050. These include a number of projects in Bayhead, Clairwood, Reunion, DCT, Cato Ridge, and other areas which will impact on the study area, as well as the upgrade to the Natal Corridor Line.

C. N3 NATIONAL ROAD ROUTES & OTHER TRUCK FREIGHT ROUTES

This is reflected in the map on page 43.

Extension of road freight route from the Port of Durban to N2
- Phase 1a (2015 to 2020)
  - New 4-lane freight road
  - New Interchanges at N2, MR85 and Stockville

Phase 1b (North – South link between Bayhead and Reunion parallel to the N2 and M4) (2014 TO 2020)
  - New 4-lane freight road
  - Substantially overpass structure
  - New interchange at E/W Freight Route
  - 6.5 km long
  - 2 x 13m carriageways
  - 1200HV/hr carrying capacity

Extension of road freight route from the Marianhill to Cato Ridge
- Phase 1c (2019 to 2023)
  - New 4-lane freight road
  - New Interchanges at Shongweni, Mpumalanga and Cato Ridge

Freight Route (Road) : Back of Port – Secondary Linkages
- Phase 4 (2015 to 2023)
  - Upgrade existing roads to accommodate diverted traffic : Tara, Grimsby, Stanvac Roads
  - New lanes and freight management infrastructure

East-West road freight route from Cato Ridge to Mooi River - Phase 2 (2030)

Extension of road freight route from Mooi River to Gauteng - Phase 3 (2038)

The 2050 vision is represented in the chart on page 45.
2.4 MACRO SCALE STRATEGIC SETTING

The Durban to Gauteng freight corridor forms the backbone of South Africa’s freight transportation network, and is vital in facilitating economic growth for the country and the Southern African region.

South Africa’s ability to improve efficiencies and lower logistics costs on the corridor, and to provide freight handling capacity ahead of demand, will be critical to the region achieving its short, medium and long-term economic objectives.

The 2050 vision provides an integrated solution to the growing expansion requirements of the Durban to Gauteng freight corridor which will form the future foundation for the establishment of a Southern African regional freight network.

ECONOMIC BENEFITS
- R8 billion p.a increase in National GDP during construction
- R29 billion p.a increase in National GDP during operation
- Approx 62,000 new jobs created
- R4 billion p.a increase in Local GDP during construction
- R12.5 billion p.a increase in Local GDP during operation
- 5-7% reduction in local unemployment

The 2050 vision is driven by three major phases of port development:
- Phase 1: 2010 – 2020 (current expansions in the Port of Durban)
- Phase 2: 2020 – 2040 (Airport site development)
- Phase 3: 2040 – 2050 (Bayhead development)

The corresponding rail, road, intermodal hub and terminal and land-use projects also follow this phasing sequence.
CITY SCALE CONTEXT

Historical Development Of Durban
City Scale Structuring Elements
Geography Of Poverty
Geography Of Affluence
Distribution Of Metropolitan Opportunity
Towards City Restructuring and Growth
Key Findings
This section of the report provides an important backdrop to assessing the study area as it provides an overview and understanding to the development of the city of Durban. The section first deals with a brief history to the development of the city, and then proceeds to unpack key development issues impacting on the city. After highlighting some the key challenges, the section offers some thought on restructuring strategies for aimed at dealing with inherent city scale problems. Lastly key findings of this level of analysis are presented as a synopsis of the section and form an important basis for the next stages of the process.

Providing this understanding is important, as it defines some of the contributors to the current problems experienced with the broader study area. At the same time, appropriate solutions within the study area could assist in resolving some of the broader challenges of the city.
eThekwini Municipality hosts the major port of South Africa and forms the coastal extremity of a development corridor that starts in the mining/industrial/tertiary activity complex of Gauteng, of which Johannesburg is the hub. As a consequence of being the closest sea access to the primary city of the country, eThekwini Municipality has developed into a major urbanized area in its own right, with its own economic base. The metropolitan area also forms one end of a coastal corridor stretching north to Richards Bay.

As with most South African urban areas, eThekwini Municipality suffers the consequences of poor planning as a result of apartheid policy which results in several areas of dysfunction, such as the spatial and economic marginalisation of large portions of the cities residents.

The evolution of the internal structure of eThekwini Municipality is a consequence of several factors, viz.

- The topographic setting;
- Market demands as they altered over time;
- Planning interventions, particularly the creation of apartheid induced residential areas and their nascent town centres; and
- The changing nature of transport systems and responses to these.

Almost from inception, the area that was to become the metropolitan area exhibited a series of centres. Some centres were established quite early on and grew, when in appropriate locations relative to transport technology; while others remained small and ultimately relatively unimportant.

The pre-urban trading post settlement of 1824 was located on the highest part of the sand flats on the northern shores of the bay. A plan was adopted in 1835 and laid out in 1840.

In the second phase of development, incipient road orientated village settlements, focused upon outspan and staging posts along the main roads began to develop outside the town. The outspans occurred on the main routes to the hinterland at Westville, Pinetown, Bothas Hill. Cleremont and Isipingo. These villages and their commercial centres laid the foundation for some of the major foci of the present day spatial structure.

From 1876 growth was attracted to a new set of nodes focused upon ‘suburban’ railway stations constructed along the railway line which was closely aligned to existing main roads and for the most part enhanced existing settlement nuclei on the ‘Old Main Line’ interfluves (Bellair, Malvern, Escombe), the Pinetown Basin and the Kloof/Hilcrest Plateau. Growth also occurred on the north-east line to Avoca and onto Tongaat; and on the south coast line to Amanzimtoti.

The linear arrangement of nuclei along the road, rail and tram routes firmly fixed the form of a major portion of the built-up land of the future metropolitan area. This was a multi-nucleated growth pattern with tentacles stretching outward from the central part of the city. The advent of a freeway system served to open up interstitial areas and to enhance a number of the existing decentralised nodes, but simultaneously down played others such as the “Old Main Line” town centres, which were now by-passed. While the majority of railway stations have endured as the nuclei of only small commercial centres, two major nuclei upon which extensive residential growth has been focused evolved during the second half of the twentieth century.

These include the growth of a commercial/industrial core of regional importance in Pinetown to the west, and the industrial nucleus to the south, the South Durban Basin (SDB). Both nuclei contribute to the multi-nucleated growth pattern concept but provide interesting evidence also of growth forms which may be expected to arise from a contrast in nucleus function. In Pinetown, the commercial core has become the focus of growth sectors of residences, shopping, services and industry, so as to produce the structural form of a conventional multi-functional town. The southern industrial nucleus, on the other hand, has become the focus only of residential sectors, but lacking the structural form of a complete town. It is important to note though that the present juxtaposition of industry and residential areas in the SDB are a direct result of poor apartheid planning practice rather than a natural urban responses.

At a structural level, the advent of the main freeway systems can also be attributed to the need to provide access to large scale township areas located in the periphery serving as dormitory containers for labour.

The severe topography has effectively prevented and discouraged the expansion of the metropolitan area into a regular semi-circle based on radiating and lateral transport routes commonly associated with the growth of a coastal city, and have given rise to a series of rectangular corridor shaped extensions.

Latterly, the extended major road system has created opportunities for large new centres at major interceptory and interchange locations, viz. the Pavilion, Gateway, Umlazi Megacity. The Gateway Shopping Centre, in particular, has stimulated development of a complete new town to the north of Durban at Umhlanga Rocks and Bridge City.
The relative recency of industrialisation in the metropolitan area has resulted in the growth of mainly planned industrial and commercial areas in areas of physical and locational advantage. An important implication of this pattern has been a centralisation of economic opportunity within the South Durban Basin, along the western corridor in the Pinetown / New Germany complex and, more recently, at Umhlanga Rocks and Bridge City. This centralisation of economic opportunity, coupled with the dislocations of apartheid, results in a city structure that continues to be inefficient and the segregation of residence and work places has, led to complex problems affecting the journey to work, in particular, from the lower income peripheral township settlements. Challenges presented by apartheid planning also need to be jointly considered with current contextual realities.

The growth of Durban has depended upon a series of functional phases culminating in the multi-functional phase of the modern period in which the expansion of trade, secondary industry, the holiday trade and the port have given rise to the emergence of a large polycentric metropolitan area.

Structurally, the metropolitan area has come to be composed of a single dominant central city bounded by, mostly, considerably smaller sub-centres; partly related to the core, but in certain cases functioning as centres in their own right displaying increasing levels of diversity. A typical example of this is Pinetown, which has developed as a major regional commercial and industrial suburb. The outer sub-centres are located within tentacles extending along the three major city level axes, north, south and west. The established outer sub centres together with emerging centres such as Umhlanga New Town Centre and Bridge City reaffirms the continued growth of Durban in two particular dominant patterns, which are "corridor based" and "multi nuclei or polycentric" in organisation.

The structure of the metropolitan area demonstrates a commonly observed fact that frequently not one, but a combination of growth forms emerge in the evolution of a large urban agglomeration. The historical development of the eThekwini Municipality metropolitan area has set the framework for the structure of foci, each playing a different role.
NATURAL STRUCTURING ELEMENTS
The region is characterised by significant topographic and water based systems. In the context of the historical development of Durban, the initial port represented an important genesis for the city. The dominant topographic and river systems have defined primary catchments for the development of the city and have in many ways shaped the growth of the city from its core centered around the harbour.

PRIMARY MOVEMENT STRUCTURE
Much of the growth of the city has been in response to dominant movement systems. Initially the rail and main road systems structured settlement and organic growth along north/south and western axes. More recent development has been shaped by the establishment of the main national freeway systems and associated main roads that link various settlements in an east-west system and north-south system.

PRIMARY DEVELOPMENT PATTERN
The natural systems and responses to the movement structure has resulted in a dominant corridor pattern of development with almost contiguous settlement located along the coastal north / south axis and along the inland east / west axis. A major historical dysfunction is the extensive residential settlement located outside of this dominant corridor pattern mainly as a result of the formation of the apartheid city during the second half of the twentieth century.
When examining current socio-economic conditions, it is evident that the highest levels of underdevelopment and poverty exist outside of the dominant corridor systems. This is illustrated in the above diagrams where the darker shades represent a higher incidence of the particular undesirable socio-economic condition.
LEVELS OF DEVELOPMENT
The distribution of services and prevalence of informal settlement strongly aligns with the incidence of poor socio-economic conditions. Again the pattern of isolation and disjuncture from the dominant corridor system is evident.
IMPROVED SOCIO-ECONOMIC CONDITIONS

As a converse to the geography of poverty, when assessing the highest levels of socio-economic condition, and by association, the geography of affluence, it is evident that the higher performing areas are those closely aligned with the established development corridors.
ECONOMIC OPPORTUNITY
The distribution of opportunity from both an employment and access to services point of view suggests a strong centrality and corridor pattern of development. The exception is agriculture, primarily in the form of the sugar industry, which is mainly located in the outlying fringe areas of the city.

CORE METROPOLITAN CHALLENGE:
The primary challenge at a city scale is responding to the current disconnect between the geography of poverty and the distribution of opportunity. The dysfunctional city spatial form results in the poorest, and those most in need, living the furthest away from city scale economic opportunity.
A primary development imperative is restructuring movement systems in a manner that integrates and provides greater linkage and choice. Breaking down past practises of single corridor access into large residential townships continues to hinder the performance of the city spatially. Establishing greater north south and east west access at a metropolitan scale is key. The metropolitan lattice supported by an efficient public transport system are essential ingredients toward improved city performance. A substantial opportunity for public transport exists in the primary corridors, where the existing rail system closely parallels the main higher order road systems.

The established development corridors and the primacy of the core CBD represent important elements of the city scale structure and is likely to continue to perform the function of the primary centres for investment, development and opportunity. These serve as development corridors at a metropolitan scale. Future restructuring and planning should encourage the appropriate integration of existing settlement outside of these corridors with the primary corridors. At the same time, key routes forming part of a lattice should be developed as Activity Spines allowing for improved access to opportunity outside of the dominant metropolitan corridors.

The city has over several years established a polycentric or multi-nuclei spatial form. A system of metropolitan centres serving a diverse range of functions has emerged naturally through the growth of small towns located along key axes. The development and re-investment in “township” centres more recently represents another key aspect supporting the distribution rather than centrality of opportunity. A polycentric city structure coupled with a city scale activity system underpinned by public transport, are important drivers for change toward establishing an more ‘equitable’ and ‘high performance’ city.
The city scale context highlights the historical strength of particular development axes, namely the “golden T” based on the current western (N3) and north-south (N2) national routes. Current patterns of development reflect a clustering or centralisation of investment, and by implication, opportunity within these systems or, these development corridors in morphological terms. An important consequence of this pattern is that city scale development is based primarily on the ability of the corridor system to deliver urban opportunity. This results in the settlements located in areas of poor historical and geographic luck being marginalised. In addition to this, a formidable force in shaping distorted patterns of opportunity is the impact of apartheid spatial policy, which reinforces the pattern of corridors development.

The pattern of a strong system of metropolitan corridors nevertheless represents important city scale structuring elements that future spatial policy has to reconcile growth and the equitable distribution of opportunity with. A key finding therefore is the need to acknowledge the Southern Corridor, of which the study area forms a significant part, as an important city level system. The enhanced functioning of the southern corridor and the ability to continue to grow development opportunity is of importance as this system has metropolitan and national scale impacts, way beyond its local reach.

A second primary finding at a city scale is the emergence of a Polycentric or Multi Nuclei City structure. In fact, in many ways, this system albeit embryonic for many years, is currently maturing. It has been well accepted that even before the recent demarcation and legal creation of eThekwini Municipality as a “metropolitan” authority the area was conceived of and treated as a composite integrated entity.

At some stage in the past, the various towns or suburbs, that comprised the originally separate local authority components, had grown towards each other and had formed a single interrelated economy. One of the important features of this coalescence has been that the metropolitan area exhibits all the features common to urban areas of such a size; viz. it is a “polycentric” or multiple nuclei system. The notion of a polycentric system is that there is more than a single focus point (or ‘centre’) for activity and employment – regardless of whether the focus points are social, commercial or industrial. In addition, the area is serviced with a reasonable road matrix that offers a degree of alternative routes between the various “centres” (nodes) or areas that comprise the polycentric system. The “polycentric” city has emerged as the city has grown due to a combination of:

- the nature and form of rail and road systems as they evolved; and
- the imposition of the political interventions, especially during the apartheid period.

The “nuclei” of the polycentric city, it is argued, comprises a series of metropolitan scale foci. These include smaller centres located outside of a centralised core that exhibit higher levels of diversity and complexity. These centres usually in metropolitan planning terms occur within a 15 to 20km radius from the core, and from each other, allowing for sufficient spatial independence to “hold their own” containing within themselves a wide spectrum of urban land use. These centres are each unique in character and owe their existence to a range of historical factors including, centres that have their origins in agricultural production (Tongaat, Verulam), to those created under apartheid (Chatsworth, Umlazi), to a few naturally occurring centres that have diversified over time (Pinetown, Umhlanga Rocks).

It is also argued that the polycentric city also includes various single purpose points of metropolitan foci that have a particular background originating as either regional shopping centres or industrial parks and which have over time grown in size and land use composition. Good cases in point in eThekweni Municipality are the Pavilion (regional shopping centre), Bridge City (commercial / industrial) and Springfield Park (Industrial park).

Based on the above definition, the polycentric structure of Durban comprises Durban CBD as the primary centre, followed by diverse secondary centres such as Pinetown, Tongaat, Umhlanga, Verulam, Umlazi and more focused tertiary centres (Pavilion/Westway, Springfield Flats etc).

The significance of the polycentric model, is the ability of the system to generate opportunity for those settlements on the periphery, currently socially and economically bound to the core city. The key issues in considering the Back of Port study area in terms of this metropolitan perspective are three-fold, namely:

- Acknowledging the study area as an important component of the southern corridor of Durban, and
- Within the current strengthening of the polycentric city, establishing the back of port area as an optimal component of the South Durban Basin as a centre of metropolitan significance and generating regional opportunity locally, and
- Recognizing that efficient land uses and port performance will also present choices and tradeoffs

IVYER
Graham Muller Associates
DISTRICT SCALE ANALYSIS

Introduction
District Structure and Composition
District Findings
This section of the report examines the study area within its immediate context by looking at the adjoining areas to which it is physically and functionally related. The analysis considers the natural context, but focuses primarily on physical proximity and connectivity between areas.

A key aspect is the juxtaposition and interaction with each other of the various distinct land use precincts comprising the back of port area. Detailed consideration has been given in this section to movement systems and the interaction between and across precincts.

Analysis is in terms of circuits, which are, the systems and routes used by traffic within the basin. The approach is based on understanding levels of overlap, stress, and conflict across various circuits. Lastly, key findings are presented which draw out the district level issues requiring intervention.

The reader is referred, also, to the following annexures which form part of the main report:

A – Previous Studies
B – City Structure And Growth Patterns
C – Changes In The Nature Of Industrial Development
D – Bop-spatial Framework Plan
E – Bop-zoning Framework Plan
F – Back Of Port Area - Social Issues
G – Social Issues In Areas Lying On The Periphery Of The Bop Study Area
H – Clairwood Property Market Assessment
I – Environmental Report
J – Real Estate Opportunity Analysis
K – Traffic Report
The district is defined as the entire South Durban Basin and associated areas, being roughly constituted by the predominant Bluff dune system, the lower lying flat lands and the western flatter ridge all of which have been settled on in various forms.

The district ranges from middle-income and low density residential development on the Bluff; low-income and low density townships such as Umlazi and Lamontville; and the mixed-income and low density residential areas of the flatter central flatlands of Merebank and Wentworth. Most importantly, within this district lies the largest concentration of industry and, more recently of logistics companies within the city and the province. In addition, the region’s major petrochemical industry and major automotive industry cluster is located within the district. The current port expansions and the planned new port at Reunion are the major regional installations within the basin. A key aspect of the settlement and district structure is the juxtaposition of the latent conflict between residential and industrial areas. An acute case in point, is the settlement of Clairwood, a historical residential area experiencing the diseconomies of being located in a growing back of port, logistics and business zone. (continued on next page)
The urban structure of the South Durban Basin (SDB) is dominated by an urban corridor which comprises a variety of land use activities, but is dominated by a full range of industrial activities. The latter stretches from the Durban City Centre through to Umbogintwini in the south.

The Durban Central Business District Centre and the Port of Durban form the northern end of the urban corridor, and the Umbogintwini industrial node forms the south end of the corridor.

Stretched along the corridor, in linear fashion, wedged between the major nodes, are the various industrial areas of the SDB viz: Prospecton, Isipingo Rail, Merebank West & East, Mobeni West & East, Jacobs, Clairwood Industrial, Rossburgh, Bayhead, Congella and Maydon Wharf. Interspersed between these are a number of residential areas: parts of Umbilo, Clairwood, Merebank, Wentworth, Austerville and Isipingo.

Between the urban corridor and the ocean to the east, are typical suburban residential communities (from low-income to middle-to-upper income) juxtapositioned with heavy industrial uses (defined as major hazardous installations). These include:

- Athlone Park residential area in the south, wedged between Prospecton and Umbogintwini;
- Isipingo Beach residential area, wedged between Prospecton and the Sapref Refinery;
- Merewent residential area wedged between Mondi and both of the Sapref and Engen refineries;
- Austerville and Merebank residential areas, wedged between Jacobs industrial (west) and Mondi and Engen refinery (east);
- Treasure Beach residential area adjoining the Engen refinery to the north;
- Wentworth residential area adjoining Jacobs industrial (west), and Grosvenor and Fynnland residential areas adjoining the port industrial activities (west);
- Ocean View, the Bluff and Brighton Beach are the only residential suburbs that are unaffected by adjoining industrial land use activities, and are wedged between residential land uses in the west and the beach / ocean in the east;
- Lotus Park, Orient Hills, Isipingo Hills & Rail & Malaba Hills residential areas adjoin the urban corridor to the south-west, due to the nature of the topography and the movement and activity linkages with the urban corridor.

The residential communities are interspersed by a number of local retail, community facility, and recreational (environmental) nodes (golf courses, parks, sport facilities etc.). These are unevenly distributed, and some residential communities lack such facilities.

The "eastern coast line" (beach area and associated dunes) forms a zone, almost stretching the entire length of the SDB area. It is punctured by the Sapref industrial complex. The coastline culminates to the north in the southern coastal Bluff Headland.

The western edge of the urban corridor interfaces with a series of residential areas, including the marginalised areas of Ezimbokodweni, Umtazi, Umlazi Glebe, as well as Lamontville, Woodlands, Montclair, Sea View, Umbilo, Glenwood and Bulwer. These are linked to the SDB urban corridor via number of "gateway west – east routes", including: Moore Road, François Road, M7 / Edwin Swales VC Drive, Sarnia Road, Umlatuzana Road, Blamey Road, M29 / Kenvyn Howden Road, M1 / Grimsby Road, Pendelbury Road, Mangosuthu Highway, Umbumbulu Road, Old Main Road (in the south) and Moss Kolnick Drive (M37).
The natural base of the District comprises the following distinct elements:

- A prominent primary and secondary dune system forming the eastern edge of the district running in a north-south direction.
- A central flatter system linking the bay and airport zone (one of the principle reasons for the extent industrial development) referred to as the “basin”.
- Western fragmented topography characteristic of the region.
- Two primary river systems traverse the area, namely the Umlazi and Umhlatuzana Rivers. In both cases, these rivers have been canalised through the more intensely developed basin.
- A series of “green” spaces within the area serving as recreation zones. The most prominent of these is the protected Bluff Headland, a dynamic dune forming a natural ‘breakwater’ to the bay / harbour.
- The coastline and beach along the district is unique within the city as it is more natural and exposed than the central recreation beaches of the city.
MOVEMENT SYSTEMS

The urban structure of the South Durban Basin (SDB) is dominated by an urban corridor which comprises a variety of land use activities, but is dominated by a range of industrial activities. The latter stretches from the Durban CBD through to Umbogintwini in the south. A number of parallel movement systems structure the urban corridor that characterizes the district or South Durban Basin. The movement routes comprise:

- The South Coast Road (R102). South Coast Road with its diverse commercial activities forms the activity spine, and the rail route both commercial traffic and public transport;
- The M4 Freeway forms the mobility route of the urban corridor.
- The southern rail corridor and systems of commuter stations are important structuring systems. Rail patronage within the south is the highest within the city as a whole and rail represents an important advantage for the district.

The movement systems accommodate public and private transportation, and ranges in mode from rail, taxi and bus. All levels of movement are catered for, from high mobility freeways, sub-regional access from major metropolitan routes, to local access by secondary roads. A number of east-west cross links exist in this regard.
AN UNDERSTANDING OF MOVEMENT SYSTEMS

The maps on the right highlight dominant land uses within the district and their associated movement circuits, viz, the primary routes that particular precincts depend on for their effective functioning.

The maps highlight, in all cases, the dependence of the north-south system either related to South Coast road or the southern freeway.

The critical issue is the sharing of this system across various uses.

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT
AN UNDERSTANDING OF COMBINED MOVEMENT CIRCUITS

In considering movement as a whole, and in mapping the overlap it is evident that the north–south systems have the greatest demands. This includes the Southern Freeway, South Coast Road and Maydon Roads.

Edwin Swales VC Drive and Bayhead Roads form important east–west connections and are also utilised by a range of circuits.

The next two sets of analysis investigate the capacity of these systems.
ROUTES UNDER STRESS

In investigating volume and capacity of the primary routes, the following is evidenced:

• South Coast Road within the Clairwood area operates beyond its capacity and represents the most “stressed” part of the system.

• High levels of stress are evidenced along the Southern Freeway and particularly closer to the CBD.

• The southern portions of the N2, in the Prospecton area operates at capacity which can be attributed to this portion of the national routes serving a local function as well.

• It is interesting to note that varying levels of capacity along South Coast Road, where in the Mobeni area, greater capacity exists.
ROAD INTERSECTIONS UNDER STRESS

In overlaying interchange and intersection capacity, again measuring volume versus capacity, over the routes under stress, the following is evidenced:

- The intersections along South Coast Road in the Clairwood area operate beyond capacity and are major points of stress within the system.
- The Congella area also contains intersections operating at high capacity.
- In southern portions of the study area, the interchanges with the N2 within the Prospection area also under stress.
The key district findings include the following core issues:

- **Interdependence of Systems**: A key finding emerging from the analysis of varying circuits is the dependence of various land uses on a similar system of movement. This mixture and pressure on particular systems results in varying levels of dysfunction, most apparent in terms of transport infrastructure.

- **Critical Areas of Conflict**: As an extension of the above, certain routes currently operate beyond their capacity, in particular, Edwin Swales VC Drive intersection and the southern portions of South Coast Road, within Clairwood and closer to the CBD and Port. Solutions to this level of “stress” are likely to require intervention beyond these particularly points of stress, in that, a systems approach where alternatives for these dominant desires lines are required.

- **Shared Use results in Conflict**: The juxtaposition and mixture of movement with the business/industrial and residential systems results in a wide range of conflicts and consequently represents a formidable threat to the appropriate functioning, safety and state of environment within the basin. It is important therefore that in addition to increasing capacity within the system, as posited above, that a level of separation and independence of the residential and business circuits is investigated.

- **Predominance of the North South Desire Line**: The analysis identifies and reinforces in several ways the strength of the north-south axis as a result of the primacy of the CBD and the Port of Durban as generators of activity. This demand and pattern is likely to continue for the foreseeable future and therefore requires investigation into increasing capacity along this system and in the longer term, the ability to strike a greater spatial balance through an increase of activity and travel patterns to destinations in the south.
STUDY AREA ANALYSIS

Introduction
Natural Systems
Movement
Zoning
Land Use
Land Ownership
Land Value Profile
Social Systems
Study Area Findings
This section assesses the study area as a whole. The analysis commences with a description of the various components of the natural systems that underpin the area, viz. topography and its elements such as relief and land features, rivers and wetlands, and existing designated open space systems.

This is followed by an analysis of the various components of the movement system.

The broad zoning of the study area is outlined and commented on.

Two systems of describing land use in the study area are outlined, viz. a broad spatial distribution of the dominant land uses across the study area, which is followed by an analysis of the distribution of the numbers of economically active firms in each of the different sub areas of the study area and areas adjacent to it.

The basic land ownership pattern of the study area is described.

A broad contextual analysis of the land and building development values (reduced to Rands per square meter) identifies the categories of value across the study area.

Finally, the study area findings and conclusions are summarized.

The reader is referred, also, to the following annexures which form part of the main report:

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H – Clairwood Property Market Assessment
I – Environmental Report
J – Real Estate Opportunity Analysis
K – Traffic Report
The SDB is viewed as a broad section of relatively flat coastal plain surrounded by higher land which rises to the west. There is a steep ridge that runs centrally through residential areas of Grosvenor, Wentworth, Fynnlands, Austerville and Merewent.

Similarly there is a high coastal dune through areas of Treasure Beach, Brighton Beach, Ocean View. The coastal edge of the SDB to the north east is comprised of a major dune i.e. the Bluff Headland at the harbour mouth.

Towards the coastal edge the area has protected woodland forest areas with one major recreational facility identified within the study area i.e. the Clairwood Racecourse. Small pockets of wetland, and protected areas are located along the north western edge of Durban Harbour.
The study area is serviced by road, rail and sea transport systems. The main movement system within SDB is the N2, the South Coast Road and the Southern Freeway. The following is a summary of the transport routes contained in each component part of the study area:

**Congella**: Sydney Road is the main movement route through this area, with parallel support from Gale Street and Umbilo Road. The railway runs west of the Southern Freeway parallel along this route.

**Clairwood**: This area is surrounded by main transportation routes such as the Southern Freeway on its western boundary, Edwin Swales VC Drive in the north and Bluff Road in the east. Internally Clairwood is characterised by main routes such as Flower, Dayal and Archary Roads which perform dual functions i.e. residential and service industry. A railway line runs parallel to Bluff Road.

**Jacobs**: The Southern Freeway is located on its western boundary and Bluff Road on its eastern boundary. The area is serviced by major internal connectors such as Quality Street and Chamberlain Road.

**Mobeni**: South Coast Road is the major route that transverses this area. Industrial roads such as Leicester Road, Grimsby Road and Pendelbury Road are important routes within this area. Grimsby is an important link through Mobeni as it connects to Higginson Highway and there are future plans proposed to extend the link through towards Austerville. The railway line runs parallel with South Coast Road within Mobeni.

**Prospecton**: The N2 divides this industrial area into east and west with Prospecton Road being the main access road within this area.

**Old Durban International Airport site**: This major site is reserved for a new sea port, planned for commissioning in about 2020.

**SAPREF**: Internal movement within Sapref is controlled along Refinery Drive.
5.4 ZONING

The industrial zoning in the study area comprises mostly General Industry and Noxious Industry. It is interesting to note that despite the types of industrial uses occurring, there are no substantial Light Industrial Zones. This is probably due to the fact that all the areas concerned were developed when the land in question was at the periphery of the then built up areas and it was appropriate to locate these types of anticipated uses in these locations. These industrial areas are no longer on the periphery of the urban area, but are now well within the developed areas of the metropolitan core.

The adjacent map serves to indicate that there is an almost unbroken linear sector of industrial zones stretching some 15 kms from the edge of the CBD through to and around the current airport. The legacy of this basic two-zone approach is that it has allowed all types of industrial activities to occur with no attempt to direct or manage different types to specific areas, with the exception of the noxious industrial zones.

The land-use analysis indicate that while there are some major residual noxious industrial activities still in the area, the majority of activities do not fall into these categories. It becomes clear that the Noxious Industrial zoning is not absolutely necessary or appropriate; and nor is General Industry always appropriate. The evolution of the area away from manufacturing industrial activities and towards “Light”, and “Service” industrial activities, as well as the change to logistics activities raises the consideration of more appropriate categories of industrial zoning; as well as the need to consider different development regulations that meet the needs of contemporary industrial development. Appropriate zoning to ensure optimal usage and impact and interface is required.
5.5 LAND USE

5.5.1 Spatial Distribution: General Comments (See Figure 5.5)

The various areas that comprise the study area reflect:

- The age of development;
- The form of development; and
- The fact that, as each of the areas was planned and developed, they were not planned or integrated as a composite whole.

Consequently, the various areas are not well linked to each other or to the major road system. There are relatively few entrances and exits into the SDB as a whole, leading to congestion ("stress") points.

The area, as a whole, and the individual areas, will be assessed in terms of:

- General description;
- Land use composition;
- Format development;
- Stage of development.

General Description

Each of the industrial areas reflects its age of development, original types of industrial development, development format, and recent changes.

Land Use Composition

Each of the industrial areas currently accommodates a mix of land uses, viz.

- Large and small scale manufacturing industries;
- Wholesaling and warehouses;
- Freight-forwarding and transport services
- Light and service industries;
- Retail/distribution outlets of different types.

Previous studies of the SDB have tended to make two basic statements, viz. that the SDB is the "heartland" of industrial development and that it provides substantial employment opportunities. Implicit in these two statements is the implication that most of the industrial uses occur in the form of manufacturing activities and that these activities possess high densities of labour.

Development Format.

Maydon Wharf and Congelia, being the oldest industrial areas comprise the earliest industrial format and are mostly developments with high coverages and limited amounts of on-site parking and loading.

Jacobs is an early form of an industrial estate, with buildings located to allow for a level of on-site loading and parking. The estate is laid out with a variation of lot sizes, such that developments vary from large single enterprise developments, as well as many smaller sites. Buildings vary from traditional single story manufacturing developments, and also include several medium-rise "flatted" factories, usually and originally primarily orientated towards the textile industry.

Mobeni is a later stage of an industrial estate, with most of the sites and buildings being large. Buildings are set back much further from the site boundaries, with a consequence that most loading and parking is on-site.

The majority of the industrial developments reflect an earlier format and type of building that are being re-used for a range of facilities and are often not appropriate for modern applications. Instances of purpose built warehousing and freight-forwarding buildings being erected on brownfields sites (often a consolidation of several small sites) are becoming more common. There are very few "flex" and contemporary multiple docking facility type buildings.

Stage of Growth

All of the industrial areas are far removed from the 1st stage "rural" development of the origins. They have also completed the 2nd stage, and have been fully developed (3rd stage) for many years.

Some of the areas, especially those comprising smaller scale buildings, as well as large scale buildings, have become subject to "packing" as they now accommodate a plethora of retail, distribution, showroom and small scale service industries. This has increased density of development and particularly that of parking and loading – which now "bleeds" onto the pavements and streets.

A few isolated developments indicate some "thinning" as some activities have relocated and vacated the area.

The beginnings of "recapture" are found in almost all the areas, as newer forms of industrial development, viz. logistics, have occurred on redeveloped and/or rehabilitated sites.
STUDY AREA ANALYSIS

5.5 LAND USE

Summary
Despite comments in earlier studies, there are no large scale “Brownfields” areas, as it is commonly understood. The various areas are fully occupied. In fact, “packing”, especially on the smaller sites with smaller developments indicates that the sites are occupied by uses using inadequate and inappropriate facilities for their activities which are “bleeding” over into the road reserves.

This “packing” and “bleeding” is exacerbating the ability of the area to cope with traffic movement, loading, and parking of both cars and trucks.

The older areas of Umbilo, Congella, Maydon Wharf, Clairwood, Jacobs and Mobeni are indicating a slow but relentless change of uses. Some of the uses reflect the demand for newer and growing demands of logistics and transport activities in relation to the port; and others, such as much of the service industrial and retail activities reflect the opportunities for accessible and low rent facilities, rather than any forward- or back-ward linkages to the port.

There is clear demand for a range of different types of industrial facilities. The various areas that comprise the study area, and beyond, are facing a number of trends, viz.

- Expansion (via invasion) of port related uses;
- Growth of logistics related activities;
- Growth of small scale service industries

It becomes clear that these areas have altered over time from primarily manufacturing activity areas to a much more mixed range of activities. Some of these activities, such as logistics, warehousing and transport, possess relatively low intensities of labour input when compared to manufacturing industry.

It is also clear that the various industrial areas cannot absorb and provide appropriate space for all of these demands, i.e. there is a limited supply of industrial land and accommodation. Consequently, there is a need to create further and alternative industrial development in relation to these existing areas, as well as further a field. This places further pressure on the study area to perform and meet the requirements associated with the port.

This analysis indicates that the “manufacturing” form of industrial activities, including service industries, in all areas that comprise the SDB, are all less than 50% of activities. Wholesaling and warehousing also form relatively small proportions of the activities. There is a clear indication that most of these areas have experienced an increase of logistics and transport uses, and an increase in service industrial activities. It is interesting to note a high proportion of professional activities.
STUDY AREA ANALYSIS

5.5 LAND USE
STUDY AREA ANALYSIS

5.5 LAND USE

NUMBER OF TYPES OF FIRMS

The following pie-charts identify broad categories of types of industrial firms in each of the various areas that comprise the SDB. The grouping of land uses categories employed to create the charts are identified in the table below.

This analysis is derived from a listing of the types of firms located in the SDB.

It serves to substantiate the spatial land use analysis, as it indicates categories of industrial activities occurring in the area.

This analysis indicates that the “manufacturing” types of industrial activities, including service industries, in most areas that comprise the SDB, comprise less than 50% of all activities. Wholesaling and warehousing also form relatively small proportions of the activities. There is a clear indication that most of these areas have experienced an increase of logistics and transport uses, and an increase in service industrial activities. It is interesting to note a high proportion of professional activities.

It becomes clear that economic activities recurring in these areas have altered over time from primarily manufacturing activities to a much more mixed range of activities. Some of these activities, such as logistics, warehousing and transport, possess relatively low intensities of labour when compared to manufacturing industry, leading to a loss of jobs.

The occurrence of many service industries in the SDB appear to be located there for default locational reasons, viz. they are taking advantage of centrality and accessibility. Many of the uses do not appear to possess a key relationship to the activities of the port. They are “packing” into the area by taking advantage of existing buildings, as the original manufacturing activities appear to have “thinned”.

For completeness, this analysis also takes account of areas contiguous to, but not part of the study area such as Bayhead, Island View, Austerville, Wentworth, Isipingo, Isipingo Rail and Prospecton, as well as two areas that currently are picking up spillover development from the SDB, namely Umbogintwini and Southgate.

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</table>
NUMBER OF TYPES OF FIRMS
MAYDON WHARF/ BAYHEAD/ ISLAND VIEW

In these areas, which are within the port area, logistics activities comprise, not surprisingly, about 50% of all activities. In Maydon Wharf and Bayhead industrial services comprise the next largest grouping of uses. Only Island View has a large proportion of manufacturing, viz the oil refinery.

UMBILO/ CONGELLA/ ROSSBURGH

The largest group of activities in Congella (which includes the Umbilo area) remains manufacturing, but this is no more than some 25% of all firms in the area. Industrial services, wholesaling and retail activities account, as a group, for some 30% of the firms in the area. At this stage, logistics is a relatively small component of activities.

Rossburgh, possesses some similar characteristics, but has a slightly larger component of logistics firms.
NUMBER OF TYPES OF FIRMS

CLAIRWOOD BUSINESS ZONES

The pie chart distribution of Clairwood is for the industrial and commercial component of the suburb. The various zoned business activities occur around the edge, with each sub-area possessing a different composition. Nevertheless, it becomes clear that only some 25% of firms are of the manufacturing type, with retail activities and industrial services comprising some 30% of firms in the area. Logistics is a relatively small proportion of activities in the zoned business area of Clairwood.

JACOBS

The numbers of firms in the manufacturing sector in Jacobs accounts for some 40% of all firms. Industrial services, wholesaling and professional activities account for close on 50% of firms.

MOBENI

Mobeni possesses a fairly similar profile; except that logistics activities and retailing activities are a slightly higher proportion of firms.
NUMBER OF TYPES OF FIRMS

AUSTERVILLE/ WENTWORTH BUSINESS ZONES

There are relatively few “industrial” types of firms in these two primarily residential areas and are restricted to mainly two major manufacturing firms, viz Mondi Paper and the Engen Oil Refinery.

ISIPINGO

These two adjacent areas comprise largely of small percentages (approx 15% each) of manufacturing, retailing, and wholesaling type firms, and very little logistics activities, at this stage.
NUMBER OF TYPES OF FIRMS

REUNION

Reunion is a relatively small industrial area and comprises a mix of industrial firms. The largest grouping is in the retailing sector. The largest site, by far, at Reunion, is the vacated old Durban International Airport Site. This will be redeveloped as a new sea port, opening for business in about 2020.

PROSPECTON

Not surprisingly, manufacturing, industrial services and professional services account for some 70% of the firms in this area; while logistics accounts for about 10% of the numbers of firms.

UMBOGINTWINI AND SOUTHGATE

Manufacturing and Industrial services accounts for over 50% of the numbers of firms in both Umbogintwini and Southgate, although the distribution is somewhat different.
The majority of the land in the study area is in private ownership.

State owned land comprises essentially the harbour area, Maydon Wharf, railway related area at the edge of Clairwood and pockets of land in Congella, Jacobs, Mobeni and the old DIA site at Reunion and the Transnet Diesel Depot.

eThekwini Municipality owns small pockets of land in all areas and a large area that comprises the Fresh Produce Market. In addition the natural areas particularly canals are also in the ownership of the municipality.

It is particularly noteworthy that the Maydon Wharf area belongs to the state and offers a long-term opportunity for relatively easy planning intervention, as the long leases on land in the area expire over the next 50 years.
Background

Property development value is a consequence of several factors, viz.

- Location – in terms of centrality, accessibility;
- Development intensity – with multi-storey buildings having greater potential than conventional single story developments;
- Quality of building – with buildings in better conditions possessing a higher value.

The table below indicates the range of land development values (calculated as Rands per square metre) across a number of Industrial areas. (Derived from the Valuation Roll)

A number of factors emerge from the Table, viz.

- In most cases min. values fall below R 100 per square metre;
- Max. values mostly peak below R4000 per sq m, except in Phoenix Prospecton, Westmead, New Germany and Westmead, where they exceed R 10 000 per sq m;
- In Jacobs and Congella max. values exceed R 400 000 per square metre;
- In all areas there is a great variation in development values between min and max values, and this will tend to reflect the points above, i.e. location, intensity, quality;
- For the most part, average values have little meaning.

Clearly what emerges is that the relatively newer industrial estates of Phoenix, Prospecton, Springfield and Westmead have the generally higher max values; with the exception of Jacobs and Congella.

The very high values of Jacobs and Congella probably reflect the many higher intensity “flatted” factories, centrality and accessibility.

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<tr>
<th>Industrial Area</th>
<th>MINIMUM RANDS PER SQUARE METRE</th>
<th>MAXIMUM RANDS PER SQUARE METRE</th>
<th>AVERAGE RANDS PER SQUARE METRE</th>
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<td>R 3,241.45</td>
<td>R 388.07</td>
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<td>R 10.49</td>
<td>R 1,198.89</td>
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<td>Phoenix</td>
<td>R 1.05</td>
<td>R 11,648.91</td>
<td>R 591.42</td>
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<td>R 347.56</td>
<td>R 2,638.07</td>
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<td>R 717.27</td>
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<td>R 4,591.83</td>
<td>R 770.58</td>
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<td>R 880.29</td>
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<td>Prosperden</td>
<td>R 3.74</td>
<td>R 13,235.20</td>
<td>R 696.45</td>
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<td>Avoca/Glen Ani/Riverhorse Valley</td>
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<td>Coedmore</td>
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<td>Congella</td>
<td>R 88.89</td>
<td>R 48,737.10</td>
<td>R 4,905.11</td>
</tr>
</tbody>
</table>

Total Development Values Per Sq. Metre

Despite the relatively lower values per sq. metre of the larger sites, when compared to many of the smaller sites, the larger sites will possess a higher cost for the developments as a whole.
5.7 LAND VALUE PROFILE

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
5.8 SOCIAL SYSTEMS

There are a number of stable communities that live in South Durban, where residents have lived for a long time, have strong social connections with friends and family in these communities. They value the places that they live in. There are also strong work-residential linkages in the South Durban Basin, where people live close to work for convenience, cost and quality of life reasons. The lives of residents in the South Durban Basin are well contained within this area: residents indicate that almost all of their needs are met in this area - they live, work and play in this area or in areas immediately adjacent to it and this has a significant impact on their quality of life and social connections in the area. There are a large number of functioning social organizations operating throughout South Durban in these communities that add value and contribute to the social capital of the communities and neighbourhoods. Religious and sporting organizations are the most important social organizations in the area and residents want these organizations to be supported and further developed (especially sport) to provide healthy activities for the youth in the area, which are at risk of becoming deviant.

Social value: Status Quo (Existing social dimensions of the residential community)

1. The South Durban Basin is a residential space
2. Existence of stable communities
3. Strong sense of place/belonging
4. There are a number of Clairwood residents (owners/tenants and informal settlements) that want to remain in Clairwood and will defend this position very strongly. It is important that the BOP plan provides sufficient clarity of preferred proposal and equal and respectful spaces for all stakeholders to address their specific preferences.
5. Heritage values
6. Strong social connections within communities with friends and family
7. Ability to live, work and access services in South Durban
8. Wide range of social organizations
9. Parks, sports grounds and open spaces are widely used by the youth for recreation
05

STUDY AREA ANALYSIS

5.9 STUDY AREA FINDINGS

ZONING

The analysis has shown that industrial zoning in the study area comprises mostly Noxious Industry and General Industry with a small amount of Light Industrial Zoning. The land-use analysis indicate that while there are some major residual noxious industrial activities still in the area, the majority of activities do not fall into these categories. It becomes clear that the Noxious Industrial zoning is not absolutely necessary or appropriate in many areas; and nor is General Industry always appropriate.

Lying just outside the study area to the west of South Coast Road in Clairwood is the Coedmore Quarry area that is zoned for Extractive Industrial purposes. The area offers a limited opportunity for being developed and zoned for other forms of industrial and logistics activity, especially once increased accessible is made possible by the proposed link of a truck freight route from the Port of Durban through the Umhlatuzana Valley to the N2.

The evolution of the area away from manufacturing industrial activities and towards “Light”, and “Service” industrial activities, as well as the change to logistics activities raises the consideration of more appropriate categories of industrial zoning; as well as the need to consider different development regulations that meet the needs of contemporary industrial development.

LAND USE

Several issues emerge from this analysis. This analysis indicates that the “manufacturing” form of industrial activities, including service industries, in all areas that comprise the SDB, comprise less than 50% of activities. Wholesaling and warehousing also form relatively small proportions of land use activities. There is a clear indication that most of these areas have experienced an increase of logistics and transport uses, and an increase in service industrial activities. It is interesting to note a high proportion of professional activities.

It becomes clear that these areas have altered over time from primarily manufacturing activity areas to a much more mixed range of activities.

Many of the small scale activities are primarily occurring in the smaller, developments on small sites. A few larger buildings, originally accommodating a single manufacturing activity, have been converted into multi-tenanted facilities.

There is a clear manifestation of the growth of logistics uses, both in the form of large scale developments of large, modern, custom designed and self-contained logistics complexes and a plethora of small scale firms on smaller sites, many of which are too small for the purposes of the users such that activity spills over into the adjoining streets.

The majority of the industrial areas are undergoing change, with conventional manufacturing playing a lesser role than in the past. A growth in logistics related activities and the “packing” of service industrial and retail related uses into smaller developments on smaller sites is the general trend.

There is a clear need in the study area for a variety of industrial activities in their different developmental formats. Whilst, for national strategic reasons, priority should be given to port related activities in the study area; the need for industrial space for uses requiring smaller sites with accessibility attributes cannot be entirely ignored without a large-scale loss of jobs. Clearly the extent of the study area is two small to adequately meet all these needs in the long run.

Two broad conclusions can be drawn; viz.

Additional industrial land is needed for both logistics and service industrial activities, and this can be created at new and more distant locations along various activity corridors and at new foci such as Catlo Ridge, Dube Trade Port and along the planned east-west truck freight route linking the Port of Durban with the N3. Additionally older residential areas adjacent to the study area could be rezoned for particular types of industrial activities.
LOCAL SCALE ANALYSIS

Introduction
Congella/ Umbilo/ Rossburgh
Clairwood
Jacobs
Mobenii
Merewent
Local Scale Findings
The various areas that comprise the study area have been assessed at a local scale. For the purpose of this analysis has evaluated the study area has been divided into five sub-areas. Analysis is on the basis of four factors or characteristics:

1. **MOVEMENT**
   A broad description of the movement systems at local scale.

2. **ZONING**
   A broad description as to the types of zoning in the area is described.

3. **LAND USE**
   Each area is assessed in terms of:
   - A basic description of the area concerned;
   - The major mix of land-uses in each area;
   - The particular format of development;
   - Stage of development dominating in the area;
   - A composite assessment of the area.

4. **LAND VALUE**
   A broad description of property values (in Rands per square metre) pertaining in each sub-area.

The reader is referred, also, to the following annexures which form part of the main report:

A – Previous Studies
B – City Structure And Growth Patterns
C – Changes In The Nature Of Industrial Development
D – Bop-spatial Framework Plan
E – Bop-zoning Framework Plan
F – Back Of Port Area - Social Issues
G – Social Issues In Areas Lying On The Periphery Of The Bop Study Area
H – Clairwood Property Market Assessment
I – Environmental Report
J – Real Estate Opportunity Analysis
K – Traffic Report
MOVEMENT

CONGELLA
The Southern Freeway has a high percentage of road stress in the region of 90 to 100% in comparison to South Coast Road (70-80%) with less stress on other road networks such as Sydney and Umbilo Roads. Various points along the high stress routes have high intersection stress in the region of 90 to 100% such as the Francois/ Wisely Road which is noted for high vehicular/truck congestion.

UMBLO INDUSTRIAL
Points along the Southern Freeway and South Coast Road, in close proximity to railway stations, exhibit intersections where there is high stress on the road network.

ROSSBURGH AND CLAIRWOOD
A variety of different forms of intensities are found at the intersection of Edwin Swales and South Coast Road with particular high stress found along South Coast Road within Clairwood.
LAND USE

CONGELLA
DESCRIPTION
This is an early Commercial and Industrial area, and occurs in a linear form encompassing Umbilo Road, Gale Street and Sydney Road. Most of the sites adjacent to Gale Street and Umbilo Road are small with multi-storey buildings, while the sites and the developments on Sydney Road, adjacent to the railway tend to be larger traditional factory sites. There is limited parking and truck storage facilities such that this occurs on the street.

LAND-USE COMPOSITION
The area comprises a mix of different land uses, but is dominated by retail and distribution outlets, service industrial uses and several forms of logistics uses.

FORMAT OF DEVELOPMENT
The area comprises a mix of industrial building types. Manufacturing industry is present, especially in the form of several flatted factories previously and still used by the textile industry. Older and larger industrial buildings have been converted into multi-tenant facilities for light and service industries and distribution outlets. There are generally the former premises of large scale manufacturing industries.
LOCAL SCALE ANALYSIS

6.2 CONGELLA/ UMBILO/ ROSSBURGH

STAGE OF DEVELOPMENT
The area is fully developed, but shows signs of:
• “thinning” in that many of the original manufacturing uses have been replaced by non-manufacturing activities;
• the “packing” stage of development, as older larger buildings have been converted into multi-tenanted service industry, distribution/retail outlets; and
• some “recapture” with older buildings being redeveloped with buildings for storage, distribution and freight forwarding that are partially containing loading on site.

ASSESSMENT
With high site coverages and inadequate loading facilities (roads are frequently used for loading purposes), the activities are often being transferred to the streets. There is substantial evidence of truck storage and parking occurring on the streets.

UMBilo DESCRIPTION
This is also an early industrial area. The sites tend to be larger. Loading also largely occurs on the street. There is limited parking and truck storage facilities such that this occurs on the street.

LAND-USE COMPOSITION
The area comprises a mix of different land uses, but is also dominated by service industrial and retail and distribution uses. Logistic activities are beginning to occur in this area.

FORMAT OF DEVELOPMENT
The area comprises a mix of industrial building types. Sites are generally larger – compared to Congella. The area comprises manufacturing industry, some as flatted factories used by the textile industry. It also comprises older larger industrial buildings converted into multi-tenant facilities for light and service industries and distribution outlets. There are the remnants of large scale manufacturing industries.

STAGE OF DEVELOPMENT
The area is fully developed, but shows signs of:
• “thinning” in that many of the original manufacturing uses have been replaced by non-manufacturing activities;
• The “packing” stage of development as older larger buildings have been converted into multi-tenanted service industry, distribution/retail outlets; and
• Some “recapture” with older buildings being redeveloped with buildings for storage, distribution and freight forwarding that are partially containing loading on site.

ASSESSMENT
With high site coverages and inadequate loading facilities (the roads are used for loading purposes), the activities are often being transferred to the streets. There is a substantial amount of truck storage occurring on the streets. There is frequent occurrence of double parking of trucks, especially in the vicinity of logistics, freight-forwarding and warehouse activities.

ROSSBURGH DESCRIPTION
This is a small area just west of the Edwin Swales VC Drive interchange, and houses a mix of flatted factories and older industrial buildings.

LAND-USE COMPOSITION
The area comprises a mix of different land uses viz. mixed-land uses, conventional factories, retail/distribution outlets and service Industries.

FORMAT OF DEVELOPMENT
The area comprises a mix of industrial types. Sites are generally larger and is similar to that of Umbilo. There are the remnants of large scale manufacturing industries.


**LOCAL SCALE ANALYSIS**

6.2 CONGELLA/ UMBILO/ ROSSBURGH

**LAND-USE COMPOSITION**
The area comprises a mix of different land uses viz. mixed-land uses, conventional factories, retail and distribution outlets and service industries.

**FORMAT OF DEVELOPMENT**
The area comprises a mix of industrial types. Sites are generally larger and is similar to that of Umbilo. There are the remnants of large scale manufacturing industries.

**STAGE OF DEVELOPMENT**
The area is also fully developed. Given that there is steep topography in the area the area is not suitable for conventional single storey factories and consequently there appears to be relatively little invasion of logistics activities.

**ASSESSMENT**
This is an awkward area. It has difficult access and traffic issues, which together with the steep topography makes it difficult to use for all types of activities. It comprises both large and small sites, but site assemblage and consolidation is unlikely.

**COMPOSITE LAND-USE COMPOSITION: BY SITE SIZE AND AREA**
The table below identifies the generalised use and areas of sites for the entire Congella and Umbilo area. The total area of all sites in this area add up to some 308.5 ha.

The “logistics” group of uses in the area (transportation, related services, warehousing and storage) account for almost 54% of uses. The related use of wholesaling accounts for another 3.3%. Manufacturing accounts for some 10%.

The balance of other categories of land uses are mostly less than 5% each and a few are between 5 and 10%. The relentless conversion to logistics related uses becomes quite clear in the area, with most occurring in the eastern and southern parts.

### CONGELLA / UMBILO / ROSSBURGH

<table>
<thead>
<tr>
<th>Existing Land Use</th>
<th>Area m²</th>
<th>%</th>
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</thead>
<tbody>
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<td>Building Products</td>
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<td>Chemicals</td>
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<td>Chemicals - Rubber</td>
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<td>Food &amp; Food Processing</td>
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<td>Wholesale</td>
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<td><strong>Total</strong></td>
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<td><strong>100.0</strong></td>
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</table>
The whole area from Moore Road to Edwin Swales VC Drive can be analysed in several ways. viz.

The area from Moore to McDonald Roads and from Umbilo Road to Gale Street (midblock to midblock) comprises mostly multistorey high coverage buildings suitable for light industry and service industry. Given the nature of these high coverage buildings and the importance and size of Umbilo Road and Gale Street (also Melbourne Road) this area is not suitable for any logistics activities.

The area to the east, that is Sydney and Williams Roads, comprises largely larger sites and larger older manufacturing buildings and lends itself to logistics buildings - as long as it can deal with on-site loading etc.

The area from McDonald Road to Francois Road and Queen Mary Avenue along Umbilo Road and Gale Street tends to rather smaller buildings and has a substantial interface with residential development and should not necessarily become available to logistics and truck traffic.

The area east of the above area, on Sydney Road, could take on a "logistics" flavour, especially with its connection to the new Khangela Bridge linking the area to Bayhead and the Port of Durban. This should not be extended beyond Sydney Road as it would draw trucks too close to adjacent residential areas. There is an enormous danger that the new bridge with its increased accessibility will put pressure on the area around it’s intersection with Sydney and Umbilo Roads. This area also has a hospital and substantial residential uses. Pocket of small residential sites embedded in this area could be converted in time, but most have preserved their residential quality rather well.

The Umbilo/Rossburgh area of Umbilo and Sydney Roads could be suitable for logistics, but it must be managed to ensure on-site loading, as the area is already under duress.

The Kangela Bridge bridge should be seen as an alternate access to the port, however a link across onto the dedicated freight route needs to be planned. In its present form Khangela Bridge will share the Edwin Swales VC Drive route which is not desirable.
LAND OWNERSHIP

CONGELLA/ UMBILO/ ROSSBURGH

Essentially the linear area between the railway and the M4 freeway is state or parastatal land.

A large block of state land occurs in the area bounded by Sydney, Canada, Melbourne and Blake Roads. This is an older educational facility, and could be made available for rezoning, although it is insufficiently large for a major logistics platform.

Adjacent to this block, is another block belonging to the municipality which accommodates the Dalton Street hostels.

Telkom occupies a large site in the Rossburgh area. The city owns a large area of houses converted to industrial uses in the vicinity of Alpha Crescent.

The reminder of the sites in this area are in private ownership.

The non-private land parcels are not large enough to be available for use as substantial and integrated logistical platform facilities that could be implemented by the municipality on its own or in partnership. At best they could be assembled and utilized by private developers.
6.2 CONGELLA / UMBILO / ROSSBURGH

LAND VALUE PROFILE

CONGELLA
Relatively high values (R2500 to R3500 per square metre) exist along Umbilo Road, Gale Street and the northern section of Sydney Road. These are the higher intensity multi-storey commercial and service industrial developments – mostly on relatively small sites.

UMBILO
The larger developments on larger sites on the eastern side of Sydney Road and the southern edge of Umbilo Road exhibit low to middle order values (R500 to R2500 per square metre).

ROSSBURGH
This small area exhibits middle order to high property values (R1500 to R3500 per square metre) on medium sized sites.
MOVEMENT

CLAIRWOOD

The portion of the Southern Freeway that transverses the Clairwood area is characterised by 100 to 120% road stress. This indicates hampered vehicular movement along this portion. This situation is further exacerbated by the vehicular and pedestrian conflict at the intersection of South Coast Road and Blamey Road.
ZONING CLAIRWOOD

The area comprises several zones:

1. Noxious industry occurs across both sides of the northern section of South Coast Road; and along the southern side of Edwin Swales VC Drive and below Flower Road, with a small pocket of such zoning in the vicinity of Teakwood Road and in Jacobs.

2. The eastern edge of Clairwood, on both sides of the Amazimyama Canal and up to Bluff Road is zoned General Industrial.

3. The central area is zoned for residential purposes.

4. The sites immediately adjacent to South Coast Road are zoned for shopping/commercial purposes.

5. The area surrounding the commercial zone on South Coast Road is zoned General Industrial.
LAND USE

CLAIRWOOD

DESCRIPTION
Falling between Jacobs and Edwin Swales VC Drive, this is a mixed-use area. The edges are zoned for industry, while the interior is zoned for residential purposes, which has been invaded by a mix of industrial logistics and commercial uses. The area is generally run down.

LAND-USE COMPOSITION
Clairwood comprises a residual residential area and is surrounded by industrial, logistics and commercial development. Industrial development comprises a range of small clothing factories and has been invaded by several transport users and light and service industries. There are also a large number of small scale retail uses “sprinkled” throughout the area.

FORMAT OF DEVELOPMENT
There is a mix of residential development – some is in extremely poor condition and there are pockets of fairly recent rehabilitated and redeveloped residential development.

There are many vacant sites sprinkled throughout the area, many of which are poorly maintained and subject to invasion and squatting.
The industrial development occurs in several forms, viz. single storey manufacturing type buildings, flatted factories, and a few contemporary buildings.

STAGE OF DEVELOPMENT

Clearly, Clairwood has been subject to the processes of packing and thinning (especially in regard to residential development, as well as invasion by small scale service industrial uses and trade related retail activities. A small amount of residential recapture has occurred, including some informal dwellings.

ASSESSMENT

Relatively new scale development s have occurred on the southern edge on either side of Edwin Swales VC Drive; i.e. a level of ‘recapture’. The industrial related activities appear to have a mixture of port and non-port related industry use. This is due to the proximity of Clairwood to the to the port and also due to the general centrality and accessibility of the area as a whole.

Many of the sites appear not to be able to accommodate the uses on the sites and activity ‘spills’ over into the streets and pavements, especially in regard to parking and loading of vehicles.

Most of the roads possess an inadequate cross-section to facilitate use by large trucks.

COMPOSITE LAND-USE COMPOSITION: BY SITE SIZE AND AREA

The table below identifies the generalised use and areas of sites for the Clairwood area. The total area of all sites in this area add up to some 270.60 ha. The “logistics” group of uses in the area (transportation related services, warehousing and storage) account for some 27.5% of uses. The related use of wholesaling accounts for another 2.0%. Manufacturing accounts for some 3.3% and high technology industries some 3.5%. Motor related activities accounts for 6.8%. Residential land uses account for 10.1% and retail activities some 7.5%. Welfare and institutional uses account for some 11%. Although the area is only partially zoned for “industrial” uses residential development is a small proportion of land uses. The “logistics” grouping of categories is the largest user of land.

<table>
<thead>
<tr>
<th>CLAIRWOOD Existing Land Use</th>
<th>Area m²</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Products</td>
<td>13,794</td>
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</tr>
<tr>
<td>Chemicals</td>
<td>36,119</td>
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</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>3,386</td>
<td>0.1</td>
</tr>
<tr>
<td>Clothing &amp; Textiles</td>
<td>30,253</td>
<td>1.1</td>
</tr>
<tr>
<td>Ferrous &amp; Non-Ferrous Industries</td>
<td>6,988</td>
<td>0.3</td>
</tr>
<tr>
<td>Food &amp; Food Processing</td>
<td>14,325</td>
<td>0.5</td>
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<tr>
<td>Harbour Related Industries</td>
<td>12,270</td>
<td>0.5</td>
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<td>High Tech Industries</td>
<td>95,555</td>
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<td>Community Uses</td>
<td>49,580</td>
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<td>Motor Industries</td>
<td>10,896</td>
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<td>Motor Service Industries</td>
<td>173,460</td>
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<td>Welfare and Institutional</td>
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<td>Open Space - Parks</td>
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<tr>
<td>Petrol Refineries</td>
<td>710</td>
<td>0.0</td>
</tr>
<tr>
<td>Residential</td>
<td>273,465</td>
<td>10.1</td>
</tr>
<tr>
<td>Retail</td>
<td>202,762</td>
<td>7.5</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>852</td>
<td>0.0</td>
</tr>
<tr>
<td>Transport Industries</td>
<td>14,061</td>
<td>0.5</td>
</tr>
<tr>
<td>Transportation</td>
<td>614,107</td>
<td>22.7</td>
</tr>
<tr>
<td>Transportation, Freight &amp; Shipping Services</td>
<td>82,797</td>
<td>3.1</td>
</tr>
<tr>
<td>Warehousing &amp; Storage Services</td>
<td>47,196</td>
<td>1.7</td>
</tr>
<tr>
<td>Waste Industries</td>
<td>7,478</td>
<td>0.3</td>
</tr>
<tr>
<td>Wholesale</td>
<td>52,979</td>
<td>2.0</td>
</tr>
</tbody>
</table>
|                           | 2,706,065| 100.0
6.3 CLAIRWOOD

LAND OWNERSHIP

CLAIRWOOD

The bulk of the land parcels are in private ownership. eThekwini Municipality owns the land occupied by the two canals traversing the area and land accommodating the M4 freeway and the a number of pockets abutting the freeway.

The city also owns the land occupied by the Fresh Produce Market and adjacent sports facilities and several small parcels of land in the inner suburb.

The adjacent land on the eastern side of the suburb, occupied by a diesel depot, is owned by Transnet. These two large areas offer opportunities to be assembled and reused for implementation of a logistics platform.

Further detailed analysis was undertaken for the Clairwood zoned residential area, the findings of the Clairwood Property Market Assessment can be summarized as follows:
LAND VALUE PROFILE

CLAIRWOOD
The commercial and industrial developments along South Coast Road comprise high land values, except for a few large site developments such as sugar refinery.

The newer developments along Edwin Swales VC Drive have middle to high values, as do the small scale developments in the vicinity of Teakwood Drive. The central and mostly residential portion of Clairwood exhibits the lowest property values in the entire study area (R100 to R1000 per sq metre). The large scale developments at the south-east edge of the area also exhibit relatively low values.

It bears repetition that most of the smaller sites with high intensity development exhibit relatively high property values (up to R3500 per sq metre), while the larger sites reflect relatively low property values (R1000 to R2500 per sq metre).

What is clear is that the ability to assemble large sites from several small sites is likely to be constrained by the high land values and the laborious process of site acquisition.

The current low property values in the Clairwood residential zone, by contrast make this land attractive for site assembly.
The findings of the Clairwood Property Market Assessment:

Notwithstanding the residential zoning of Clairwood, most purchasers, if not sellers, now realise the logistics/commercial potential of Clairwood, and if necessary are prepared to pay for that potential.

From sales analysed in both Schedules 1 and 2, the optimum prices of residential zoned land, suitable for logistics/commercial use, is in the range +/- R 850 per m² to +/- R870 per m² of site area (Sale 4, Schedule 1; Sales 8 and 15, Schedule 2).

By way of contrast only R96,80 per m² of site area was paid for a site along Sir Kumar Reddi Road on 16th September 2009, and as late as 31st March 2011, only R296,44 per m² paid for a site along Flower Road, clearly showing that many sellers were not obtaining the premium prices that were clearly warranted given the use such properties invariably are used for.

Should Clairwood be zoned logistics / commercial, even with its present, generally poor infrastructure, it is the of opinion of Ken Davies and Associates that the average price would rise to about R1250 per m². Fully serviced with widened roads, adequate storm water (1), etc., the probable price range would be R1500 per m² to R1750 per m². Current demand is generally for very large logistic sites i.e. 10 ha – 20 ha and therefore land acquisition and assembly is important to realise higher values.

---

### LOCAL SCALE ANALYSIS

#### 6.3 CLAIRWOOD

**SAMPLE OF TYPICAL PROPERTY SALES IN CLAIRWOOD SUBURB**

<table>
<thead>
<tr>
<th>ADDRESS</th>
<th>AREA (M²)</th>
<th>R.V.</th>
<th>D.O.S.</th>
<th>PRICE (R’s)</th>
<th>PER M² SITE (R’s)</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flower Rd</td>
<td>1 012</td>
<td>300 000</td>
<td>31.03.11</td>
<td>300 000</td>
<td>296,44</td>
<td>Realisable value R850 per m²</td>
</tr>
<tr>
<td>Houghton Rd</td>
<td>1 302</td>
<td>690 000</td>
<td>09.11.10</td>
<td>900 000</td>
<td>691,24</td>
<td>Only bonded property; Standard Bank R700 000</td>
</tr>
<tr>
<td>Lockhat Rd</td>
<td>705</td>
<td>250 000</td>
<td>16.10.10</td>
<td>180 000</td>
<td>255,32</td>
<td>Road only 4,57 metres wide</td>
</tr>
<tr>
<td>Horsham Rd</td>
<td>1 151</td>
<td>540 000</td>
<td>05.07.10</td>
<td>1 000 000</td>
<td>868,81</td>
<td>Older house 146 m². Logistics use</td>
</tr>
<tr>
<td>Pine Rd</td>
<td>650</td>
<td>710 000</td>
<td>18.01.10</td>
<td>180 000</td>
<td>276,92</td>
<td>Building area 394 m². Not arms-length</td>
</tr>
<tr>
<td>Sirdar Rd</td>
<td>733</td>
<td>620 000</td>
<td>24.12.09</td>
<td>800 000</td>
<td>1091,41</td>
<td>House 209m²</td>
</tr>
<tr>
<td>Sir Kumar Reddi</td>
<td>1 343</td>
<td>330 000</td>
<td>16.09.09</td>
<td>130 000</td>
<td>96,80</td>
<td>Dilapidated building (166m²). Potential</td>
</tr>
<tr>
<td>Ganesh Road</td>
<td>616</td>
<td>150 000</td>
<td>04.05.11</td>
<td>575 000</td>
<td>850,59</td>
<td>V.L.</td>
</tr>
<tr>
<td>Ambar Rd</td>
<td>582</td>
<td>130 000</td>
<td>22.07.10</td>
<td>270 000</td>
<td>463,92</td>
<td>House demolished</td>
</tr>
<tr>
<td>Flower Road</td>
<td>1 171</td>
<td>400 000</td>
<td>05.01.10</td>
<td>500 000</td>
<td>426,99</td>
<td>V.L.</td>
</tr>
<tr>
<td>Richborough Rd</td>
<td>1 170</td>
<td>220 000</td>
<td>05.01.10</td>
<td>500 000</td>
<td>427,35</td>
<td>V.L.</td>
</tr>
<tr>
<td>Sastri Rd</td>
<td>433</td>
<td>100 000</td>
<td>05.12.09</td>
<td>90 000</td>
<td>207,85</td>
<td>V.L. Residential site value</td>
</tr>
<tr>
<td>Houghton Rd</td>
<td>1 302</td>
<td>430 000</td>
<td>15.06.09</td>
<td>900 000</td>
<td>691,24</td>
<td>V.L. Note Other Houghton property at R900 000</td>
</tr>
<tr>
<td>Cherry Rd</td>
<td>2 016</td>
<td>260 000</td>
<td>30.07.08</td>
<td>1 200 000</td>
<td>595,24</td>
<td>House demolished</td>
</tr>
<tr>
<td>Sirdar Rd</td>
<td>1 163</td>
<td>270 000</td>
<td>27.05.08</td>
<td>980 000</td>
<td>842,65</td>
<td>Out-building only. Logistics use</td>
</tr>
<tr>
<td>Houghton Rd</td>
<td>1 302</td>
<td>220 000</td>
<td>09.04.08</td>
<td>800 000</td>
<td>614,44</td>
<td>Purchased November 07 for R165 000</td>
</tr>
</tbody>
</table>


---

(1) Storm water management systems include the provision of storm water ponds with or without designed retention basins, and other ways of capturing and managing storm water to prevent or mitigate flash flooding.
MOVEMENT

JACOBS

Very little in the way of road and node stress has been identified within the Jacobs area. Understandably Quality Street and its intersections with Chamberlain Road, Balfour Road and the Southern Freeway record high levels of road stress being the dominant road intersections within Jacobs.
ZONING

JACOBS

The area comprises several zones:

1. The area between South Coast Road and Chamberlain Road, which is on both sides of the freeway, is zoned Noxious Industry.

2. The eastern section of Jacobs, east of Chamberlain Road, is a continuation of the General Industrial Zone of Clairwood.

3. The southern component of the Jacobs area is the Clairwood Race course and is zoned Private Open Space, except for a small linear pocket of Noxious Industry, adjacent to Mobeni.
LAND USE

JACOBS

DESCRIPTION

Jacobs is one of the oldest and largest of Durban’s industrial estate townships. The township has a variety of small, medium and large sized sites and developments. The smaller sites with smaller developments are clustered in a number of blocks, mostly at the eastern edge of the township.

LAND-USE COMPOSITION

There is a variety of large and medium sized manufacturers and a plethora of smaller service industrial users that are reusing older industrial buildings.

There is a mix of uses in the area. There are still a number of large scale textile and chemical related manufacturers.

There are a number of logistics related uses that include large organizations, as well as many small scale firms. These exhibit no sense of “clustering” and occur randomly throughout the area, on both small and large sites.

Many of the smaller developments, on small sites, have been invaded by small scale service industries and related workshops and retail facilities.
It is noteworthy that there are several large warehousing, storagge and freight transport activities in the northern section of Jacobs, and these have occurred across both large sites and sites assembled from smaller sites. A large area on Balfour Road and Quality Street used for residential purposes potentially offers some opportunity for rezoning.

**FORMAT OF DEVELOPMENT**
The buildings are all set back from the boundaries and have a modicum of on-site loading and parking facilities. The layout was originally well conceived as there are large medium and small sites to cater for a range of industrial options.

**STAGE OF DEVELOPMENT**
This township is fully developed. The larger sites evince manufacturing industry that appear committed to the area. "Packing" is occurring primarily in the developments on the smaller sites and activities are extending outside the sites onto the pavements and roads in these areas. A limited amount of "thinning" is apparent. Where manufacturing activities seem to play a lesser role than originally. Some "recapture" is occurring on larger sites, primarily with logistics related uses.

**ASSESSMENT**
Today Jacobs is showing its age, with many of the buildings inadequately maintained and dated in design. Many of the sites do not appear to be able to adequately accommodate the uses occurring on the sites and activity "spills" over into the streets and pavements, especially in regard to parking and loading of vehicles. The roads and sidewalks are poorly maintained, and there is poor stormwater drainage. Sections of the railway lines serving private sidings are no longer used and are now overgrown and not maintained. The township is generally shabby and unattractive.

**COMPOSITE LAND-USE COMPOSITION: BY SITE SIZE AND AREA**
The table below identifies the generalised use and areas of sites for the Jacobs area. The total area of all sites in this area add up to some 371.13 ha. The "logistics" group of uses in the area (transportation, related services, warehousing and storage) account for almost 40% of uses. The related use of wholesaling accounts for another 3.6%. Manufacturing accounts for some 15.7%. Open space accounts for almost 20%. The balance of other categories of land uses are mostly less than 5% each and a few are between 5 and 10%. Community and welfare and institutional uses account for another 11%. Once again, the logistics category of uses is the largest user of space, with manufacturing being almost half this amount.
LAND OWNERSHIP

JACOBS

The majority of the sites in Jacobs are in private ownership.

Two sites, more or less diagonally opposite each other on either side of the M4 freeway and Quality Street and owned by the state. These are an army store and barracks.

These two largish sites also offer an opportunity for possible reuse for back of port activities.
LAND VALUE PROFILE

JACOBS

The clusters of small sites, mostly along the eastern edge of Jacobs, comprises largely “flatted” factories and exhibit upper-middle to high property values (R1000 to R3500 per sq metre).

The developments on large sites on the western edge of the area exhibit relatively low property values (R500 to R1500 per square metre).
MOVEMENT

MOBENI

Mobeni (similar to Jacobs) has limited road stress within its precinct. However Grimsby Road towards Higginson Highway and the intersection of Pendelbury Road and South Coast Road record between 80 to 90% of road stress. The wide road reserves and large sites offer businesses the ability to function more effectively through catering for parking and loading and off-loading on site and this to a degree limits stress within Mobeni.
ZONING

MOBENI

The area comprises a number of zones:

1. The majority of the area is demarcated General Industry;

2. A narrow band, in the central section of the township, is demarcated Noxious Industry, obviously such that it is masked from adjacent residential areas.

3. The south-western wedge is zoned Residential and accommodates hostel facilities. This is a strategically valuable site due to the direct access that the site affords to the N2 national route, and, in the long run, could be considered for rezoning for logistics activities.
LAND OWNERSHIP

MOBENI

Almost all of the Mobeni industrial township is owned by the private sector.

The south-western residential wedge is in the ownership of the state.

The eThekwini Municipality owns two large sites at the southern extremity of the township. These state and municipal owned sites offer opportunities for being incorporated into appropriate logistics facilities.
LAND USE

MOBENI

DESCRIPTION

The two sections of Mobeni are situated on either side of the South Coast Road (R102) adjacent to Jacobs and the Clairwood Racecourse. It is a long narrow township stretching down towards the old airport site at Reunion. Like Jacobs, it is one of Durban's older industrial estate areas, but is the slightly more recently developed of the two.

Most of the factories are fairly large. Although many of the factory buildings are of similar vintage to those in Jacobs, the area is marginally better kept.

LAND-USE COMPOSITION

This industrial township contains a mix of uses. There is already a substantial amount of warehousing, storage and freight & transportation services uses – all occurring on large sites, particularly in the area between the Southern freeway and the railway.

A large number of sites retain manufacturing activities such as clothing and textiles; chemical activities; motor and transport related industrial activities.

A large residential areas exist at the southern end of the township as well as at the western end.
LOCAL SCALE ANALYSIS

6.5 MOBENI

FORMAT OF DEVELOPMENT
The majority of the sites in Mobeni are very large. Buildings are set back much further from the road than in the older industrial estates. The majority of loading and off-loading appears to be handled on-site. Consequently the area accommodates more contemporary building types much more satisfactorily. The wide roads also accommodate trucking. A basic rail reticulation is in place.

STAGE OF DEVELOPMENT
The area appears to possess relatively limited amounts of “packing” or “thinning”. Early “recapture” is beginning to occur.

ASSESSMENT
As the area possesses relatively small numbers of medium and smaller sites it has not be subject to packing and invasion by small scale service industrial uses. The relatively, newer and larger buildings, with adequate loading space has allowed the area to be more appropriate for contemporary activities.

COMPOSITE LAND-USE COMPOSITION: BY SITE SIZE AND AREA
The table below identifies the generalised use and areas of sites for the Mobeni area. The total area of all sites in this area add up to some 297.84 ha.

The “logistics” group of uses in the area (transportation, related services, warehousing and storage) account for almost 55.6% of uses. The related use of wholesaling accounts for another 1.3%. Manufacturing accounts for some 16.5%.

The balance of other categories of land uses are mostly less than 5% each and a few are between 5 and 10%. Welfare and institutional and community uses account for almost 27% of the site area.

Yet again, the logistics grouping of activities account for over half of the area of all the sites; with manufacturing accounting for a fairly small percentage.

<table>
<thead>
<tr>
<th>Mobeni</th>
<th>Existing Land Use</th>
<th>Area m²</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Products</td>
<td>78,083</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Chemicals</td>
<td>164,498</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>21,701</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Clothing &amp; Textiles</td>
<td>148,329</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>Ferrous &amp; Non-Ferrous Industries</td>
<td>26,740</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Food &amp; Food Processing</td>
<td>130,292</td>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>High Tech Industries</td>
<td>65,490</td>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>Community Uses</td>
<td>360,686</td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td>Motor Industries</td>
<td>44,026</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Motor Service Industries</td>
<td>15,925</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Welfare and Institutional Uses</td>
<td>435,545</td>
<td>14.6</td>
<td></td>
</tr>
<tr>
<td>Open Space - Land Reservation</td>
<td>4,745</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Open Space - Parks</td>
<td>2</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Open Space - Recreation</td>
<td>0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>198,989</td>
<td>6.7</td>
<td></td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>32,813</td>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>563</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>13,469</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Telecommunications</td>
<td>36,605</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>972,798</td>
<td>32.7</td>
<td></td>
</tr>
<tr>
<td>Transportation, Freight &amp; Shipping Services</td>
<td>175,263</td>
<td>5.9</td>
<td></td>
</tr>
<tr>
<td>Warehousing &amp; Storage Services</td>
<td>13,802</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>38,042</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,978,409</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
LAND VALUE PROFILE

MOBENI
This relatively newer industrial area comprises mostly large sites with large developments, and the development values are in the middle level of industrial property values (R200 to R2500 per square metre) with smaller properties typically reflecting higher values.

The area is divided by South Coast Road into Mobeni West and Mobeni East.
6.6 MEREWENT

MOVEMENT

MEREWENT

Merewent is outside of the study area but proximity of the suburb to large industrial plant create road traffic congestion, pollution and access issues for the residents of the suburb. This issue is consequently flagged. The routes that separate Merebank West from Merebank East exhibit a moderate level of road stress. This is in the region of 60% and 80% in parts. There is a conflict between residential and industrial traffic which use this route and create unneeded congestion in parts.
ZONING

MEREWENT

The area comprises two zones:
1. The Merebank industrial area is zoned General Industry;
2. The balance of the area is zoned Residential and cognate activities.

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
LAND USE

MEREWENT AND AUSTERVILLE
DESCRIPTION
Merewent and Austerville are situated on the north side of the old airport site where several large industrial plants are also located. The suburb of Merewent separates the north and south industrial sections. Because of the close proximity to the plants of the residential areas bordering the industrial locations, and due to the nature of the industrial processes carried out there, these are the areas where residents are most discontented about industrial pollution.

LAND-USE COMPOSITION
Three large manufacturing plants are located in Merewank. viz. Engen Oil Refinery, Mondi Paper and Sasol Fibres.

The Umlaas canal runs between Merewank and the old airport site, and both the Sasol and Mondi factories are located next to the canal.

The balance of the area comprises residential and associated land uses.

FORMAT OF DEVELOPMENT
This are relatively recent and are in industrial estate format.

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
STAGE OF DEVELOPMENT
The residential area remains at the fully developed stage. The industrial areas are also at this advanced stage of development.

ASSESSMENT
The area is primarily residential where the “industrial” development is constrained to a limited number of extremely large sites with activities that have externality impacts. These limited number of sites while large, do not occur as industrial estates as such; rather they are independent operations with each having only a single main access point.

COMPOSITE LAND-USE COMPOSITION: BY SITE SIZE AND AREA
The table below identifies the generalised use and areas of sites for the Merewent area. The total area of industrial sites in the areas add up to some 138.64 ha. The “logistics” group of uses in the area (transportation, related services, warehousing and storage) accounts for some 7.1 site area The related use of wholesaling accounts for another 3.3%. Manufacturing accounts for some 10%. The balance of other categories of land uses are mostly less than 5% each and a few are between 5 and 10%. Welfare and institutional uses and community uses account for almost 27%

<table>
<thead>
<tr>
<th>Merewent</th>
<th>Existing Land Use</th>
<th>Area m²</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing &amp; Textiles</td>
<td>190,311</td>
<td>13.7</td>
<td></td>
</tr>
<tr>
<td>Welfare and Institutional Uses</td>
<td>408,060</td>
<td>29.4</td>
<td></td>
</tr>
<tr>
<td>Open Space - Land Reservation</td>
<td>91,780</td>
<td>6.6</td>
<td></td>
</tr>
<tr>
<td>Open Space - Recreation</td>
<td>109,850</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>468,788</td>
<td>33.8</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>19,582</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>97,993</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,386,363</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
LAND OWNERSHIP

MEREWENT
All the residential development is in private ownership.

Mondi Paper is in private ownership.
A large area to the east of Mondi Paper is owned by the municipality.

A medium sized property to the south of the freeway and adjacent to the military cemetery is owned by the state.

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
**LAND VALUE PROFILE**

**MEREWENT**

The area exhibits high values for the Mondi Paper site (R2500 to R3000 per square metre) and very low values for adjacent sites (R100 to R200 per square metre).

**LOCAL SCALE ANALYSIS**

6.6 MEREWENT

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.


6.7 LOCAL AREA SCALE FINDINGS

**MOVEMENT**

There is high levels of stress on the road network between Congella and Rosburgh. This is directly due to the movement of heavy vehicles within this area interdispersed with public and private vehicles travelling from the Port of Durban to their destinations within the SDB or outside Durban. The mixed use area of Clairwood is directly effected as heavy vehicles together with private, public and pedestrian movements all access South Coast Road and this causes undue stress and congestion at intersections particularly along Edwin Swales VC Drive and Blamey Road intersections. Areas such as Jacobs and Mobeni which have wide road reserves and large sites the ability of businesses to function effectively, catering for parking on site and efficient loading and unloading, limits stress on major road networks within these areas. Limited use of rail or lack of rail accessibility negates the potential of moving large quantities of port related goods by rail thereby forcing the use of heavy vehicles to transport break bulk cargoes and containers to and from their destinations. This is placing huge demand on the current overstressed road infrastructure.

**ZONING**

The industrial zoning in each of the local scale components of the Study Area comprises primarily of General Industry and Noxious Industry. There area only a few Light Industrial Zones. For the most part General Industry abuts adjacent residential areas with Noxious Industry either at the edges of the various areas or embedded within the General Industrial areas; except for the large Noxious Industrial areas of Stanvac (Engen Oil Refinery) and Mondi Paper in the Austerville/Merewent areas.

Both of these zone types has enabled all types of industrial activities to occur with no attempt to cluster industrial activities to specific areas, with the exception of the noxious industrial zones.

The land-use analysis indicate that while there are some major residual noxious industrial activities still in the area, the majority of activities occurring in areas zoned for noxious industry do not fall into this category.

It becomes clear that the noxious industrial zoning is not absolutely necessary or appropriate; and nor is a general industry zoning always appropriate. The evolution of the area away from manufacturing industrial activities and towards “Light”, and “Service “ industrial activities, as well as the trend to logistics activities raises the consideration of introducing more appropriate categories of industrial zoning; as well as the need to consider different development regulations that meet the needs of contemporary industrial development.

**LAND USE**

Each of the industrial areas currently accommodates a mix of land uses, viz.
- Large and small scale manufacturing industries;
- Wholesaling and warehouses;
- Freight-forwarding and transport services;
- Light and service industries;
- Retail outlets and distribution of different types.

The development format of each of the various local scale areas tends to reflect the age of the each of the areas and the layout system applied at the time of development. The older areas (Congella) comprise the earliest industrial format and are mostly developments with high coverages and limited amounts of on site parking and loading.

The early form of industrial estate format such as at Jacobs allow for a level of on-site loading and parking with buildings being set back from all side boundaries. Jacobs also comprises a range of site sizes, with many of the smaller sites also taking the form of flatted factories – a point that will be referred to later.

Mobeni is a later stage of an industrial estate evolution, with most of the sites and buildings being large. Most sites are rail served and buildings are set back even further from the site boundaries, with a consequence that most loading, unloading and parking is on-site.

The majority of the industrial developments reflect an earlier format and type of building that are being re-used for a range of facilities and are often not entirely appropriate. There are the beginnings of purpose built warehousing and freight-forwarding buildings being constructed. There are very few “flex” and contemporary multiple docking facility type buildings of the type now demanded for efficient logistics operations.
Each of the industrial areas are far removed from the 1st Stage “Rural” development origins. They have also moved through the 2nd Stage, and have been fully developed (3rd Stage) for many years.

Some of the areas, especially those comprising smaller scale buildings, but also some sites with large scale buildings, have become subject to “packing” as they now accommodate a plethora of retail, distribution, showroom and small scale service industries. This has increased density of development and particularly that of parking and loading – which now “bleeds” onto the pavements and streets.

A few isolated developments indicate some “thinning” as some activities have relocated and vacated the area. The beginnings of “recapture” are found in almost all the areas, as newer forms of industrial development, viz. logistics, have redeveloped and/or rehabilitated sites.

“Packing” and “bleeding” is exacerbating the ability of the area to cope with traffic movement, loading and unloading, and parking of both cars and trucks.

The older areas of Umbilo, Congella, Maydon Wharf, Clairwood, Jacobs and Mobeni are indicating a slow but relentless change of use. Some of the uses reflect the demand for newer and growing demands of logistics and transport activities in relation to the port; and others, such as much of the service industrial and retail activities reflect the opportunities for accessible and convenient rental facilities, rather than any forward- or back-ward linkages to the port.

It is also clear that the various industrial areas cannot absorb and provide appropriate space for all the various activities, i.e. there is a limited supply of industrial land and accommodation. Consequently, there is a need to create further and alternative industrial development opportunities in relation to these existing areas as well as further a field. This analysis indicates that the “manufacturing” form of industrial activities, including service industries, in most areas that comprise the SDB, are all less than 50% of activities. Wholesaling and warehousing also form relatively small proportions of the activities. There is a clear indication that most of these areas have experienced an increase of logistics and transport uses, and an increase in service industrial activities. It is interesting to note a high proportion of professional activities.

It becomes clear that these areas have altered over time from primarily manufacturing activity areas to a much more mixed range of activities. Some of these activities, such as logistics, warehousing and transport, possess relatively low intensities of labour when compared to manufacturing industry.

The occurrence of many service industries in the SDB appear to be located there for default locational reasons, viz. they are taking the opportunity of occupying properties for the convenience of centrality and accessibility. Many of the uses do not appear to exhibit a strong relationship to the activities of the port. They are “packing” into the area by taking advantage of existing buildings, as the original manufacturing activities appear to have “thinned”.

**LAND VALUE**

Generally, land values in the various local scale areas of the study area vary quite considerably. Larger sites have values of the order of R200 to R1,000 per sq metre, and the smaller sites evince values in excess of R1,500 per sq metre.

Essentially, and not unexpectedly, the higher intensity “flatted” factories in Umbilo /Congella, Clairwood and Jacobs possess high values per sq metre, as do the commercial development along the Clairwood South Coast Road area. These are also mostly the developments on the smaller sites.

Despite the relatively lower values per sq metre of the larger sites, when compared to many of the smaller sites, the larger sites will possess a higher cost for the developments as a whole.

It is also clear that until such time that the developments on smaller sites deteriorate and exhibit lower values, they are not conducive to easy site assembly.

A broad conclusions can be drawn, namely:

- Additional industrial land is needed for both logistics and service industrial activities. This should be created at new locations along various activity corridors (such as the planned east-west truck freight route) and at new nodes such as Cato Ridge, Dube Trade Port and Bridge City as well as within the South Durban Basin (SDB) and the BOP LAP area, given the need for land that has direct support to the port and related activity and where distance is an major issue for port related logistics and value added industry.
6.7 LOCAL AREA SCALE FINDINGS

SOCIAL ENVIRONMENT

There are a number of impacts on the social environment which need to be managed in the study area. The impact of industry and commercial activities on residential communities needs to be reduced where possible.

In addition the impact of trucks on the residential environment must be reduced by controlling movement through residential areas. Noise impacts of trucks which operate 24 hours a day must be mediated.

There is an overall need to have stricter control of land use zoning in the study area, given the infiltration of industrial and business uses in such areas.

Social amenity such as parks and recreational facilities also require good management and provision for the study area.

Specific concerns are raised with social issues affecting the Clairwood residential community and this needs a negotiated settlement on how the BoP are and in particular emerging zoning options for Clairwood is articulated and implemented.

The creation of phased interface zones in Jacobs, with some re-zoning closer to residential areas should aim to reduce residential-industrial conflict. In re-orientating Mobeni-East to a logistics orientated zone, vulnerable residential communities living in Jacobs and Mobeni need to be considered. The displacement of work opportunities through industrial transformation will have severe impacts on highly vulnerable groups who live and work in this area.
SPATIAL FINDINGS

Summary Findings
City – Wide and District Scale Findings
INTRODUCTION

The composite findings, across all scales of analysis, are summarised and presented in a series of tables that identify:

- KEY ISSUES;
- DEFINITION AND IMPACTS OF ISSUES;
- IMPLICATIONS AND/OR CHOICES TO BE CONSIDERED;

These findings and their implications are then further grouped so that they exhibit the strategic issues to be taken into account and debated, viz.

1. Conflicting and Competing Demands;
2. Social Implications;
3. Availability of Land;
4. City Wide Impact of Construction of a new "Dig-Out Port" at Reunion;
5. Appropriate Infrastructure Platform as Basis to Support & Induce a World Class System

1. Conflicting and Competing Demands

- Growth of logistics v/s service Industry;
- Large site needs v/s limits of assembly of small sites;
- Expansion of industry v/s established residential pattern;
- Low intensity employment v/s high intensity employment;

2. Social Implications

- World Class Back of Port as a catalyst for a regeneration strategy which is positive for area as a whole;
- Mitigation of displacement issues / density of employment / externalities;

3. Availability of Land

- No brownfield opportunity and limited vacant land;
- Need to maximise opportunity where it exists;
- Possibility of regional inland logistics facilities in the longer run;
- Importantly – need for shared planning across boundaries of land ownership;
- Phased use of portions of the old airport site in short-term;

4. City Wide Impact of Construction of a new “Dig-Out Port” at Reunion

- Much higher intensity of activity/traffic than the airport;
- Will create new node of regional significance;
- Requires substantial additional harbour, road and rail infrastructure investment;

5. Appropriate Infrastructure Platform as Basis to Support & Induce a World Class System

- Disjuncture between demand with present infrastructure and site formats;
- Provision of adequate Infrastructure / Connectivity is fundamental basis for change;
- Finding the essential structure is primary, and land use systems will respond accordingly

The reader is referred, also, to the following annexures which form part of the main report:

A – Previous Studies
B – City Structure And Growth Patterns
C – Changes In The Nature Of Industrial Development
D – Bop-spatial Framework Plan
E – Bop-zoning Framework Plan
F – Back Of Port Area - Social Issues
G – Social Issues In Areas Lying On The Periphery Of The Bop Study Area
H – Clairwood Property Market Assessment
I – Environmental Report
J – Real Estate Opportunity Analysis
K – Traffic Report
SPATIAL FINDINGS

7.2 CITY-WIDE AND DISTRICT SCALE FINDINGS

**ISSUES EMERGING FROM THE STATUS QUO ANALYSIS**

<table>
<thead>
<tr>
<th>PROBLEMS</th>
<th>POSSIBILITIES</th>
<th>STRATEGIC ISSUES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NATIONAL CONTEXT</strong></td>
<td>1. The DIA site offers a unique opportunity to expand the port capabilities of the city of Durban. 2. There is a need to create appropriate zones for newer forms of businesses to ensure national competitiveness. 3. The existing backbone of rail, and its regional and local network needs to be improved and enhanced as part of an integrated, efficient and cost effective logistics platform.</td>
<td>1. Facilitate the expansion of the existing port and the development on the old DIA site of a new world class seaport. 2. Need to ultimately create an alternate road link to Gauteng. 3. Create new zones to allow for newer forms of businesses. 4. Port expansion strategies required. 5. Appropriate infrastructure platform which combine and integrate, sea, road and rail movements is required.</td>
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</table>

**METROPOLITAN CONTEXT**

1. There is no clear integrated movement matrix in the southern arm of the metropolitan system. 2. The SDB does not currently form part of an emerging polycentric model. 1. Limited road connection, but a few potential new connections. 2. To create appropriate nodes within the southern arm. 3. As a consequence of the expansion the possibility exists to create a specific major node in the south to play a major role. 1. Create an integrated road matrix. 2. Identify a dedicated truck route. 3. Identify a major node for the southern arm.

**SOUTH DURBAN CONTEXT**

1. There are limited east/west connections onto the M4 freeway and South Coast Road. 2. Lack of linkage to southern extremity of study area. 3. Road networks are shared with residential and industrial traffic. 4. There are only two connections onto the N2. 5. There is limited industrial land available in SDB. 6. Inappropriateness of noxious industry zonings when unutilised. 7. Growth of service industry and a lack of appropriate and adequate facilities for service industry and the resultant spill-over onto the streets. 8. To a large degree the rivers that penetrate through the study area are canalized and polluted. 9. High levels of air emission pollution within the SDB. 10. Under utilization of rail systems. 1. Opportunities exist to create parallel road routes to improve limited connections. 2. uMlatuzane river valley offers an opportunity for new development or redevelopment. 3. Review the town planning scheme. 4. Improve and maximize rail network. 1. Create alternate and additional north-south routes. 2. Evaluate uMlatuzane river valley for additional “logistics” facilities. 3. Review the town planning scheme. 4. Upgrade and extent rail network and integrate with logistic platform. 5. Need for dedicated truck freight routing system.
<table>
<thead>
<tr>
<th>ISSUES EMERGING FROM THE STATUS QUO</th>
<th>POSSIBILITIES</th>
<th>STRATEGIC ISSUES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MOVEMENT: ROADS</strong></td>
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<tr>
<td>1. Stressed intersections on South Coast Road and M4 intersection in the Clairwood area</td>
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<td>2. Stressed roads along South Coast Road, Congella area and Edwin Swales Drive.</td>
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<td>3. Shared roads such as Tara Road, Edwin Swales VC Drive.</td>
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<td>4. Loading and parking in roads, especially in Congella, Clairwood and Jacobs</td>
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<tr>
<td>5. Lack of linkage between areas such as ports and Clairwood, Clairwood and Jacobs, Jacobs and Mobeni.</td>
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<tr>
<td>6. Lack of linkage between Mobeni and planned new Dig-out port</td>
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<tr>
<td>7. No clear convenient link between old port and new port</td>
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<tr>
<td><strong>MOVEMENT: RAIL</strong></td>
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<tr>
<td>2. Limited rail connections to the new Dig-out port sites</td>
<td>2. Maximize rail network in Mobeni and throughout the SDB</td>
<td></td>
</tr>
<tr>
<td><strong>LAND USE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. High intensity invasion of service industry into Jacobs and Congella</td>
<td>1. Rezone downgraded and compromised residential zoned properties in Clairwood and extend existing industrial areas in relation to new planned Dig-out port</td>
<td></td>
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<tr>
<td>2. Growth of logistics uses</td>
<td>2. Mbeni can be orientated induced to be &quot;logistics&quot; orientated.</td>
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<tr>
<td>3. Insufficient land available to accommodate growth of logistics activities generated by expansion of the harbour</td>
<td>3. Extend existing industrial areas in relation to new planned Dig-out port</td>
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<tr>
<td>4. The expansion of the port is going to push land uses within the port to areas outside of its boundary - this will result in demand for land elsewhere</td>
<td>3. Extend existing industrial areas in relation to new planned Dig-out port</td>
<td></td>
</tr>
<tr>
<td>5. Limited large unencumbered land parcels</td>
<td>4. Rezone areas for Back of Port Activities (Zone 3) such as Mobeni, portions of Clairwood, Isipingo, Reunion.</td>
<td></td>
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<tr>
<td>6. Limited opportunities for &quot;logistic&quot; uses in Jacobs</td>
<td>5. Maximize town planning schemes in and around the Dig-out port</td>
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<tr>
<td>7. The role of Clairwood Racecourse needs to be defined.</td>
<td>5. Modify town planning schemes in and around the Dig-out port</td>
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<tr>
<td><strong>LAND OWNERSHIP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Majority of the land is in private ownership and planning authorities can only induce change.</td>
<td>1. Solicit the support of Clairwood landowners</td>
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<tr>
<td><strong>LAND VALUE</strong></td>
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<tr>
<td>Land values are extremely high in Jacobs and in the Clairwood business zones and is unlikely that large scale land assembly can easily be facilitated.</td>
<td>1. Consultative/Coordinate/assemble public land parcels such as the Transnet Diesel Depot Workshop and Fresh Produce Market to become a logistics park.</td>
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<tr>
<td><strong>ENVIRONMENT</strong></td>
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<tr>
<td>1. Existing water courses throughout this area are canalized creating hard interfaces.</td>
<td>1. Upgrade and link water front areas with adjacent land uses.</td>
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<tr>
<td>2. Umbilo river is canalised and redirected into the sea. Mhlatuza and Umbilo river are canalized through the Bayhead area</td>
<td>2. Formulate appropriate interface between industry and residential</td>
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<tr>
<td>3. Mhlatuza link (Dedicated Link)</td>
<td>3. Extend and link pathways/waterfronts through to Clairwood Racecourse.</td>
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<tr>
<td><strong>SOCIAL ENVIRONMENT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Displacement of residential properties as a result of development of BoP zone is problematic.</td>
<td>1. Industrial-residential interface needs to be managed through creative use of buffer zones.</td>
<td></td>
</tr>
<tr>
<td>2. Future of Clairwood needs to be addressed, a component of residents do not wish to move away from the area and it also has significant heritage value.</td>
<td>2. New transport routes need to be sensitive to local residential environment.</td>
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</tr>
<tr>
<td>3. Planning interventions must not increase the loading on vulnerable communities, especially in relation to crime, drug and alcohol abuse and pollution.</td>
<td>3. Clairwood should be preserved as a historical precinct within the BoP zone.</td>
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<tr>
<td>4. New transport routes will impact on the residential areas they move through. These routes should not divide communities.</td>
<td>4. Residents need to be involved in decision making process re BoP.</td>
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<tr>
<td>5. Transformation and development of South Durban must not be determined by market forces alone.</td>
<td>5. City to intervene to improve social problems in South Durban Basin as a related product of the BoP project. This will add value to BoP and build trust with communities.</td>
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<tr>
<td><strong>SOIL(Id) FRAMEWORK, PRECINCT PLANS AND ZONING FRAMEWORK</strong></td>
<td>1. Relook at other areas within the basin to accommodate relocated businesses.</td>
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<tr>
<td>1. Retool at other areas within the basin to accommodate relocated businesses.</td>
<td>2. Define appropriate development option/s for the developable part of the Clairwood Racecourse.</td>
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<td>3. Maximize and improve rail facilities in Mobeni and throughout the SDB.</td>
<td>3. Create/realign roads to link two ports.</td>
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<tr>
<td>4. Improve links to South Coast Road, M4, and N2</td>
<td>4. Review current town planning schemes.</td>
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<tr>
<td>5. Proposed link from the Bluff through towards Mahatma Gandhi Road (Durban Point Waterfront and CBD) (pedestrian, vehicular, a water connection) to allow for residential connectivity.</td>
<td>5. Creation of new appropriate zones.</td>
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<tr>
<td><strong>ZONING</strong></td>
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<tr>
<td>1. Creation of new appropriate zones.</td>
<td>1. Create/realign roads to link two ports.</td>
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<tr>
<td>2. Creation of appropriate development controls.</td>
<td>2. Creation of new appropriate zones.</td>
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</table>
SUMMARY OF TRENDS AND ISSUES

Background
Trends and Issues in the Planning Area
Assumptions
Objectives
Various levels of analysis have been undertaken and assimilated to inform the preparation of the Back of Port concept plan. Issues and trends have emerged at various spatial contexts (national, provincial, metropolitan, the SDB, and the study area), and multidisciplinary contexts (environmental, social, economics, spatial planning, transport and bulk infrastructure).

The planning exercise is affected at various spatial and multidisciplinary contexts.

While the strategic assessment and related issues have been conclusively articulated at the end of the status quo phase of the project, the issues affecting the planning area specifically need to be summarized and presented again in order to properly contextualize the concept plan (note that a complete record of the strategic assessment and issues is contained in the Status Quo Report).

The reader is referred, also, to the following annexures which form part of the main report:

A – Previous Studies
B – City Structure And Growth Patterns
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SUMMARY OF TRENDS AND ISSUES

8.2 TRENDS AND ISSUES IN THE PLANNING AREA

ECONOMIC PERSPECTIVE

Logistics
The current built form and road infrastructure in the planning area is unable to support either appropriate facilities or sufficient space for facilities for the packing and unpacking of containers. Facilities are scattered and are often poorly serviced by road. Similarly, empty container depots are often ill-located, generally insufficient for current or future container throughput and are poorly accessed. Strategically, the performance of logistics activities in the area can be improved by, inter alia, providing adequate space, facilitating redevelopment opportunities and setting up appropriate development guidelines (building and zoning guidelines). The improvement of road and rail infrastructure and capacity to sites is also of critical importance.

Container terminal access
Poor container terminal access – traffic from South Coast and Maydon Roads converging onto Bayhead Road to access the port container terminals – results in congestion and a severe lack of general efficiency. Truck congestion directly affects the large numbers of packing / unpacking facilities and empty container depots in the Bayhead area, as well as access to the other major destinations accessed from Bayhead Road, including the Island View area and the Cutler Precinct.

Economic dynamics of industrial townships
Conversion from current land uses to “logistics” incurs an element of displacement and opportunity cost in each of the industrial areas indicated (and in the case of one residential area - the residential core of Clairwood). Land prices in the study area are generally very high with the exception of the residential core of Clairwood, making the option of purchasing large tracts of land extremely challenging. Some pertinent inhibiting economic factors and challenges per area include the R 9.2 billion in upstream gross domestic product (GDP) and 40% of jobs that would be displaced if business activities currently occurring in Jacobs are completely replaced by logistics; and that complete redevelopment is required (in terms of both street layout and bulk infrastructure) in the eastern part of Jacobs and in the residential portion of Clairwood, which has a significant cost implication. There are, however, a number of opportunities:
- Parts of Clairwood present a strong opportunity for grouped redevelopment as land here is still relatively inexpensive;
- The municipal-owned fresh produce market site (Clairwood);
- The Transnet Freight Rail-owned diesel depot (Clairwood);
- The military stores site in Richard Carte Road (Jacobs West);
- Relatively low levels of economic activity in Mobeni (relatively low upstream GDP and employment);
- The existing street layout and road and rail network in Mobeni is largely (and uniquely in the study area) suitable for logistics activities (implying low re-development costs);
- Logistics activities are relatively high generators of employment and upstream GDP and thus would tend to benefit the local economy, even if the introduction of such activities led to displacement of existing economic activity and employment.

SOCIAL PERSPECTIVE

There are a number of social challenges in the area. These relate in part to the existing situation and in part to anticipated consequences of port expansion proposals and the resulting impact on the Back of Port area. Of immediate concern from a social perspective is the possibility of displacing residents through the development of a Back of Port logistics area. This issue arises primarily in Clairwood where some residents have expressed a desire to remain in the area.

Whichever planning interventions are proposed, it is important that these do not increase the loading on vulnerable communities, particularly in respect of the major social issues identified, viz. crime, drug and alcohol abuse and pollution. Furthermore, it is imperative that any new transport routes are aligned such that they do not divide existing communities.

ENVIRONMENTAL PERSPECTIVE

There are a number of environmental issues in the Back of Port area. As with the social concerns, they relate in part to the existing situation and in part to the port expansion plans and their impact on the Back of Port area.

In addition, appropriate treatment of the interface between residential areas and areas identified for redevelopment will be required in order to limit externality impacts on these areas.

In general, trucks currently have insufficient allocated space in which to park or be cleaned. This poses a risk that the run-off from cleaning, particularly the sludge from haulers carrying grain, will exacerbate water quality problems within the area. This problem would worsen with increased port and back of port activity.
SUMMARY OF TRENDS AND ISSUES

8.2 TRENDS AND ISSUES IN THE PLANNING AREA

Many old underground fuel storage tanks exist in the Back of Port area, some of these are known to be located in close proximity to the harbour and to water courses running into the harbour. These are causing water quality problems that extend into Durban Bay and out to sea. Intensification of development due to port expansion could exacerbate this issue.

Surface water drainage from bulk goods handling operations associated with the port extends directly into local water courses. Breakages and spillage of goods that can include bulk chemicals such as fertilizers is washed directly through the drainage system and into water courses. This is causing water quality problems that extend into the Bay of Natal and out to sea. Intensification of development due to port expansion could exacerbate this issue.

The risks over the entire study area are suitably low to allow for industrial type developments that would typically be associated with Back of Port activities. There may however be some restrictions on the population density at these facilities if they are located within 0.1 – 0.2 km of small Major Hazard Installations (MHI’s) (e.g. Valspar, Durban Fresh Produce Market etc) and 0.5 – 1 km of large MHI’s (e.g. SAPREF, ENGEN). In this regard the area of the current airport would require the most attention to ensure minimization of risks emanating from possible future activities.

There are likely to be numerous areas of contamination within the study area, which may constrain re-development in the short-term.

SPATIAL PLANNING PERSPECTIVE

Roads and rail

There are a number of stressed intersections (along South Coast Road and at the M4 intersection in the Clairwood area, as well as in the Congella area and along Edwin Swales VC Drive). Several key roads such Tara Road and Edwin Swales VC Drive are shared by both residential and heavy vehicle traffic. Access between the existing port and the proposed new dig-out port is non-existent, as is access from Mobeni to the new dig-out port. Perhaps most importantly, however, is the fact that none of the industrial areas near the port have adequate access to the Port of Durban and the container terminals, in particular.

Rail infrastructure is limited and generally underutilized, and non-existent in most of Jacobs.

Zoning

Zoning is generally inappropriate (particularly large areas zoned but not used by for noxious industry), as are many of the development controls applicable across the area. It is considered appropriate that explicit “logistics” orientated zones be created.

Land Use

Land use change over the years is evidenced by a general growth in logistics use throughout the study area as well as by a high degree of invasion in Jacobs and Congella by service industries.

Land ownership

The majority of land holdings are under private ownership, inhibiting the possibility of inducing directed change. However, the municipal owned Fresh Produce Market site, the Transnet Diesel Depot and the military stores sites offer an opportunity for government to induce change (most likely in the form of catalyst type developments).

Land value

Land values are extremely high in Jacobs, relative to other parts of the study area. The South Coast Road portion of Clairwood, Rossburgh, Umbilo Industrial and Congella by contrast, land values in the remainder of Clairwood (east of the M4 Southern Freeway) are low.

TRANSPORTATION PERSPECTIVE

There is severe congestion at a number of critical intersections along major routes within the area:

- South Coast / Edwin Swales VC Drive;
- Bayhead Road / Edwin Swales VC Drive;
- Langeberg Road / Bayhead Road;

As well as on certain sections of road network:

- South Coast Road in the Clairwood CBD area (west of the M4 Southern Freeway);
- South Coast Road between Edwin Swales VC Drive and Bayhead Road;
- Edwin Swales VC Drive between Bluff and South Coast Road.
SUMMARY OF TRENDS AND ISSUES

8.2 TRENDS AND ISSUES IN THE PLANNING AREA

The ill-structured road hierarchy within the Back of Port area as well as a general lack of traffic management, results in several traffic related issues:

- Intersection congestion and constricted flow;
- Bottlenecks on certain routes, such as South Coast and Bayhead Roads impeding access to the container terminal and to the Island View and Cutler precincts;
- Large numbers of freight vehicles parking on public roads and pavements and staying overnight in the area.

Traffic issues in the area are further exacerbated by a lack of traffic demand measures; as well as the 24/7 operational hours and management of the container terminal itself. The widespread and scattered location of third party logistics companies and, critically, empty container depots, results in a numerous extra truck trips which put the road network under strain.

Finally, the limited use of rail in the movement of freight in and out of the port (despite the existence of an extensive rail network) is an important factor affecting road transport and access systems.

BULK INFRASTRUCTURE PERSPECTIVE

The primary issues associated with bulk infrastructure are that:

- The sewerage system is aged;
- Storm water is entering the sewerage system;
- The storm water system is inadequate in residential areas.
- Some land in the Clairwood area is low-lying and subject to flooding and needs appropriate intervention.
SUMMARY OF TRENDS AND ISSUES

8.3 ASSUMPTIONS

8.3.1 META ASSUMPTIONS
The optimal use of strategically important land adjacent to the Port of Durban and to the new port at Reunion is intrinsically linked to far-reaching national economic imperatives and is affected and triggered by port planning decisions made at a national level. As such there are a number of important meta assumptions that affect a local planning exercise including the following:

- In order to improve competitiveness in global logistics over the next 60 years, South Africa requires the development of a deep water container hub port;
- As this port expansion is planned to occur in Durban, extensive land use and infrastructure planning will be required in order:
  - to correct the current poor performance of the area from a logistics industry perspective;
  - to facilitate efficient freight handling as volumes grow in the future;
  - to ensure the harmonious co-existence of non-port related systems such as environmental, residential and other business activities;

8.3.2 ECONOMIC ASSUMPTIONS
The South Durban Basin (SDB), including the Back of Port planning area, contains numerous intensive port-related and non port-related economic activities. That economic imperatives should play a major role in decision making and planning is a given. There are several important economic assumptions that underly this plan:

- Critical aspects of this planning process are informed by regional and national port expansion plans;
- Land use and infrastructure interventions contained in the plan should be designed in order to stimulate economic development, efficient business processes and employment in the area;
- That regional hub(s) be planned for “overflow” of port-related activities from the SDB as this occurs;
- That industrial activities displaced by logistics expansion in the SDB will be accommodated at alternative locations in eThekwini Municipality;
- That it is necessary to safeguard environmental quality in order to underpin sustainable economic growth in the region.

8.3.3 SOCIAL ASSUMPTIONS
The planning area consists primarily of land used for intensive economic activity. However, the area also plays a vital role, socially. This is primarily through the provision of employment opportunities. In addition key access routes to major residential communities pass through the planning area (e.g. Edwin Swales VC Drive and Quality Street); and, in the case of Clairwood, the existence of a significant heritage and residential area is acknowledged. There are several important social assumptions:

- That the existing residential system is acknowledged as an integral system in the context of eThekwini Municipality and the SDB;
- That expansion or extension of logistics, industrial and commercial uses will not invade existing residential areas except possibly in the case of Clairwood, given its location and specific trends that trigger the need to rezone the area;
- That the riskscape of the SDB has intensified to include social risks other than pollution and traffic congestion, viz. crime, drugs, overcrowding, blighted housing and deviant youth, which require a programme of concerted action to mitigate and address.

8.3.4 ENVIRONMENTAL ASSUMPTIONS
Numerous factors contribute to the environmental complexity of the SDB and the planning area (e.g. the water body of the port itself, other areas exhibiting bio-diversity, the existence of heavily pollutant industries and the close proximity of residential communities). There are several important environmental assumptions, namely:

- That unique, fragile and sensitive environmental areas will be respected, viz.
  - No further reduction of natural areas will be permitted without adequate mitigation;
  - Where possible and appropriate natural areas will be expanded and/or rehabilitated;
- That stack heights (of the refineries) may be increased in the area following the removal of the airport to mitigate air pollution.
- That the major source of pollution in the SDB is traffic, not industry, and that the best way to minimize traffic pollution is to ensure that traffic flows freely at all times.
8.3 ASSUMPTIONS

8.3.5 LAND USE ASSUMPTIONS
The following critical land use assumptions have underpinned and affected the planning process:

- That not all future land use demands and needs can be met:
  - Within the study area;
  - Within the greater South Durban Basin;
- That Transnet will utilize all its land holdings within the port boundaries for Zone 1 and Zone 2 activities (and will not permit any Zone 3 activities to occur, except in the case of residual leases or temporarily, if land surplus to Transnet uses occurs);
- That significant areas could be required for environmental mitigation following planned port expansion(s). These areas could be located outside the South Durban Basin area but will also in all likelihood mean that the bulk of remaining undeveloped areas will be required to remain undeveloped.

8.3.6 TRANSPORT ASSUMPTIONS
The transportation network is a fundamental part of the logistics chain and is as such critical to the successful operation of a trading port. With respect to Back of Port planning it is understood:

- That mitigating and addressing the immediate and current traffic issues is a priority;
- That rail orientated movement of goods will be necessary and is a requirement.

8.3.7 PHASING / STAGING ASSUMPTIONS
This plan is long term in nature, and scenario based. As such there are a number of phasing challenges with regards to the implementation of the plan over time. It has been assumed:

- That the planned Back of Port interventions will be closely aligned to Transnet’s port expansion plans, which will in turn have major implications on the phasing of these interventions;
- That all Zone 3 activities currently accommodated in the port area will, ultimately, have to be located outside of the harbour area due to Transnet port expansion plans within the Bayhead area;
- That environmental and social compensation and mitigation are key requirements and will have to be addressed before port expansion commences.
8.4 OBJECTIVES

8.4.1 ECONOMIC OBJECTIVES
It is acknowledged that economic change will occur predominantly through spatial and infrastructure interventions. The economic objectives are:

- To plan for an optimisation of logistics operations;
- To induce the regeneration of the entire SDB;
- To identify catalytic "starter" logistics platform(s);
- To ensure that the appropriate quantum of differentiated land uses is available, e.g. logistics orientated office accommodation.

8.4.2 SOCIAL OBJECTIVES
It is important in light of the historical discords between communities (residential areas) and businesses in the SDB, that this planning process addresses the social elements and dynamics of the planning area. The social objectives are:

- To ensure that social concerns are taken into account and integrated into all planning decisions;
- To ensure a fair and just stakeholder participation process in decision making;
- To protect existing residential areas from new invasion;
- To enhance residential amenity;
- To improve parks and sporting facilities within the planning area and in associated edges;
- To improve transportation infrastructure in the area, particularly in relation to trucks;
- To reduce pollution and associated health impacts in the area;
- To minimize displacement of employment;
- To protect and enhance open spaces in the planning area;
- To provide focus on social edges between the study area and surrounding residential areas.

8.4.3 ENVIRONMENTAL OBJECTIVES
The overall performance and ultimate success of any development in the SDB hinges on careful management of and protection of natural environments, as well as on eliminating unacceptable levels of pollution and toxicity. The environmental objectives are:

- To improve biodiversity values through protection of remnant habitat areas and management of additional compensatory reserve;
- To ensure that open spaces fulfill biodiversity, as well as social roles;
- To enhance amenity of open space;
- To link open spaces wherever possible;
- To improve air quality through investment in and rationalisation of transport infrastructure;
- To minimize potential impacts on air quality from new industry in the Back of Port area;
- To minimise the impact on water quality through management of potential pollutants emanating from the Back of Port area;
- To ensure that the quality of water in water-bodies that are utilised for community activities are appropriate and acceptable. This could require interventions outside of the study area;
- To reduce the levels of risk for residents through rationalisation of industrial areas;
- To avoid development delays by establishing the basis for required environmental compensation.

8.4.4 LAND USE OBJECTIVES
The plan’s primary instrument is land use and the management thereof. The land use objectives are:

- To provide for land use clarity and certainty
- To recognise and adjust for land use change;
- To reduce negative impacts of land use in relation to each other;
- To rationalise interrelated land uses;
- To rationalise areas currently experiencing significant signs of stress and change, such as Clairwood and Jacobs;
- To address the interface between residential and industrial land uses;
- To maximise local area specific advantages e.g. the suitability of Mobeni for logistics activities;
- To induce opportunities for logistics activities in specific locations within the planning area;
  - Create an initial logistics platform area in support of contemporary needs and port expansion requirements;
  - To create ‘new’ zones for contemporary land use demands;
  - To create or induce a development of truck stop;
- To flag any other areas in the SDB, but outside of the defined planning area for which land use change in relation to port expansion is anticipated.
8.4.5 TRANSPORT/ MOVEMENT OBJECTIVES

A transport solution is acknowledged as a critical element of improving logistics in the SDB and greater eThekweni Municipality. The transportation / movement objectives are:

- To create an infrastructure platform to support regeneration and growth.
- To eliminate “stressed” roads and Intersections.
- To create a road matrix that will facilitate alternative routes for different activity systems (broad land use systems), viz. increasing connectivity and capacity.
- To create a differentiated road matrix system that will identify:
  - Dedicated truck routes;
  - Truck dominated routes;
  - Shared routes;
  - Residential dominated routes
- To encourage/induce/facilitate rail orientated movement of goods;
- To link the existing port and the dig-out port at the former DIA site by rail, pipeline and road.

8.4.6 PHASING/ STAGING OBJECTIVES

The implementation of a long term plan (e.g. 30 or 40 years) is complex. The phasing / staging objectives for the concept plan are:

- To identify the different types of planning and development interventions; e.g. redevelopment, upgrading/renewal, conservation, maintenance, new development, cosmetic interventions, etc.
- To identify the various types of planning processes and development implementation, e.g.
  - More detailed plans (package of plans);
  - Zoning changes;
  - Site acquisition;
  - Infrastructure development.
THE OVERALL CONCEPT

Build on the Inherent Structure
Acknowledge Key Anchors in Space
Dedicated Access Systems
Link Existing Heavy Industries
Rehabilitate the Canal
Rationalise the Land use Structure
BUILD ON THE INHERENT STRUCTURE
The primary starting point or basis in establishing a spatial structure for the study area is interrogating the existing structure of place. It is evident that apart from a few anomalies in land use structure, there is a discernable structure of primary systems extending from east to west. The eastern component of the system is the coastal corridor and understanding this as a unique and special system requiring particular types of management and intervention is important. The second system extending westwards is the residential system comprising a range of residential types, densities and this also requires a specific set of interventions. The third system is the business or economic system consisting of a range of business types currently experiencing change and ongoing pressure for further change of varied intensity in different parts of the system. The western most system is the transport or movement system which is multi-stranded and currently under significant pressure. A limited number of east-west routes link the various systems and there is a pressing need for greater north-south capacity.

ACKNOWLEDGE KEY ANCHORS IN SPACE
The existing port represents a key node within the overall system and serves as an economic anchor and a major structuring element within The City. Given the scale of the site for the new port at Reunion, the proposed development will create a significant second economic anchor in the southern part of the study area, complementing the existing northern node at the Port of Durban. This plan takes account of the major impact of these two city scale generators on the study area.

DEDICATED ACCESS SYSTEMS
The existing capacity constraints within the transport system, together with the sharing of systems across user groups, results in a series of problems. These include substantial inefficiencies in the movement of cargoes and negative impacts on the residential system as a result of a sharing of access.

A primary concept, therefore, is to restructure movement as a basis to the spatial restructuring of the study area.

A key starting point in this regard is providing for dedicated freight routes and improved access between the two primary nodes and to provide higher order access (existing port at Reunion and connecting both ports to the N2). It is envisaged that dedicated freight access is developed linking the two nodes.

A key opportunity in this regard is to improve residential and local business access within and around the study area.
THE OVERALL CONCEPT

LINK EXISTING HEAVY INDUSTRIAL AREA
A significant opportunity exists through the establishment of dedicated freight routes to consolidate all heavy industrial traffic by linking, where practical, existing, and particularly noxious industry, to these systems.

In this way, it is envisaged that a complete separation of heavy industrial traffic and port related traffic from residential and local business traffic will be achieved.

This would represent a significant step forward in resolving some of the major structural problems within the study area.

This will also encourage a free flow of traffic along all routes with a result in economic and environmental benefits.

REINFORCE AND UPGRADE SIGNIFICANT OPEN SPACE
It is planned that approximately one-third of the Clairwood Racecourse site (that includes the valuable wetland) is retained as open space. A complementary plan is to rehabilitate the waterway system based on the existing Amanzinyama River storm water canal. The basic idea is to establish a water based open space system that adds recreational value and provides a new impetus to the attractiveness of the area (including the balance of the racecourse site) as a new place to invest in.

It is envisaged that properties alongside the waterway system would be given increased value and a new amenity that would encourage redevelopment along this corridor. A key concept with the central waterway system is ensuring that the system contributes positively to the overall environmental quality, as well as serving to perform its function of “draining” the area from Clairwood Racecourse site through the industrial areas and emptying into the harbour.

RATIONALISE THE LAND USE STRUCTURE
It is envisaged that a revised land use system is established aligned with the revised spatial structure.

A series of land use changes and refinements are required to rationalise the existing structure.

The revised system includes a layering of land use types in terms of impact between the business and residential systems. This include establishing a series of interface zones.

A key requirement of a revised land use system is to include the incorporation of specific zones to address the contemporary needs of business within the study area and to acknowledge the substantial shifts and demands for new uses within the study area such as the growth of logistics related activities arising from on-going development of the port of Durban and the construction of a new port at Reunion.
THE SPATIAL FRAMEWORK

Movement and Circulation
Open Space Structure
Land Use Structure
The following section outlines the Back of Port Spatial Framework in three major components:

- Movement and Circulation Structure;
- Open Space Structure; and
- Land Use Structure.

The spatial framework was derived from the concept plans; as well as a result of internal team workshops and external input from key stakeholders.

The following sub-sections detail the planning principles recommended for the Back of Port area, as well as the planning concept or proposals suggested for the improvement and redevelopment of the area. The proposals outlined within this section are all subject to further investigation and more detailed planning within detailed precinct plans as presented in the following section.

**PLANNING PRINCIPLES**

A fundamental and underlying component of successful development planning for the Back of Port area and for the South Durban Basin, as a whole, is to develop a movement lattice that serves as the backbone for the area, inducing clarity, renewal, development and growth opportunities.

The primary principle underlying the enhancement of the movement network is to utilise existing infrastructure at all levels, i.e. road, pipelines and rail; as well as the introduction of new systems that provide greater choice and clarity. At a principle level is a need to create a clear structure for land uses and precincts; as well as differentiated movement systems. An improved movement lattice will create a more functional system providing better choice, access and mobility. An improved system should support and drive land uses as well as align with appropriate existing and future precinct development.

**PLANNING CONCEPT**

The planning concept focuses on the development of an integrated movement lattice that serves several modes of movement and is based on a clear hierarchy. Whilst acknowledging the value of the extensive pipeline networks in the area, the two main movement modes addressed in this study are;

- Road; and
- Rail.

**ROAD PROPOSALS**

Due to its extent and complexity, the study area requires a number of road development proposals. The suggested proposals are;

- To strengthen the existing transport lattice by establishing additional north/ south and east/ west linkages;
- Create dedicated higher order access routes for the major anchors within the SDB;
- Establishing a circuit of dedicated links between the existing port, the planned dig-out port, and the existing high level industry;

A key concept is to provide dedicated truck routes. These would include:

- A freight only link through the Umhlatuzana River valley to the N2 from the Port of Durban;
- The provision of an exclusive freight route linking the new dig-out port at Reunion and the Port of Durban along the alignment of Chamberlain Road and the M4; and
- The provision of a freight link between the old DIA site and the Engen Refinery area; and
- The provision of an additional access point from the old DIA site onto the N2.
10 SPATIAL FRAMEWORK

10.1. MOVEMENT AND CIRCULATION STRUCTURE

The concept is affording high order industrial groups access to the dedicated freight routes. Providing direct access to both the existing port and the planned dig-out port for heavy duty trucks prevents friction along primary residential routes, thereby creating safer residential environments.

Specified truck freight routes will allow major connecting routes such as Edwin Swales VC Drive to be ‘freed up’, thereby allowing existing infrastructure to be utilised more efficiently by lower order industry and the residential components of the area. There is also a need to create additional linkages for residential and mixed use components within Jacobs.

In this regard, a Grimsby Road link, which is focused on improving the east/west linkages as well as increasing the choice of movement has been adopted. This would improve residential access for the southern residential communities.

Through the use of dedicated truck freight routes, major access routes will be freed up allowing enhanced east/west linkages. Limited routes within the system are planned as shared residential and mixed use/business access routes.

The overall plan will significantly increase capacity and provide safer routes for uses.

RAIL

The second level of system which is critical in creating an appropriate level of infrastructure is enhancing the network and functioning of the rail system. Rail has a strategic advantage, being able to provide public passenger transport as well as transporting goods within the SDB and beyond.

Conceptually, a local network of rail services is planned to provide improved access to logistics businesses. This may result in the resurrection of the existing rail network which is not functional or is even abandoned in places. The Mobeni industrial area is rail serviced and this network can therefore be improved and utilised, allowing goods to be transported between the ports as well as to and from the two ports. The rail network will also be influential in moving goods within the Basin as well as regionally and nationally.

ROAD BASED AND RAIL BASED PUBLIC TRANSPORT INITIATIVES

The eThekwini Transport Authority (ETA) has confirmed that South Coast Road will become increasingly more vital in the movement of people from Umlazi to the city as an improved public transport service and infrastructure is planned for South Coast Road. The existing mix of private vehicles, public transport vehicles, pedestrians and heavy vehicles along South Coast already limit the expansion of the public transport service along South Coast Road. South Coast Road further allows for effective linkages between road and rail based public transport. Prasa has recently introduced an improved rail service with higher capacity between Umlazi and the Durban CBD which further places the emphasis on South Coast Road as a major public transport Route (Anup, 2011). The introduction of a dedicated heavy goods vehicle link along South Coast Road will result in an increase in pedestrian vehicular conflict and it is therefore not considered desirable to introduce a dedicated freight route along South Coast Road.

ROAD DESCRIPTIONS:

UMHLATUZANA ARTERIAL

The Umhlatuzana arterial route has been coded as a two lane direct dedicated truck freight link between the Port of Durban and the N2. Construction of a new N2 ‘interchange’ will allow vehicles from both north and south direct access to the port. The Umhlatuzana arterial route is planned as dedicated truck freight route to and from the Port of Durban. A new Umhlatuzana River Valley link road will cross the M7 via a bridge towards Khangelana Bridge to provide direct truck freight access to Maydon Wharf. The intersection between the link road and the Port of Durban entrance will be in the form of a raised interchange to allow for direct access to the Durban Container Terminal (DCT) area as well as access to and from areas around Pier 1 and the Island View and Cutler precincts.

GRIMSBY ROAD LINK

A Grimsby Road link has been planned into the network to essentially link South Coast Road and the M4 at the Duranta Road interchange. The link curves around the Clairwood Race Course and links to the M4. At the M4, movements onto the M4 to the north and south have been planned. The link has been coded as a two lane/ direction roadway. This link is aimed at primarily accommodating residential movement, but truck traffic as far as the M4 will be permitted.
10.1. MOVEMENT AND CIRCULATION STRUCTURE

NORTH-SOUTH LINK
The North – South Link between the Port of Durban and the DIA site has been identified as an exclusive truck freight roadway running on above the M4, with 2 lanes in each direction. This new link essentially creates a freight only "T" route arrangement, i.e. with the Port of Durban link at the top left of the "T", the new port at Reunion link at the top right of the "T" and the Umhlatuzana River Valley link to the N2 at the stem and of the "T".

QUALITY STREET
The planned closure of Quality Street for heavy goods vehicle movement has resulted in minimal changes to the existing flow patterns of traffic within Jacobs. Because of the relative low heavy goods vehicle volumes between Balfour Road and Tara Road along Quality Street an in-significant traffic flow improvement has been achieved. The North – South link and limited access to the Stanvac site via the DIA site will further reduce the need for heavy goods vehicles to travel along Tara Road towards the Engen oil refinery.

DURANTA ROAD
The Duranta Road closure for heavy goods vehicle movement will have similar effect on traffic flow as that of the Quality Street closure. Because of the relative low Heavy Goods Vehicle volumes on Duranta which is destined for Engen the model has shown that no significant traffic flow improvement will be achieved. The North – South link and limited access to the Stanvac area via the DIA site will further reduce the need for heavy goods vehicle to travel along Duranta Road towards the Engen Oil Refinery.

LINK BETWEEN ENGEN OIL REFINERY AREA AND THE NEW PORT AT REUNION
This network option allows for a freight only link between the DIA site and the Engen Oil Refinery area. The modelling results have shown that the Engen Oil Refinery link carries very little freight traffic. The V/C ratios are also low, however capacity problems along rest of the link from the old DIA site to the N2 do start becoming apparent when this new link is introduced because it carries traffic from the old DIA site, SAPREF and the Engen Oil Refinery area towards the N2.

EDWIN SNALES VC DRIVE
The M7 (Edwin Swales VC Drive) will allow for direct access to the Clairwood area, Bluff and surrounding areas. There will however be no dedicated access from Edwin Swales VC Drive onto the proposed Umhlatuzana Arterial truck freight route. Vehicles will need to gain access to DCT via the Umhlatuzana truck freight route. The planned Umhlatuzana arterial route will consequently alleviate heavy goods vehicle traffic along Edwin Swales VC Drive and free up capacity for residential use to and from the Bluff area.

KHANGELA BRIDGE
Traffic in the Congella, Umbilo and Rossburgh areas is mainly affected by the opening of the Khangel Bridge across the M4 freeway. The introduction of this link result in the diversion of port bound traffic away from the already congested Edwin Swales VC Drive / South Coast Road intersection. This diversion however results in an increase in traffic flow along Umbilo Road, Sydney Road, and into Cato Manor and surrounding residential areas. The road infrastructure on both Umbilo and Sydney Roads can however accommodate the growth in traffic that is expected in the future and hence no immediate road improvements will be required. Long term growth within the port (Bayhead Expansion) will require additional access roads to the port to accommodate traffic growth and the Khangel Bridge, in the long run, will not cope with the increase in traffic and especially heavy goods vehicle movements from the port. The Umhlatuzana River Valley arterial truck freight route becomes vital in the distribution of port bound traffic away from the existing congested road network in this area.
10.1. MOVEMENT AND CIRCULATION STRUCTURE

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE.
NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
10.2. OPEN SPACE STRUCTURE

PLANNING PRINCIPLES
There are several aspects to planning for the various components of open space. Firstly, there are the approaches to planning in the study area as a whole; and then, secondly, there are the planning aspects within the planning area itself.

The Study Area
The plan identifies the existing coastal corridor and dune system that reflects both a protected set of areas and a natural amenity to the Bluff as a whole. Several rivers penetrate the area, but are largely canalised as they are reticulated through developed areas. There are a number conservation, passive recreation and active recreation areas within the Bluff residential areas and a few within the planning area that will be retained. There are a number of cemeteries in the planning area, which will also be retained.

The first principle is to retain all existing areas of quality open space. Secondly, it is planned open spaces will wherever possible be connected to schools and shopping areas through landscaping and “greening” of road linkages. Thirdly, a number of key east-west roads linking to the Bluff residential areas through the industrial areas, are planned to be landscaped by means of a “corridor planting strategy”.

The overall approach includes:
- The Amanzimyama Canal will be enhanced/ upgraded to create a “parkway” from the harbour through Jacobs and to the Clairwood Racecourse;
- The cemeteries and open spaces within the Clairwood area will be retained and protected;
- A number of east-west roads, as mentioned above, connecting the Bluff residential areas through the industrial areas are planned to be landscaped;
- A number of existing open spaces will be enhanced, improved and redeveloped to act as buffers between the industrial and residential areas. They will also be enhanced through the planning of facilities conducive to social upliftment.

PLANNING CONCEPT
The planning concept for open space has several aspects, namely:
- The Corridor Planting lattice
  The development of an integrated lattice of planted corridors along major roads that seek to enhance their importance and to encourage their use as pedestrian and public transport routes. These include the major north-south Tara Road route and the various east-west routes.
- The Parkway System
  The Amanzimyama canal is proposed as a central parkway. This will treated differentially along its length with both hard and soft edge conditions depending on the local context. In places it will comprise recreational facilities with soft edges in places; roadway and pedestrian access, as practical; serving offices and other land uses fronting it.
- Existing public open spaces along the industrial perimeter.
  Open spaces, both active and passive, should be developed or redeveloped to create recreational opportunities for adjacent residential areas, and they will simultaneously act as buffers between industrial and residential areas.

PLAN: DESCRIPTION AND EXPLANATION
Coastal Corridor
The coastal corridor system consists of a unique natural open space as well as protected areas. This coastal network will be protected and managed along with the active and passive open space, parkway and planting lattice within the area to create a complete and well connected open space system for the Back of Port region.

Passive Open Space
The passive open space in the area has a number of functions including:
- Protected or natural amenity;
- Provides a buffer in places between the industrial and residential areas; and
- Completes and supports the open space network within the study area.
Active Open Space
The active open space in the area has a number of functions including:
- Creating recreational spaces for the residents;
- Buffer zones protecting residential areas from industry; and
- Completing and supporting the open space lattice within the study area.

River Corridor and Parkway System
The Amanzinyama parkway running south to the Clairwood Racecourse through Jacobs and terminating in the harbour will add to the open space network and aesthetic appeal of the area. The parkway system will support the open space network as well as introduce a recreational component within the area.

Planting Strategy
The corridor planting strategy will take place along major road networks to complete the open space network. The planting lattice will assist in the public realm upliftment and aesthetic appeal.
10.2. OPEN SPACE STRUCTURE

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE.
NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT
10.3. LAND USE STRUCTURE

10.3.1 PLANNING PRINCIPLES:
A key land use proposal is that industrial land uses are differentiated and expanded to create a continuum of:

- Narrow interface zones (commercial and low impact industrial uses at low intensities) between residential and industrial uses;
- Light and Service industrial uses (viz low impact activities), and logistics uses;
- General industrial (medium level impact) activities;
- The Noxious (high impact) activities of Engen, Sapref, and Mondi; as well as industries in the area adjacent to Maydon Wharf.
- Current scheme zone uses will remain as existing use (non-conforming uses) as in the conventional process, so that the “rights” of existing users are retained until such time as redevelopment is initiated.

10.3.2 PLANNING CONCEPT
The range of interrelated industrial use zones and the differing accessibility and visibility of sites offers a mix of opportunities for those enterprises wishing to possess high level sites for developments in keeping with a “Super Port” concept. Other, more conventional industrial and warehousing developments will find opportunities well within the different use zones.

A linear belt of logistics orientated uses will be induced, stretching from the interface with the port via Clairwood; parts of Jacobs; Mbeni, and through to Isipingo Rail opposite the proposed dig-out port at Reunion. This belt of logistics uses are integrated and connected via the proposed differentiated multi-modal movement system. Running through this logistics orientated belt will be a “parkway” system based on the existing canal. Sites along this canal will offer opportunities for those enterprises favouring image attributed sites. The Congella, Umbilo and Rossburgh areas will essentially remain in their current format, albeit with an adjusted zoning. A new structuring device, namely, a “parkway” will run through the central portions of the Back of Port area as a means to:

- Soften the area;
- Create an area of amenity and opportunity;
- Create an area capable of attracting high order logistics and related newer forms of developments.

10.3.3 PLAN: DESCRIPTION AND EXPLANATION
The office demand survey indicates that there is a current demand for some 200,000 m² (19.87 ha) of office space in close proximity to the ports.

The calculation that follows would be the minimum amount of space that could be expected, for a number of reasons. More than this calculated amount should be planned for. The assumptions behind the minimum calculation are as follows:

- The estimated 19.87 ha is current demand, and a greater demand could be expected;
- The site area calculation itself assumes a site with relatively little useable open space around the building(s);
- If one assumes that most of this 200,000 m² will occur in two storey buildings (this allows for some to occur as three storey buildings, and some as single storey buildings) this results in a footprint of at least 100,000 m².

Parking is usually provided at a rate of 1 bay per 30 m² of floor space. A parking bay with circulation space amounts to some 25 m². An additional curtilage of at least 5 m² per bay for landscaping, privacy etc. would result in an amount of 30 m² per bay. This would suggest that 200,000 m² of floor space requires some 6,666 parking bays, i.e. an area of the order of 200,000 m².

Consequently, the minimum total site area required is equal to a combination of:

- A footprint of 100,000 m², plus parking of 200,000 m², i.e. a total of 300,000 m², or some 30 ha of space, without public road space.

The analysis points to a need for additional “brownfield” and “greenfield” opportunities for office development. The likely areas that can accommodate new office development could be within portions of Clairwood Race Course and possibly through identification of suitable space for brownfields development within interface areas between Jacobs and the surrounding residential communities.
10.3. LAND USE STRUCTURE

CONGELLA
The existing buffer zone viz. the General Business 2 zone buffering the residential area from the commercial/industrial areas east of Umbilo Road will remain in place and be extended as a more restricted interface zone, although outside of the planning area.

The existing General Industrial area is down-zoned in places to that of Light/Service industrial uses, so that, over time, the area presents lesser externality impacts of all kinds, on both immediate neighbours and on the areas as a whole.

The Noxious Industrial area east of Sydney Road will remain largely intact.

Existing non-conforming uses in the down-zoned uses will be able to remain in operation until redevelopment is initiated.

Besides the 'down-zoning' the area will not be subject to any other planning interventions beside normal maintenance and appropriately located public realm improvements;

The entire area from Moore Road to Edwin Swales VC Drive can be analysed in several ways. The area from Moore Road to McDonald Road and from Umbilo Road to Gale Street (midblock to midblock) comprises mostly multi-story high coverage buildings suitable for light industry and service industry. Given the nature of these high coverage buildings and the importance and width of Umbilo Road and Gale Street (also Melbourne Road), this area is not suitable for any logistics activities.

The eastern edge of the area, i.e. below Sydney Road/Williams Road, comprising of many larger sites and larger older manufacturing buildings, therefore lends itself to remaining an area of Noxious Industry, as it is buffered from nearby residential areas. It must have appropriate development controls in order to accommodate on-site loading and unloading and the over-night parking of trucks.

UMBIL0
The existing interface zone buffering the residential area from the commercial/industrial areas east of Umbilo Road, although outside of the planning area, should remain in place;

It is envisaged that the existing General Industrial area is down-zoned to that of light/service industrial uses, so that, over time, the area presents lesser externality impacts of all kinds;

The Noxious Industrial area east of Sydney Road should remain as is;

Existing non-conforming uses in the down-zoned uses will be able to remain in operation;

Besides the down-zoning, the area will not be subject to any other planning interventions beside normal maintenance and appropriately located public realm improvements.

ROSSBURGH
The existing General Industrial area should down-zoned to that of light/service industrial uses, so that, over time, the area presents lesser externality impacts of all kinds;

Existing non-conforming uses in the down-zoned uses will be able to remain in operation;

Besides the down-zoning the area will not be subject to any other planning interventions beside normal maintenance and appropriately located public realm improvements.

EDWIN SWALES VC DRIVE INDUSTRIAL STRIP
The existing strip of General Industrial zoning between Edwin Swales VC Drive and Archary Road will remain in place.

CLAIRWOOD
The Clairwood area has several complex issues affecting its future use.

Firstly, there is a historical and social connection to the area and a remaining small residential component and associated set of social facilities. There are also a number of residual “listed” buildings.

The northern edge of Clairwood has been zoned and used for industrial purposes for many years, and due to the long period as to its future, there has been a slow penetration of industrial and related activities into the interior of Clairwood.

The eastern edge of Clairwood comprises two publically owned sites, viz. the Fresh Produce Market site and the Transnet Diesel Depot, which are ideally suited to be considered for redevelopment as an initial and catalytic logistics platform. This development could be either a public sector development, or a public-private sector partnership development. In the balance of Clairwood the lot, block and street pattern was originally designed for low scale residential development with small lots and narrow roads reserves. In addition, the central north-eastern is low lying and subject to flooding and this requires redevelopment rather than upgrading.

Given the existing trends and expected demands as well as slow and constant deterioration, Clairwood is well located to become an expansion of the logistic platform. Existing social facilities and “listed” buildings will be incorporated into any new layout.
10.3. LAND USE STRUCTURE

LOGISTICS BELT
The balance of the Clairwood area, east of Teakwood Road, be redeveloped with a totally new layout and subdivision arrangement to accommodate logistics activities in their various forms;
The immediately adjacent parts of Jacobs and Mobeni will also be induced into accommodating logistics uses; however this area will largely comprise infrastructural interventions and retain the present layout configuration;
Mobeni has an existing rail system that needs to be reactivated and lends itself to comfortable re-use as a logistics area.

JACOBS INDUSTRIAL AREA
The western section of Jacobs, between Chamberlain Road and the railway and freeway, will be retained for Noxious Industrial activities as the area is well "masked" from any adjacent residential areas;
The central portion of the Jacobs area, comprising mainly the smaller sites and flatted factories, should be retained as an area for General Industrial activities;
The peripheral areas of Jacobs will accommodate light and service industrial uses.

INTERFACE OFFICE STRIP
Along the eastern edge of Jacobs an office/commercial interface zone will act as a buffer to the adjacent residential areas. Most of these will be accommodated within the currently zoned industrial areas.

SHOPPING CENTRE
Apart from the Makro discount warehouse on Edwin Swales VC Drive there are no substantial shopping facilities within the entire study area, and it can be expected that there will be an increased demand for ancillary retail uses as the change to logistics uses will bring larger numbers of relatively higher income employees into the area. It is therefore recommended that a small specialised neighbourhood shopping facility be created in an intersecory location so that lies astride the major road system and close to the "parkway".

RACECOURSE RECREATION AREA
The recommendation is that a large portion of the racecourse is retained for recreation purposes both passive and active;
The track itself can be retained for jogging and related purposes and retaining the memory and sense of place of the race course;
The pond will form the basis of passive recreation and is part of the DMOSS system;
The parkway that originates in this area is planned to be formally integrated with a range of recreation facilities.

RACECOURSE MEDIUM DENSITY OFFICE AREA
The southern edge of the racecourse can, in a later phase, be developed as a series of interrelated office parks, as and when the demand for logistics related offices increases.

PARKWAY
The existing canalised stream that runs from the racecourse pond through to the existing Harbour will be upgraded.
The parkway will be modulated along its length;
In all areas it will be supportive of and reinforce its ecological role;
In some areas it will be narrow and run between industrial buildings and in some areas it will be widened to form recreation nodes;
Where it runs through the Mobeni East area it will be bounded with a landscaped pedestrian path and the office components of the logistics buildings will be induced with urban form directives to face the parkway.
10.3. LAND USE STRUCTURE

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
PRECINCT PLANS

Towards the Development of a Zoning Framework

Congella/ Umbilo /Rossburgh
Clairewood
Jacobs
Mobeni
Merewent
The following section details a number of local precincts within the Back of Port area. A synopsis of the Zoning Framework is provided to guide and facilitate the conceptual precinct planning process. The Zoning Framework illustrates, briefly the existing, as well as a number of new zoning categories which are suggested to be incorporated into the current Town Planning Scheme. The Zoning Framework will be detailed in the following section.

The precinct plans of the Back of Port area details a number of proposals, such as new roads, road realignments, zoning modifications and new opportunities which may exist within the area. The proposals detailed in this section were identified within the spatial and zoning framework.

ANALYSIS OF THE CURRENT ZONING SYSTEM

Several aspects in regard to the current system of zoning are clear-

- There are some tautologous definitions i.e. a Light Industrial zone allows light industrial uses; and
- The definitions of uses in the current zoning system includes those such as storage, warehousing, etc., but these particular definitions do not seem to be used in the land uses, permitted (freely or otherwise).

The distinction between light and service industry appears to be that service industrial uses are restricted to small scale activities, whereas light industrial uses is restricted to activities that have limited impacts.

General Industrial uses allows almost any activity, including storage of builder’s material, storage activities such as the stacking of containers; storing or preparation for resale of scrap material, and other types of storage /warehouse;

The land use definitions and the zones for Durban reflect an older and simpler period of history.

REQUIREMENTS FOR ZONING

This study has been at pains to distinguish a range of different types of “industrial uses”, viz noxious/ heavy industry, light industry, etc. and has introduced the need to distinguish the “logistics” grouping of uses.

There is a clear need to improve, update, elaborate and extend the definitions and zones.

The issue in this regard include:

- The need to improve and redefine both the definitions and the zones; and
- The need to consider introducing new definitions and zones.
- The need to respond to current and consistent pressures and allow for better management of conflicts and tradeoffs

The reader is referred, also, to the following annexures which form part of the main report:

A – Previous Studies
B – City Structure And Growth Patterns
C – Changes in The Nature Of Industrial Development
D – Bop-spatial Framework Plan
E – Bop-zoning Framework Plan
F – Back of Port Area - Social Issues
G – Social Issues In Areas Lying On The Periphery Of The Bop Study Area
H – Clairwood Property Market Assessment
I – Environmental Report
J – Real Estate Opportunity Analysis
K – Traffic Report
These include:
Separating and identifying, separately, the various activities that comprise the set of uses implied by “industrial uses: viz.

- Different forms of manufacturing such as “high”, “medium” and “low” impact uses;
- The warehousing, storage, transhipment set of uses now commonly called “logistics”;
- The service industry forms of activities;
- Community and institutional categories;
- Retail and service uses; and
- Offices.

**ZONING APPROACH**
Several zoning approaches underpin the recommended approach to managing development in the planning areas. These are:

- New building and land use definitions will be developed;
- Some zonal types will be continued in their present form;
- A series of modified zones will be introduced; and
- A series of new zones will be introduced.

The new definitions will expand the present set of uses to differentiate the types of uses usually found in the cognate set of industrial and logistics areas.

The zones to be considered include the re-use of existing zone types; the modification of some existing zones, thereby creating new zones of a similar type; the introduction totally new zones; and the extension of different types of interface/transition zones.

The suggested and indicative zones are:

- Noxious Industry;
- General Industry: (includes most uses but no High Impact manufacturing);
- Light Industry: (includes most uses, but no High Impact and/or Medium Impact manufacturing uses);
- Light Industry (as above but no open storage);
- Logistics A (allows all uses, open storage, but no manufacturing);
- Logistics B (as above, but no open storage);
- Interface/Transition A (which occurs as buffers between residential and “industrial” zones whereby houses can be converted to offices);
- Interface/Transition B (as above but allows redevelopment of houses to higher density and redevelopment of low rise offices);
- Interface/Transition C (this type occurs at the interface of residential areas and industrial areas but within the industrial areas and permits offices and distribution types uses);
- Business / Office Park: permitting medium density office clusters.
- General Business 2, in its current form.

Implicit in the above recommendations is that a new and extended set of Building and Land use definitions will have to be formulated

These definitions will include the following:

- High Impact Manufacturing uses;
- Large Scale and Medium Impact manufacturing uses, i.e. mostly Non-polluting Light Manufacturing;
- Workshops and Service outlets;
- General Storage, Warehouse, etc (using the current definitions);
- Open air storage;
- Trans-shipment.
## POTENTIAL ZONES

<table>
<thead>
<tr>
<th>ZONE</th>
<th>INTENTION</th>
<th>APPLICATION PRINCIPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Noxious Industry</strong></td>
<td>Permits all types of:</td>
<td>Permitted: All types</td>
</tr>
<tr>
<td></td>
<td>Manufacturing Industry</td>
<td>Consent: NA</td>
</tr>
<tr>
<td></td>
<td>Light Industry</td>
<td>Prohibited: Extractive</td>
</tr>
<tr>
<td></td>
<td>Service Industry</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Logistics</td>
<td></td>
</tr>
<tr>
<td><strong>General Industry</strong></td>
<td>Permits most types of:</td>
<td>Permitted: Most Manufacturing</td>
</tr>
<tr>
<td></td>
<td>Manufacturing Industry</td>
<td>Consent: NA, Open Storage</td>
</tr>
<tr>
<td></td>
<td>Light / Service Industry</td>
<td>Prohibited: Extractive, Noxious</td>
</tr>
<tr>
<td></td>
<td>Logistics</td>
<td></td>
</tr>
<tr>
<td><strong>Light Industry</strong></td>
<td>Permits some types of:</td>
<td>Permitted: All types</td>
</tr>
<tr>
<td></td>
<td>Manufacturing Industry</td>
<td>Consent: Open Storage</td>
</tr>
<tr>
<td></td>
<td>Service Industry</td>
<td>Prohibited: Extractive, Noxious, High Impact manufacturing</td>
</tr>
<tr>
<td></td>
<td>Logistics</td>
<td></td>
</tr>
<tr>
<td>(Allows open storage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Prohibits open storage)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interface 1</strong></td>
<td>Permits: Offices, Personal Service</td>
<td>Consent: Medical offices</td>
</tr>
<tr>
<td>(as buffer within Residential areas, i.e. house conversion)</td>
<td></td>
<td>Prohibited: Other uses</td>
</tr>
<tr>
<td><strong>Interface 2</strong></td>
<td>Permits: Offices, Medical Offices, Personal Services</td>
<td>Consent: Service industry, Showrooms, Distribution</td>
</tr>
<tr>
<td>(as buffer at edge of industrial areas)</td>
<td></td>
<td>Prohibited: Other uses</td>
</tr>
<tr>
<td><strong>Office Park</strong></td>
<td>Medium Density Office Park</td>
<td>Consent: Conference facilities</td>
</tr>
</tbody>
</table>

1. **PRECINCT PLANS**
2. **11.1 TOWARDS THE DEVELOPMENT OF A ZONING FRAMEWORK**
11.2. CONGELLA, UMBILO AND ROSSBURGH

11.2.1 DEFINITION OF LOCAL PLANNING PRECINCT AREA

The Congella, Umbilo and Rossburgh Precinct can be considered in two parts, namely the area from Moore Road to Francois Road, and Francois Road to the Umbilo industrial area and part of Rossburgh area north of Edwin Swales VC Drive.

CONGELLA
The Congella area is broadly bounded by Moore Road in the north, Francois Road to the south, Gale Street and Williams Road. This area comprises some of the oldest industrial developments in the city and occurs in the form of high site coverage’s with limited amounts of on-site loading. The area encompasses –

- The old Noxious Industrial area east of Williams and Sydney Roads;
- The General Industrial area between Williams and Sydney Roads and Gale Street; and
- On the east side of Gale Street is the General Business 2 area that stretches from Moore Road to Willowvale Road.

UMBILO / ROSSBURGH
This relatively narrow linear strip of development continues the separation of noxious industry to the east of Sydney Road; and clusters of general industry on its west side.

The Rossburgh area contains a cluster of General Industry including a recently rezoned section to the east of the realigned Umbilo arterial road.

11.2.2 ROLE OF LOCAL AREA

The overall role of this area is to continue accommodating the various types of commercial, industrial manufacturing and service related uses, as well as offer some opportunities for the growth of logistics type uses.

Given the fact that this area is at the confluence of many traffic routes and is fairly close to residential areas, it should accommodate mainly those uses of lesser impacts. The roles of specific areas are as follows:

- The band of noxious industries east of Sydney Road, is retained;
- The General Industrial areas will be down-zoned to light industry in order to lessen impacts in this inner city area;
- Accommodation of logistics uses in this area should be discouraged, particularly in the northern section; At best, logistics should be treated as a consent use, in order to manage the impacts and loading implications of these uses.
- The General Business 2 zone will also be retained as a limited buffer to adjacent residential areas; and
- An Interface and Transition zone should be considered as a buffer between the General Business zone and adjacent residential development in the northern section and between industrial and residential development in the southern component.

11.2.3 SUMMARY OF CORE ISSUES

CONGELLA
This area will continue to its role as an industrial and industrial services area. No major planning intervention is recommended for this area except that it will have some zoning adjustment such that its potential impacts will be reduced and that the traffic and loading issues will be reduced on this section of a major arterial.

UMBILO / ROSSBURGH
This area will also continue to its role as an industrial and industrial services area. No major planning intervention is recommended for this area except that it will have some zoning adjustment such that its potential impacts will be reduced and that the traffic and loading issues will be reduced on this section of a major arterial.
11.2. CONGELLA, UMBILO AND ROSSBURGH

MOVEMENT FRAMEWORK

MOVEMENT & CIRCULATION STRUCTURE
- N2 HIGHWAY
- M4 HIGHWAY
- EXISTING ROADS
- LINK TO THE EXISTING HARBOUR AND N2
- PROPOSED INTERNAL PORT ROUTE
- LINK FROM EXISTING HARBOUR TO M7 AND N2
- PROPOSED LINK FROM M7 TO UMLATUZANA ROAD
- ACCESSIBILITY ROUTE (MAT)
- COLLECTOR ROUTE
- PROPOSED LOCAL ACCESS NETWORK

- RAILWAY STATIONS
- POTENTIAL INTERCHANGE/INTERSECTION POINTS
- KANGELA BRIDGE

NOTE: ROAD NETWORK IS INDICATIVE AND SUBJECT TO DETAILS ENGINEERING INPUT AND DESIGN.
11.2. CONGELLA, UMBILO AND ROSSBURGH

LAND USE FRAMEWORK

OPEN SPACE STRUCTURE
- RIVER CORRIDOR & CANAL SYSTEM
- ACTIVE RECREATION
- WATERWAY SYSTEM

LAND USE STRUCTURE
- INTERFACE AREA (office, service industry)
- MIXED USE / COMMERCIAL (Retail, services, offices, residential)
- LIGHT INDUSTRIAL (light industrial, services, offices)
- LOGISTICS A (distribution, assembly, warehousing, offices, container storage)
- GENERAL INDUSTRY (manufacturing, warehousing, distribution)
- OFFICES (2-3 stories)
- NOXIOUS INDUSTRY
- RESIDENTIAL
- INSTITUTION

CULTURAL SITES
- CULTURAL SITE
- OTHER CULTURAL BUILDING
- CULTURAL MONUMENT
- LISTED BUILDINGS
11.2.4 SUMMARY OF PLANNING INTERVENTIONS

The Congella, Umbilo and Rossburgh area is a heavily developed and well structured environment. Whilst urban management and smaller public realm upgrades need to take place there are no substantial interventions or alterations proposed for this area.

Larger planning interventions within the Back of Port area will allow this area to be linked to Bayhead via the new Khangela Bridge. Due to the nature, complexity and mix of this area proper and appropriate management needs to be enforced. The activity routes that filter through this area feed into the port and the city centre and therefore management of loading trucks and vehicles is required along these major systems to prevent backing-up and congestion.

Economic trends are driving the development of this area, bordering the heart of the city and surrounding the port. Due to the current zoning privileges and trends within the area there is a need to amend some of the zoning to allow for a gradation of the zoning from the port to the residential areas. Vulnerable residential properties towards the end of Umbilo Road, bordering the industrial areas zoning will be converted to Interface 1 zone. Interface 1 zone will allow these residential properties to convert to offices over time. The zoning gradation within the precinct is suggested as follows:

- Between the Southern Freeway and Sydney Road – Noxious Industry;
- From Sydney Road to Umbilo Road – General Industry, Business/Office and Logistics;
- From Umbilo Road to Frere Road - Logistics, Open Space and Interface zones.

11.2.5 KEY PROPOSALS

MOVEMENT SYSTEM (Arup 2011)

KANGELA BRIDGE

The Congella, Umbilo and Rossburgh area is mainly affected by the introduction of the Khangela Bridge across the M4 freeway.

The introduction of this link result in the diversion of port bound traffic away the already congested Edwin Swales VC Drive / South Coast Road intersection. This diversion however results in an increase in traffic flow along Umbilo and Sydney Roads. The SATURN assessment showed that traffic between the Umbilo Road inbound and Sydney Road outbound link between the new Khangela bridge link road and the M7 has increased significantly. The road infrastructure on both Umbilo and Sydney Roads can however accommodate the growth in traffic that is expected in the future and hence no immediate road improvements will be required.

The reduction in traffic movements through the Edwin Swales VC Drive / South Coast Road intersection and decreased and more acceptable levels of service will be achieved. This in turn will alleviate traffic flow problems within the Congella, Umbilo and Rossburgh area on the short term.

Long term growth within the port (Bayhead Expansion) will require additional access roads to the port to accommodate traffic growth and the Khangela Bridge won’t be able to cope with the increase in traffic and especially heavy goods vehicle movements from the port. The Umhlathuzana arterial road becomes vital in the distribution of port bound traffic away from the already congested road network in this area.

EDWIN SWALES VC DRIVE

The M7 (Edwin Swales VC Drive) will allow for direct access to the Clairwood area, Bluff and surrounding areas. There will however be no dedicated access from Edwin Swales VC Drive onto the proposed Umhlathuzana Arterial to gain access to DCT via the new Link Road. Edwin Swales will allow for access the Maydon Wharf area as well as Bayhead Road. The Umhlathuzana Arterial will alleviate Heavy Goods Vehicle traffic along Edwin Swales VC Drive and free up capacity for residential use from the Bluff area.

UMHLATUZANA ARTERIAL

The Umhlathuzana Arterial has been coded as a two lane / direction link between the Port of Durban and the N2. All movements have been allowed at the new N2 ‘interchange’ to allow vehicles from and to the south to access the port. The Umhlathuzana Arterial allows for a dedicated freight route to and from the Port. The new Umhlathuzana link will cross the M7 via a bridge towards Bayhead Road. The intersection between the link road and Bayhead Road will be in the form of a raised interchange to allow for direct access to the DCT area as well as access from areas around Pier 1 and Island View areas. The ultimate Umhlathuzana arterial route flows are approximately 1,600 vehicles per hour inbound and 1,200 outbound during the AM peak period.
11.2. LAND USE SYSTEM

Congella
Land use along the Congella strip should be amended in places, preferably remaining virtually unchanged. Noxious Industry should be maintained to the east of Williams Roads and Sydney Roads. Consideration must be given to down-zoning the General Industry to that of Light Industrial with logistics uses being discouraged in this area. It is suggested that logistics uses within this area, be considered as consent uses only in order to manage change, with the ability to apply “conditions”.

Umbilo / Rosburgh
Noxious Industry and General Industry should be maintained east of Sydney Road. Logistics can be permitted, but only via a “consent use” procedure in order to manage change with the ability to apply specific “conditions”. The opportunities for redevelopment exist in the quadrant of the Edwin Swales VC Drive and the Umbilo Road realignment through this area.

11.2. OPEN SPACE SYSTEM
Due to the nature of the area, only small pockets of open space remain. The open spaces relates to several parks and playing fields that are not well connected to the surrounding D’MOSS system. The Umhlatuzana Canal separates the two parts of Rosburgh and are part of the D’MOSS system.

11.2.8 BUILT FORM CONSIDERATIONS
The following built form considerations are applicable to this precinct:

- Industrial activity is to be graded so that industrial land uses with low impacts will be adjacent to residential areas; while those with higher impacts are located adjacent to the railway.
- The existing scale and character of residential neighbourhoods will be protected with a transition buffer;
- Significant landscaping will be introduced along specified routes.
- The existing character of heritage items within the precinct will be retained.
- Potential new development should not block or diminish existing view potentials.
- Public spaces are encouraged to be upgraded with paving and lighting and appropriately managed;
- All handling and parking is to be encouraged at the rear of sites, to allow for free flow of traffic through the area.
- Coverage factors within the areas might require review so as to allow for on-site parking and handling of goods.
- Signage within these areas require a coordinated approach.
- Sites on prominent corners are encouraged to restore and maintain the heritage or character features to make a positive contribution to the streetscape, as well as legibility of the area.
- Infill development is to be encouraged along ‘baggy’ edges as well as in areas where zoning changes have been suggested.
- Building to the front edge of the sites along street interfaces are to be encouraged, with other activities at the rear.
- Of sites. The alignment with the street will allow continuity in the built fabric along street edges providing visual connection as well as safety for pedestrians.
- Appropriate urban management needs to be implemented.
All handling and parking is to be encouraged at the rear of sites, to allow for free flow of traffic through the area. Coverage factors within the areas requires review so as to allow for on-site parking and handling of goods.

Encourage build on edge conditions along street interfaces with other activities at the rear. The alignment with the street will allow continuity in the built fabric along street edges providing visual connection as well as safety for pedestrians.

Appropriate urban management needs to be implemented.
11.3. CLAIRWOOD

11.3.1 DEFINITION OF THE PLANNING PRECINCT

The Clairwood precinct comprises, the South Coast Road commercial strip and the industrial areas behind it; the industrial and commercial zone that is adjacent to the Clairwood residential core along Edwin Swales VC Drive; the central area of Clairwood, and the Fresh Produce Market and Transnet Diesel Depot area.

11.3.2 ROLE OF LOCAL AREA

The area comprises a “frame” that includes -

- The South Coast Road area that remains commercial and light industrial;
- The Fresh Produce Market and Diesel Depot area that becomes logistics;
- The area parallel to Edwin Swales VC Drive that remains commercial and general industrial.

11.3.3 SUMMARY OF CORE ISSUES

The Clairwood precinct presents a number of unique challenges in terms of the social and historical concerns, as well as the problems the current layout presents for redevelopment.

Planning interventions for the area as a whole needs to consider that:

- The sites are small;
- The blocks are small;
- Roads are too narrow for commercial / logistics traffic;
- The road system lacks clarity and convenient ingress and egress to and from the major access roads;
- A mix of residential and incompatible industrial / logistics uses currently exist.
- A large number of worship sites and “listed” buildings need to be accommodated

Three options were considered for this precinct by the planning team:

a) Residential Dominant Option: Retention of the residential core
b) Logistics Dominant Option: Conversion to logistics use throughout the precinct
c) Cluster Precinct Option: Retention of a smaller heritage and residential heart surrounded by large logistics industry sites

Notwithstanding the considerable social issues involved, the Logistics Dominant Option: Conversion to logistics use throughout the precinct, is recommended.

For more detailed social analysis see Annexure F.
11.3. CLAIRWOOD

MOVEMENT FRAMEWORK – REZONE FOR LOGISTICS

- N2 Highway
- M4 Freeway
- Existing Major Roads
- Phase 1: East-West Freight Route
- Internal Circulation Roads
- Link from M7 to Port of Durban
- Link from M7 to E-W Freight Route
- Railway Stations
- Link from Clairwood Logistics Sites to E-W Freight Route
11.3. CLAIRWOOD

LAND USE FRAMEWORK – REZONE FOR LOGISTICS

- Montclair
- Rossburgh
- Clairwood
- Jacobs

MAP IMAGES: Graham Muller Associates
It is recommended that the Clairwood central core be rezoned for logistics uses. Logistics within this area would be permitted to have open storage. For the logistics zoning to work efficiently and effectively a totally new layout is required.

Due to the land use changes in the area the movement structure would need to be upgraded to allow and accommodate a local logistics circulation system. This would require that some of the major through routes be widened, and other roads eliminated or down-graded to internal service roads within larger lots. On-site parking and handling should be accommodated in all developments in the precinct.

The preconditions for this solution suggests that there is a complete redevelopment of the Clairwood core and outer area or frame with consolidated lots as well as a new sub divisional layout to allow for a better structured core. The development of new infrastructure would need to be addressed to support the logistics uses within the core including the new local road network. In order to achieve this the Municipality would need to encourage and support the removal of all existing residential and non-logistics related industrial uses from the core.

Listed buildings, places of worship and cognate institutional uses would be retained. Redevelopment will enable the drainage and flooding problems in the north-west of the precinct to be addressed.

The logistics proposal presents a number of advantages and disadvantages for a range of reasons. A few advantages can be highlighted as follows:

- This option presents the maximum economic and job creation within the South Durban Basin area;
- It provides for the creation of a optimally located logistics area close to the port entrance;
- This option maximises the land value in terms of providing the suggested logistics uses within the Clairwood area, at the port entrance; and
- The threats of flooding will be addressed through the redevelopment of the vulnerable area from a mixed use precinct to a logistics platform.

The social issues report identify a series of disadvantages and heritages and community losses with the proposal to rezone to Logistics (refer to Annexure F).

Notwithstanding these recommendations it is explicitly recommended the principles underpinning the conversion of land use from residential to Logistics must consider the following:

1. There should be no forced removals of residents or other legal occupiers of sites
2. Fair negotiated outcomes to be sought with individual landowners on acquisition principles
3. Appropriate responses to be sought in order to manage the concern of the needs of existing landowners, and informal residents.
4. The rates status quo (as residential or the zoning currently in use and applicable) will remain in place until the proposed rezoning is completed and the development takes effect in terms of the new zoning.
5. Expropriation will only be pursued as a means of achieving maximum legal compensation to existing landowners. The Expropriation Act allows for an added amount over and above fair market value of 10% on the first R100,000, and 5% on the value up to R500,000, 3% between R500,000 and R1,0 million, and 1% of the value exceeding R1,0 million, but not more than an additional R10,000.
11.3. CLAIRWOOD

11.3.4 SUMMARY OF PLANNING INTERVENTIONS

ROADS AND INFRASTRUCTURE:

In particular roads and then other infrastructure will require major redevelopment, especially with a new and appropriate logistics layout.

The transformation of the existing canal system into a parkway as a recreational and improved amenity is another intervention which should be implemented regardless of the Clairwood resolution. Benefits of this system will far outweigh the existing situation with the introduction of recreational space and upgrade of the open space system.

LAND USE
The redevelopment of Fresh Produce Market and the Transnet Diesel Depot is suggested as the site of the initial logistics platform. In parallel, the access to land in the Clairwood residential core should be pursued.

11.3.5 KEY PROPOSALS

MOVEMENT SYSTEM
The ultimate goal for Clairwood, is to create a coherent road network system that facilitates easy movement into and through the area, as well as creating clear but separate access for the different user groups. A new road network will be required.

UMHLATUZANA ARTERIAL

The Clairwood area is mainly affected by the introduction of the Umhlathuzana Valley Truck Route. The introduction of this link results in the diversion of port bound traffic away from the already congested Edwin Swales VC Drive onto the Umhlathuzana Truck Freight Route.

The Umhlathuzana Truck Freight Route allows for a direct link between the port and the N2 freeway. As mentioned earlier the Umhlathuzana Truck Freight Route has been coded as a two lane / direction link between the Port of Durban and the N2. All movements haven allowed at the new N2 ‘interchange’ to allow vehicles from and to the south to access the port. The Umhlathuzana Truck Freight Route allows for a dedicated freight route to and from the Port. The ultimate Umhlathuzana Truck Freight Route flows are approximately 1,600 vehicles per hour inbound and 1,200 outbound during the AM peak period.

11.3.6 OPEN SPACE SYSTEM

- Beneficiate the parkway system; and
- Retain playing fields and cemeteries.

11.3.7 BUILT FORM CONSIDERATIONS

- Assemble large blocks showing indicative mid-block lines;
- Preserve and protect the character and historic elements of the area;
- Redevelopment within the area should adhere to consistent low-scale built form;
- Encourage logistics land use properties to use the street edge for office space with other activities behind. The alignment with the street will allow continuity in the built fabric along street edges providing visual connections as well as a security element for pedestrians; and
- Building restrictions need to be enforced.
General Considerations -

- Gradation of industrial land uses;
- Introduce significant landscaping along specified routes;
- Retain existing character of heritage buildings and cognate and institutional uses within the precinct;
- Public spaces are encouraged to be upgraded (paving and lighting) and appropriately managed;
- All handling and parking is to be encouraged at the rear of sites, to allow for free flow of traffic through the area. Coverage factors within the areas requires review so as to allow for on-site parking and handling of goods; and
- Signage within these areas requires a coordinated approach;
11.4. JACOBS AND MOBENI EAST

11.4.1 DEFINITION OF LOCAL PLANNING AREA

The area comprises the long established industrial townships of Jacobs to the south-east of the M4 Freeway, Mobeni East (between the freeway and the railway which separate the area from Mobeni West), and the Clairwood Racecourse.

11.4.2 ROLE OF LOCAL AREA

The overall role of the area is to continue to accommodate the various types of logistics, manufacturing and service related uses, but in a more directed format. The roles of specific areas are as follows:

- Mobi East will be a continuation of a linear band of the logistics orientated zone that stretches from Clairwood to the new dig-out port at the vacant former DIA site at Reunion;
- Jacobs will be retained as a series of different types of industrial zones;
- The existing canal will be upgraded into a recreational parkway, that could be modulated along its length with a series of different orientations;
- A shopping centre serving this large employment area will be located at an interceptor position at the geographic centre of the townships, and will also form a node for commercial and recreation uses on the parkway; and
- The Clairwood Racecourse will be retained as mostly a “green lung” for the area and be developed as a combination of recreation uses and a series of office parks that will serve the dig-out port. The western portion of the proposed office park will comprise 2-3 storey buildings; while the eastern portion will comprise of clusters of low density low-rise office buildings.

11.4.3 SUMMARY OF CORE ISSUES

The road system lacks clarity; and there are limited connections between Jacobs and the various existing and proposed new road systems.

There is a mix of site sizes in different parts of the area in that some areas comprise large scale sites and block, and there are two clusters of blocks with small sites that contain “flatted: industrial buildings Some of the blocks remain small; and there is a need to treat the interface between residential and industrial uses. Consequently there are no substantial interventions are proposed for the Jacobs area.

JACOBS

Besides the adjustment to zoning, there will be no other major planning interventions or change to the Jacobs area. A major road link from the existing harbour to the vacated DIA site at Reunion will be necessary.

MOBENI-EAST

The area will be zoned for the logistics set of uses; so that it becomes part of the linear belt of logistics uses that stretches from the harbour to the new dig-out port.

This area will be subject to partial restructuring with the upgraded “parkway” and the new roads which will re-orientate the development in this area;

Office components of industrial buildings will be encouraged to face the “parkway” and office building zone;

A small shopping centre at the geographic and access centre of the entire area, and close to the “parkway”, will create a commercial opportunity and be linked to recreational facilities.

CLAIRWOOD RACE COURSE

The area will be redeveloped for recreational purposes around the existing track and will include the existing pond and wetland, which is unsuitable for built development. Office uses will be promoted around the southern end of the racecourse to facilitate the expected end for logistics based offices, in order to avoid industrial and residential zones being penetrated by this demand. The appropriate and full extent of the Clair wood Racecourse development will be determined through an EIA and rezoning process.
11.4. JACOBS AND MOBENI EAST

MOVEMENT FRAMEWORK
11.4. JACOBS AND MOBENI EAST

LAND USE FRAMEWORK

The appropriate and full extent of the Clair wood Racecourse development will be determined through an EIA and Rezoning process.
11.4. JACOBS AND MOBENI EAST

11.4.4 SUMMARY OF PLANNING INTERVENTIONS

Mobeni East is dealt with together with Jacobs as it is cutoff from Mobeni West by South Coast Road.

ROADS

The proposals for the Jacobs and Mobeni East area introduces a new link road surrounding the Clairwood Racecourse. The ring road will provide greater access between Jacobs and Mobeni East. The upgrading of the canal to a recreational parkway system, with its amenity attributes, is a key intervention within the Back of Port area as it will provide greater permeability within the area in terms of both land and water transportation. The improved parkway system will also allow for the introduction of a much needed safe recreational space. The area will be developed in such a way that all development along the parkway must front onto the system providing security and safety to those who use the area.

LAND USE

A number of changes are proposed for the Jacobs area in terms of zoning. The zoning changes suggested allows for a gradation within the zoning types from noxious industry along the M4, general industry starting from Chamberlain Road, east of the M4 and light industry between the general industry and residential areas. The light industry bordering the residential will require a transition zone to prevent any negative impacts on the neighbouring residential area.

The racecourse is proposed as a recreation and environmental zone with the southern portion containing a series of office parks. Due to our unfortunate history the communities within the Back of Port area have not benefited from recreational facilities and therefore the introduction of a recreational precinct in the area will be highly supported.

11.4.5 KEY PROPOSALS

MOVEMENT SYSTEM

The existing grid system will remain within the Jacobs and Mobeni East area, however it is proposed that a few modification, upgrades and maintenance occur.

JACOBS AREA ASSESSMENT RESULTS

The Jacobs area is affected by the introduction of the Umhlatuzana Valley Truck Route, the closure of Quality Street for heavy goods vehicle movement and the link from Grimsby Road to Balfour Road in Jacobs and the introduction of a north-south link along the M4 alignment.

GRIMSBY ROAD/QUALITY STREET EXTENSION TO SOUTH COAST ROAD

The Grimsby Road link has been inserted into the network to essentially link the Mobeni Area and the Jacobs area. The link curves around the Clairwood Race Course to eventually link with Balfour Road. The link has been coded as a two lane direction roadway and allows for all modes of transport. The introduction of the Grimsby Road link towards Jacobs result in a reduction in traffic flow along the Umhlatuzana Arterial as well traffic along South Cost Road. The reason for this shift in traffic to the Grimsby Road link is because of the shorter travel distance and time and the fact that Mobeni is earmarked for future Logistics activities. The introduction of the Grimsby Road link further allows for an additional north – south link between the Port of Durban and the DIA site.

The extension of Quality Street in a westerly direction and to provision of a bridge structure over the railway line will allow for a direct link into the Mobeni area and allow for additional access to the existing Port of Durban. This route will be a two lane / direction road.

NORTH – SOUTH LINK

North – South Link between the Port of Durban and the DIA site has been coded as an exclusive freight roadway running on top of the M4, with 2 lanes per direction. This new link essentially creates the freight only T arrangement, i.e. with the DIA – Port of Durban link at the top of the T and the Umhlatuzana Link to the N2 at the stem of the T. Importantly, for this assignment, freight vehicles have not been banned from the N2.

The modelling results showed that this freight link will carries approximately 2,500 PCU’s in the northbound direction and 2,100 PCU’s southbound. Importantly the Umhlatuzana Valley Truck Route volumes decrease to the N2, i.e. 920 southbound and 1,137 northbound. This is interesting, and shows that the assignment has attempted to achieve network equilibrium by splitting the freight vehicle flows between the dedicated freight link and the N2.

QUALITY STREET CLOSURE FOR HEAVY GOODS VEHICLES

The Quality Street Closure for heavy goods vehicle movement has resulted in minimal changes to the existing flow patterns of traffic within Jacobs. Because of the relative low heavy goods vehicle volumes between Balfour Road and Tara Road along Quality Street no significant traffic flow improvement will be achieved.

The total closure of Quality Street will however result in an increase in the amount of “rat running” with significant increases in adjacent roads should Quality Street be closed to all traffic. The closure of Quality Street should only be based on the impact of heavy goods Vehicle movement through residential areas and not the improvement in traffic flow. The North – South link and limited access to the Engen Oil Refinery area via the vacated DIA site will further reduce the need for heavy goods vehicles to travel along Tara Street towards the Engen Oil Refinery.
MOBENI AREA ASSESSMENT RESULTS

The Mobeni area is affected by the introduction of Grimsby Road link to the M4 Duranta Road interchange, the introduction of a north-south link along the M4 alignment, the closure of Duranta Road for Heavy Goods Vehicle movements and the current upgrade of the N2 / Higginson Highway.

GRIMSBY ROAD

The Grimsby Road link has been inserted into the network to essentially link South Coast Road and the M4 at the Duranta Road interchange. The link curves around the Clairwood Race Course and links to the M4. At the M4, movements onto the M4 to the west and east have been allowed. The link has been coded as a two lane/ direction roadway. This link is aimed at residential movement.

The morning peak hour flows on the Grimsby Road link are approximately 2,700 vehicles per hour eastbound and 1,500 westbound. The majority of vehicles that will be using the Grimsby Road link is currently travelling on South Coast Road and hence a reduction in the flow of traffic along South Coast Road. This link is also aimed at light vehicle movement between Merewent and the N2 via the N2 / Higginson Highway interchange.

The introduction of the North – South link will not have a direct impact on the flow of traffic within the Mobeni area. The north – south link will however have indirect impact on traffic on South Coast Road as discussed earlier and hence flow within the Mobeni area will also be improved.

11.4.6 LAND USE SYSTEM

Jacobs

Zoning should be modified such that there will be a gradation of zones to reduce impacts. Noxious industrial zones should be retained in the middle of the Jacobs, with general industrial zones retained largely on the eastern side of Jacobs. A narrow band of Light Industrial zoning should be introduced along the eastern edge of the precinct so as to form a reduced impact area close to the adjacent residential areas. A series of interface / transition buffers would need to be created between residential and industrial land uses. This is mostly in the form of prescription of the location of offices components of buildings, by restricting certain uses; and with landscaping requirements. A combination of schools, institutional use and open space also act as buffers between residential and industrial uses along the edge of the study area.

Mobeni East

The location and contexts of the Mobeni East area is subject to a degree of proposed redevelopment along the parkway. The majority of the Mobeni East area, with its large sites, will become part of the logistics belt that starts in Clairwood at the port entrance, in the form of a Logistics A zone that permits open storage. The southern end of the Mobeni East area is proposed to be rezoned for Logistics B, with no open storage, in order to protect the amenity of the adjacent recreation area. A small shopping centre is proposed in a central interpository position to serve the entire employment area. The centre will serve to also offer recreational facilities given its location relative to the parkway.

Clairwood Racecourse

The central and northern end of the Clairwood Racecourse is suggested to be zoned for a combination of passive and active land uses, as well protecting the environmental spring area. A crescent of land zoned for a series/ clusters of office Parks will be created on the inner area of the southern section of the racecourse. An office park area or a possible automotive industry supplier park is proposed between the racecourse and the railway line to the south-west of the racecourse. The appropriate and full extent of the Clairwood Racecourse development will be determined through an EIA and Rezoning process.

11.4.7 OPEN SPACE SYSTEM

The proposed parkway forms the core of a modulated open space system running through the study area. The majority of the Clairwood Racecourse should be utilised for a combination of both active and passive open space with limited development. The track itself is recommended to be retained as a jogging facility as well as a historical element. There is a need to introduce a recreational open space within this area which will give the area greater value and use for the existing surrounding communities.
11.4. JACOBS AND MOBENI EAST

11.4.8 BUILT FORM CONSIDERATIONS

There will be a gradation of industrial land use with the higher impact industrial uses being in the centre of the area, and the low impact industry being closer to residential areas.

The existing scale and character of development will be retained so that the adjacent residential neighbourhoods will not be subject to any transition within these neighbourhoods.

Significant landscaping along specified routes will be introduced.

The existing character of heritage items within the precinct will be retained.

Potential new development will be developed so that it does not block or diminish existing view potentials.

Public spaces are encouraged to be upgraded (paving and lighting) and appropriately managed;

All handling and parking is to be encouraged at the rear of sites, to allow for free flow of traffic through the area. Coverage factors within the areas might require review so as to allow for on-site parking and handling of goods;

Signage within these areas require a coordinated approach;

Sites on prominent corners are encouraged to restore and maintain the heritage or character features to make a positive contribution to the streetscape as well as legibility of the area;

Infill development is encouraged along ‘baggy’ edges as well as in areas where zoning changes have been suggested;

Development of new buildings on edge conditions along and along street interfaces will be encouraged with other activities at the rear. The alignment with the street will allow continuity in the built fabric along street edges providing visually connection as well as safety for pedestrians;

Appropriate urban management needs to be implemented.
11.5. MOBENI WEST

11.5.1 DEFINITION OF LOCAL PLANNING AREA

This area is the most recent of the industrial estates in the planning area, and comprises large sites with building well set back on the sites and on-site loading facilities. The area possesses a well serviced rail system, which is not well utilized at present.

This precinct comprises two separate areas, namely Mobeni West, which is bounded by the railway line and South Coast Road in the east, the N2 to the south and west, and Kenyon Howden Road to the north, and the Merewent industrial area which is a narrow band of land between South Coast Road/ railway reserve and the residential area of Merewent.

11.5.2 ROLE OF LOCAL AREA

The overall role of both of the area is to continue the belt of logistics orientated uses. The specific role of the areas is as follows:

- Mobeni West, given its large sites, access advantages, rail system and connections, will be a continuation of a linear band of the logistics orientated zone that stretches from Clairwood to the new dig-out port at Reunion; and will permit open storage;
- The Merewent industrial area will also be a continuation of the logistics belt, but given its proximity to a residential area will prohibit open storage.

11.5.3 SUMMARY OF CORE ISSUES

Mobeni West offers opportunities with its large sites and rail reticulation to be used for logistics uses;

There is a simple grid system of roads; and the area lacks clear links to adjacent industrial areas.

Besides the adjustment to zoning, there will be no other planning interventions or change to either the Mobeni West area or the Merewent industrial area;

The rail system will be beneficiated in Mobeni; and a new east-west road connection via the Grimsby Road extension will enhance the connectivity of the area.
11.5. MOBENI WEST

MOVEMENT FRAMEWORK

[Map of MOVEMENT FRAMEWORK showing different routes and points like Mobeni, Mondi, Austerville, etc.]

MOBENI PRECINCT - MOVEMENT PLAN

SPATIAL FRAMEWORK, PRECINCT PLANS AND ZONING FRAMEWORK – BACK OF PORT – MAY 2011
The appropriate and full extent of the Clairwood Racecourse development will be determined through an EIA and Rezoning process.
11.5. MOBENI WEST

11.5.4 SUMMARY OF PLANNING INTERVENTIONS

ROADS
A link road around the Clairwood Racecourse should be introduced, which will facilitate greater movement through the area.

LAND USE
Minor changes in land use are proposed to facilitate conversion to logistics just below the Southern Freeway and the rail. The logistics proposed within this area prohibit the use of open storage.

11.5.5 KEY PROPOSALS

MOVEMENT SYSTEM
South Coast Road is recommended to be improved to become an activity spine with a dedicated bus route. This activity spine should run the length of the study area, to the city CBD as well as up the north coast. It is also proposed that Grimsby Road is to be extended across the railway line and split around the Clairwood Racecourse to improve east-west access as a “shared mobility” system for both freight and residential usage. The rail system in Mobeni West should also be improved to increase mobility and choice within the area. An additional improved connection should be made linking the area to the DIA dig-out port at Reunion.

11.5.6 LAND USE SYSTEM

Mobeni West
The existing Noxious and General Industrial zones are recommended be transformed to a Logistics A zone that permits open storage. The hospital and hostel areas on the periphery of this precinct are recommended to be retained, and these in turn will act as buffers from the logistics zones to the adjacent residential areas.

Merewent Industrial Area
This area is proposed to be converted to a Logistics B zone, prohibiting open storage in order to better interface with the adjacent residential area. A controlled interface circumscribing a landscaping strip and office positioning is proscribed on the eastern edge of the area to act as a buffer with the residential area.

11.5.7 OPEN SPACE SYSTEM

A band of open space acts as a buffer on the north–western boundary of the precinct and the adjacent residential

11.5.8 BUILT FORM CONSIDERATIONS

Once again there will be a gradation of industrial land use with low impact industry being closer to residential areas; and higher impact uses such as noxious and heavy industry located internally within the area
Existing scale and character of residential neighbourhoods for any transition within these neighbourhood will be retained.
Significant landscaping along specified routes will be introduced
The existing character of heritage items within the precinct will be retained.
Potential new development should not block or diminish existing view potential;
Public spaces are encouraged to be upgraded with paving and lighting and be appropriately managed;
All handling and parking is to be encouraged at the rear of sites, to allow for free flow of traffic through the area. Coverage factors within the areas might require review so as to allow for on-site parking and handling of goods.
Signage within these areas require a co-ordinated approach;
sites on prominent corners are encouraged to restore and maintain heritage or character features to make a positive contribution to the streetscape as well as legibility of the area.
Infill development is encouraged along ‘baggy’ edges as well as in areas where zoning changes have been suggested.
Building along edge conditions along street interfaces is to be encouraged and induced; with other activities at the rear.
The alignment with the street will allow continuity in the built fabric along street edges providing visually connection as well as safety for pedestrians; and appropriate urban management needs to be implemented.
Public spaces are encouraged to be upgraded (paving and lighting) and appropriately managed.

Appropriate urban management needs to be implemented.

Sites on prominent corners are encouraged to restore and maintain and heritage or character features to make a positive contribution to the streetscape as well as legibility of the area.
11.6. MEREWENT

11.6.1 DEFINITION OF LOCAL PLANNING AREA
The Merewent local area, insofar as planning is concerned, comprises only -

- The Engen oil refinery;
- The Mondi paper factory; and
- The waste water treatment works.

Currently these developments are accessed via roads that penetrate through the Merewent residential area.

11.6.2 ROLE OF LOCAL AREA
The particular and specialized industrial developments to continue in their present form. The area west of the Mondi paper mill will be redeveloped as a general industrial area. An transition office area will buffer the new industrial area from the adjacent residential area.

11.6.3 SUMMARY OF CORE ISSUES
The existing industrial activities are accessed via residential areas. The extension of a further industrial development will require modification to the road system.

At present these areas are accessed via residential roads and have an impact on them. Segregation of local traffic and industrial traffic is proposed. Consequently, the Engen oil refinery will now be accessed from a proposed road running along the peripheral of the vacated DIA site alongside the Umlaas Canal and connecting to the DIA site at or near to the existing interchange on the N2 freeway.
11.6. MEREWENT

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE.  NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
11.6. MEREWENT

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
11.6. MEREWENT

11.6.4 SUMMARY OF PLANNING INTERVENTIONS

ROADS
New link roads introduced to create a new and separate access road system to each of the developments in the precinct planning area via a new road system built on the old DIA vacated site.

11.6.5 LAND USE
These industrial developments will continue in their present form; but an extension to the existing industrial area will be created with a direct link to the new dig-out port.

KEY PROPOSALS:

MOVEMENT SYSTEM
Access to the Engen oil refinery, Mondi paper mill and the SAPREF oil refinery will be via a new system along the periphery of the new dig-out port, that will serve to remove heavy industrial traffic from flowing through residential areas.

MEREWENT AREA ASSESSMENT RESULTS (Anup. 2011)
The Merewent area is affected by the introduction of the dedicated freight route through the DIA site and the closure of Duranta Road for Heavy Goods Vehicle movements.

LINK BETWEEN STANVAC AREA AND DIA
This network option allows for a freight only link between DIA and the Engen oil refinery area. The modelling results have shown that the Engen link carries very little freight traffic. The V/C ratios are also low, however capacity problems along rest of the link from the old DIA site to the N2 do start becoming apparent when this new link is introduced because it carries traffic from the old DIA site, SAPREF and the Engen area towards the N2.

DURANTA ROAD CLOSURE FOR HEAVY GOODS VEHICLES
The Duranta Road closure for heavy goods vehicle movement will have similar effect on traffic flow as that of the Quality Street closure. Because of the relative low heavy goods vehicle volumes on Duranta Road which is destined for Engen the model has shown that no significant traffic flow improvement will be achieved. The total closure of Duranta Road will however result in an increase in the amount of “rat running” with significant increases in adjacent roads should Duranta Road be closed to all traffic.

The closure of Duranta Road should only be based on the impact of heavy goods vehicle movement through residential area and not the improvement in traffic flow. The north – south link and limited access to the Engen area via the DIA site will further reduce the need for heavy goods vehicles to travel along Duranta Road towards the Engen Oil Refinery.

11.6.6 LAND USE SYSTEM
The existing Noxious and General Industrial zones will be permitted to continue in their present format. The extension to the industrial area will require a buffer of offices between itself and the adjacent residential areas.

11.6.7 OPEN SPACE SYSTEM
A band of open space acts as a buffer on the north – western boundary of the precinct and the adjacent residential area.

11.6.8 BUILT FORM CONSIDERATIONS
Once again, there will be a gradation of industrial land use with low impact industry being closer to residential areas.
The existing scale and character of residential neighbourhoods will be retained for any transition within these neighbourhoods.
Significant landscaping along specified routes will be introduced.
The existing character of heritage items within the precinct will be retained.
It will be ensured that potential new development does not block or diminish existing view potential.
Public spaces are encouraged to be upgraded with paving and lighting; and appropriately managed;
All handling and parking is to be encouraged at the rear of sites, to allow for free flow of traffic through the area. Coverage factors within the areas might require review so as to allow for on-site parking and handling of goods;
Signage within these areas require a coordinated approach;
Sites on prominent corners are encouraged to restore and maintain and heritage or character features to make a positive contribution to the streetscape as well as legibility of the area.
Infill development is to be encouraged along “baggy” edges as well as in areas where zoning changes have been suggested.
Buildings will be encouraged to build on edge conditions along street interfaces with other activities at the rear. Of sites.
The alignment with the street will allow continuity in the built fabric along street edges providing visually connection as well as safety for pedestrians.
Appropriate urban management needs to be implemented.
Public spaces are encouraged to be upgraded (paving and lighting) and appropriately managed.

Appropriate urban management needs to be implemented.

Sites on prominent corners are encouraged to restore and maintain any heritage or character features to make a positive contribution to the streetscape as well as legibility of the area.
ZONING FRAMEWORK

Introduction
Analysis of the current Zoning System
Classification of Industry
Land Use Scheme Proposals
Appendices
The following section details the Zoning Framework proposed for the BOP study. There are several implicit concepts and conventions used in the determination of “Industrial” Zones. These are interrelated and not exclusive, and are:

1. That there is a continuum of “externalities”/impacts implicit in the types of zones. Consequently, zones are structured to separate the degrees of impact; viz. Extractive —— Noxious —— General —— Light
2. That the “impacts” are interpreted to be the impact of an activity on -
   a. Its own site
   b. It’s immediate neighbours;
   c. The more general impact on the surrounding area; and
   d. The impact on adjacent zones, especially residential areas.
3. That there is a “pyramid” in the manner in which the uses permitted in the zones are arranged; viz -
   a. Noxious industrial zones permit every permutation of “industrial” uses;
   b. General industry permits most of these uses, except for the high impact (noxious industrial) uses; while
   c. Light industrial zones permit a more restricted set of uses; and
   d. General Business uses permits office uses together with certain Light and Service industrial uses.
4. The current Town Planning Scheme (TPS) mostly distinguish between the “legal”/ formal name of the zone and the uses permitted within them, which are defined in the list of Building and Use definitions.

The current TPS that pertains to the BOP area follows this approach.

FACTORS TO BE TAKEN INTO ACCOUNT IN RESPECT OF ZONING TYPOLOGY

1. Conventional manufacturing uses (heavy and light) have conventional loading/off-loading and parking requirements – based on their fairly basic forward and backward linkages receiving raw material and delivering finished products, and consequently they generate a particular quantum of traffic.
2. Logistics (of all kinds) generate substantial and constant traffic and loading activities
3. Service Industry, because of their service directly to the public and their distribution and sales components, generate a different type of traffic and loading, parking, etc. This is more than manufacturing industry, and not as much as logistics uses.

Logistics in its own right can be subdivided. These uses occur across a continuum from pure office use through to large open storage depots - in a similar fashion to “industry” above. Issues for consideration include:

- Some of these activities have more traffic impacts than others, and also occurs in quite different development/built form formats.
- All need appropriate access and loading space
- Some occur in buildings (usually a variant of a single storey format)
- Some occur in the form of open storage (emplys and full) that possess quite different visual impacts.

COMMENTS ON THE CURRENT TPS

1. The list of land use definitions applicable to the current Scheme uses the same name as the zone itself, e.g. the Light Industrial zone permits light industrial buildings and uses
2. Most of the different types of uses occurring in industrial zones are defined in the list of definitions, but are not incorporated into the zone tables, e.g. warehousing, storage, etc.
3. For the most part, the Freely Permitted uses are identified in broad use categories such as light, service and industrial purposes without any reference to any other cognate uses.
4. The definitions of uses are consequently all embracing so that the uses implicit in the definitions are not clear ,and rely on personal interpretation.
5. Neither the current zones, nor the definitions, are able to easily accommodate the emergence of the “logistics” set of uses, viz there is no distinction for outdoor storage (especially containers); no recognition of “transhipment” and other logistics activities.

This study has been at pains to distinguish a range of different types of “industrial uses”, viz noxious/heavy industry, light industry, etc. and have introduced the need to distinguish the “logistics” grouping of uses.

There are a set of tables in the appendix to this memorandum. They include:

1. An extraction from the land use definition tables extracted from the current Durban TPS;
2. The land use controls developed for the LUMS Blue Manual
3. The land use controls used for cognate “industrial” zones in the Durban TPS
4. An extraction of the land use definitions formulated for the LUMS BLUE MANUAL, (2001)
5. A system adapted from a draft scheme prepared for Toronto, Canada.
ZONING FRAMEWORK

12.2. ANALYSIS OF THE CURRENT ZONING SYSTEM

12.1 COMMENTS ON THE CURRENT TPS

Several aspects in regard to the current system of zoning are clear.

- There are some tautologies’ definitions * i.e. a Light Industrial zone allows and means Light industrial uses.
- The definition of some industrial uses are more inclusive and include storage, warehousing, etc., and these particular definitions do not seem to be used in the land uses Permitted (freely or otherwise).

The distinction between Light and Service Industry appears to be that service industrial uses is restricted to small size activities, whereas light industrial uses is restricted to activities that have limited impacts. General Industrial/Industrial uses allows almost anything, including storage of builder’s material, storage activities such as the stacking of containers; storing or preparation for resale of scrap material, and other types of storage /warehouse;

The land use definitions and the zones for Durban reflect an older and simpler period. There is a clear need to improve/update/elaborate these definitions and zones. The issue in this regard include:

- The need to improve or redefine both the definitions and the zones
- The need to consider introducing new definitions and zones

These include separating and identifying, separately, the various activities that comprise the set of uses implied by “industrial” uses:

1. Different forms of manufacturing such as seen in the Toronto example.
2. The warehousing, storage, transhipment set of categories
3. The service industry forms of activities that are identified in the Toronto example as “workshops”
4. Community and institutional categories
5. Retail and service uses
6. Offices

The categorisation of “zones” should consider the introduction of “purger” “logistics” zones.

12.2 COMMENTS ON THE LUMS SYSTEM

The LUMS system of indicating uses permitted in zones is more detailed than that for Durban; but still lacks adequate distinction. There are more detailed definitions than the current Durban TPS
12.3. CLASSIFICATION OF INDUSTRY

CLASSIFICATION OF INDUSTRY

The precedent study of the Back of Port project raised the following issues for consideration. Historically, industrial buildings have been classified according their implicit impacts on adjacent developments. This system has seen industry classified in terms of a continuum from noxious, through heavy, general, light and service industries. More recently, in the USA, a combination of physical characteristics and use has been used resulting in a three level categorization; viz. warehouse, manufacturing, and “flexible facilities”. Where “flex” is a new category used to demarcate more flexible contemporary industrial buildings for so-called “clean” industrial types of development.

A new two-level system of classification has been introduced which acknowledges the variations within the three historical categories of warehouse, manufacturing, and flex; while also providing two new categories; viz. freight forwarding and multi-tenant.

CLASSIFICATION SYSTEM

Industrial developments may be classified according to its use or its physical characteristics. This new system uses the latter method of classification because it recognizes design features that may not be apparent with the use classification approach. The process of classifying industry in terms of physical characteristics uses core and ancillary differentiating features. Core differentiating features are those physical characteristics that are present in all buildings within the same category. For example, all truck terminals have docks on parallel walls, which is a core feature that differentiates this building type. Ancillary differentiating features are common, but not always present, within a particular industrial category. For example, trailer parking is common but not always present in heavy distribution buildings; therefore this feature is an ancillary characteristic differentiating heavy distribution buildings. Several industrial categories can have some of the same core or ancillary physical characteristics, or both. The presence of docks along at least two walls is a core differentiating characteristic of both truck terminals and heavy distribution buildings. However, truck terminals and heavy distribution buildings have other core characteristics that are not identical, so separate categories are required that recognize those differences. The most recent classification of industrial development emerges from the USA (Guide to Classifying Industrial Property & M. Rene, ULI, 2003).

These categories can be organized into a continuum, in different ways, depending on the criteria used. The most common system is for the types to be organized in terms of potential impacts – pollution, noise, etc.

The classification lists primary and secondary industrial uses, viz.

<table>
<thead>
<tr>
<th>PRIMARY CATEGORIES</th>
<th>SECONDARY CATEGORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>Heavy manufacturing</td>
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<tr>
<td></td>
<td>Light manufacturing</td>
</tr>
<tr>
<td>Multi-tenant</td>
<td></td>
</tr>
<tr>
<td>Freight forwarding</td>
<td>Air cargo / port cargo</td>
</tr>
<tr>
<td></td>
<td>Truck terminal</td>
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<td>Container depots</td>
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<td>Regional warehouses</td>
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<td></td>
<td>Bulk warehouses</td>
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<td></td>
<td>Heavy distribution</td>
</tr>
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<td></td>
<td>Refrigerated distribution</td>
</tr>
<tr>
<td></td>
<td>Rack- supported warehouses</td>
</tr>
<tr>
<td>“Flex”</td>
<td>R &amp; D flexible facilities</td>
</tr>
<tr>
<td></td>
<td>Office showrooms</td>
</tr>
</tbody>
</table>
12.4. LAND USE SCHEME PROPOSALS

PROPOSED ZONING FRAMEWORK

The appropriate and full extent of the Clairwood Racecourse development will be determined through an EIA and Rezoning process.

STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
12 ZONING FRAMEWORK

12.4 LAND USE SCHEME PROPOSALS

The planning of the BoP area needs to consider:

- A review of the current TPS
- A translation of the current TPS into the LUMS system
- The introduction of appropriate additional/new zones

There are several components that comprise a land use scheme, viz

- An appropriate set of land use and building definitions
- The formulation of appropriate zones
- An appropriate set of development regulations

12.4.1 APPLICATION PRINCIPLES

Several zoning principles underpin the recommended approach to managing development in the planning areas.

These are:

- New building and land use definitions will be developed
- Some zonal types will be continued in their present form
- A series of modified zones will be introduced
- A series of new zones will be introduced

The new definitions will expand the present set to differentiate the types of uses usually found in the cognate set of Industrial and Logistics areas. (See zoning plan on the left)

The recommended zones are:

- Noxious Industry A;
- General Industry A. (includes most uses but no high impact manufacturing)
- Light Industry A (includes most uses, but no high impact and medium impact manufacturing uses)
- Light Industry B (as above but no open storage)
- Logistics A (allows all uses, but no manufacturing)
- Logistics B (as above but no open storage)
- Interface A (same as called medium impact residential in Berea Scheme i.e. residential and houses converted to offices)

- Interface B (same as called high impact residential in Berea scheme i.e. allows redevelopment of houses to higher density and redevelopment of low rise offices).
- Commercial / Industrial A: for a form of mixed use as per Riverhorse Valley example
- Business / Office Park; as per Riverhorse Valley, or similar, for application in Clairwood Racecourse.
- General Business 2

Any “review” /new and/or amendment to the current system will include the caveat that any adjustment will permit the retention of existing development as “existing” or “non-conforming ” uses in the conventional treatment of them.

12.4.1.1 Land Use and Building definitions

There is a need to modify/improve and add a set of appropriate definitions. The recommendation is to incorporate the definitions used in the LUMS system and to introduce a new grouping of uses.

These definitions will include the following:

- High Impact Manufacturing uses, (as per the Toronto example)
- Large Scale and Medium Impact manufacturing uses (as per the Toronto example)
- Non-polluting Light Manufacturing
- Workshops and Service outlets
- General Storage, Warehouse, etc (using the current definitions)
- Open Air Storage
- Transhipment
### Non Polluting Light Manufacturing

Means manufacturing activities that permits manufacturing uses which are compatible with land uses permitted in adjacent sensitive land use zones, such as residential, mixed use and open space zones, as such, it would permit manufacturing activities that usually do not involve significant vibration, noise, odour, or high volume of automobile and truck traffic. Manufacturing uses included in this category include:

- Apparel & textiles
- Printing
- Furniture
- Fabricated metal
- Machinery
- Food & beverage
- Transport equipment

### Large Scale Manufacturing

Means any manufacturing activity other than a restricted industry or an extractive industry, in which the processes carried on or the machinery installed are of such nature that it could be carried out or operated without any detriment to amenity or to health by reason of, inter alia:

(i) noise, vibration or glare;
(ii) odour, gas, fumes or smoke;
(iii) soot, ash, dust, grit or other particulate matter;
(iv) radiation, fire or explosion hazards;
(v) electronic or electromagnetic interference;
(vi) heat or humidity; and/or
(i) discharge of any other vapour, gas, effluvium, liquids and solid matter;
and
(ii) may include a convenience shop restricted to the sale of goods manufactured on the site.

Manufacturing uses included in this category include:

- Wood manufacturing
- Pharmaceuticals
- Plastic
- Glass
- Clay

### High Impact Manufacturing

Means any activity, undertaking, premises, building and/or land that permits manufacturing uses which may not be compatible with other manufacturing uses and which would have major externalities on adjacent sensitive land uses. It would permit manufacturing activities that may produce significant vibration, noise, odour, or high volume automobile and truck traffic. Manufacturing uses included in this category include:

- Tannery
- Asphalt
- Paint & varnish
- Petrochemical

### Workshops and Service Outlets

Means light and service industrial activities which cater for the local customer or provides a service direct to the retail customer and which is directly associated with a shop or an office building in respect of which the public, as customer, has access, but excludes a public garage or petrol filling station.

Uses included in this category include:

- Custom workshop carpenters shop
- Industrial sales and service
- Dry cleaning
- Workshops
- Builders yard

### Transhipment

Means those activities which involve the act of transferring freight between two modes of transport, such as truck to rail, or the act of transferring freight from long-haul trucks to local delivery vehicles.
12.4. LAND USE SCHEME PROPOSALS

12.4.2 Proposed Zones
A new set of a continuum of cognate zones is proposed (a suffix A is used to indicate a potentially new/different zone to that in the current TPS)

Noxious/Heavy Industrial Zone A;

Statement of Intent
This is a zone that permits manufacturing uses which may not be compatible with other manufacturing uses and which would have major externalities on adjacent sensitive land uses. This zone would permit manufacturing activities that may produce significant vibration, noise, odour, or high volume automobile and truck traffic. Warehousing of materials that may be considered noxious or hazardous may be permitted in buildings in this zone, with possible conditions and/or exceptions, i.e. via a consent procedure.

Outdoor storage, as either a principal use or an ancillary use, could also be permitted in the zone, with some possible conditions or restrictions, i.e. as a consent use).

Office uses, as a principal use, would not be permitted in the zone. Retail stores, eating establishments and other personal service uses would also not be permitted. Of the service related uses, only service shops and showrooms would be permitted.

<table>
<thead>
<tr>
<th>NOXIOUS / HEAVY INDUSTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. PRIMARY USE</strong></td>
</tr>
<tr>
<td>MANUFACTURING</td>
</tr>
<tr>
<td>Non Polluting Light manufacturing</td>
</tr>
<tr>
<td>(see definition)</td>
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<tr>
<td>Large scale Manufacturing</td>
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<tr>
<td>(see definition)</td>
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<tr>
<td>High Impact Manufacturing</td>
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<tr>
<td>(see definition)</td>
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<tr>
<td>Treatment plant</td>
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<tr>
<td>Waste incinerator</td>
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<tr>
<td>Animal shelter</td>
</tr>
<tr>
<td>Public works yard</td>
</tr>
<tr>
<td>Recovery facility</td>
</tr>
<tr>
<td>Open storage</td>
</tr>
<tr>
<td>Salvage yard</td>
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<tr>
<td>Builders supply yard</td>
</tr>
<tr>
<td>Industrial sales &amp; service</td>
</tr>
<tr>
<td>WORKSHOPS</td>
</tr>
<tr>
<td>Custom workshop carpenters shop</td>
</tr>
<tr>
<td>Industrial sales and service</td>
</tr>
<tr>
<td>Dry cleaning</td>
</tr>
<tr>
<td>Workshops</td>
</tr>
<tr>
<td>Builders yard</td>
</tr>
<tr>
<td>WAREHOUSING &amp; STORAGE</td>
</tr>
<tr>
<td>Warehouse</td>
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<tr>
<td>Food warehouse</td>
</tr>
<tr>
<td>Cold storage</td>
</tr>
<tr>
<td>Wholesaling</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
</tr>
<tr>
<td>Public transportation</td>
</tr>
<tr>
<td>Public works yard</td>
</tr>
<tr>
<td>INSTITUTIONS</td>
</tr>
<tr>
<td>Research laboratory</td>
</tr>
<tr>
<td>COMMUNITY</td>
</tr>
<tr>
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</tr>
<tr>
<td>VEHICLE RELATED USES</td>
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<td>Car wash facility</td>
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<td>PFS</td>
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<td>Vehicle repair shop</td>
</tr>
<tr>
<td>RETAIL &amp; SERVICES</td>
</tr>
<tr>
<td>Restaurant</td>
</tr>
<tr>
<td>Bank</td>
</tr>
<tr>
<td>Personal service shop</td>
</tr>
<tr>
<td>OFFICES</td>
</tr>
<tr>
<td>Offices</td>
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</tbody>
</table>

**DEVELOPMENT REGULATIONS**

<table>
<thead>
<tr>
<th>FAR</th>
<th>COVERAGE (%)</th>
<th>HEIGHT (Storey)</th>
<th>Parking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Industry</td>
<td>1.0</td>
<td>70</td>
<td>NA</td>
</tr>
</tbody>
</table>
12.4. LAND USE SCHEME PROPOSALS

General Industry A (includes most “industrial” uses, but no noxious activities)

Statement of Intent

The General Industrial zone (A) is a zone that permits manufacturing uses which are generally compatible with other manufacturing uses. As a cumulative industrial zone, it would permit a combination of light manufacturing uses found in other zones and more intensive manufacturing uses that would normally be considered incompatible with sensitive land uses, such as those uses found in the residential and open space zones.

Warehousing of materials considered non-noxious or non-hazardous are permitted in buildings in this zone. Outdoor storage, as an ancillary use, may be permitted in the zone, subject to certain restrictions involving the amount of area permitted on a lot, setbacks, screening, and possibly the type of materials permitted to be stored outdoors; i.e. via a consent use procedure.

Office uses, retail stores, and certain eating establishments will be permitted in the zone with certain conditions. The intention is to ensure that office use is limited in size and scale and is permitted to function with permitted manufacturing and warehouse uses. Retail stores and eating establishments shall be permitted for the purposes of servicing manufacturing and warehouse uses in all of the employment industrial zones. Financial institutions, kennels, pet services, service shops, and showrooms would be permitted uses in the zone.

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<table>
<thead>
<tr>
<th>PRIMARY USE</th>
<th>LAND USE PERMITTED BY SPECIAL CONSENT</th>
<th>PROHIBITED LAND USES AND BUILDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUFACTURING</td>
<td>Non Polluting Light manufacturing (see definition)</td>
<td>MANUFACTURING Nil</td>
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<tr>
<td>LARGE SCALE MANUFACTURING (see definition)</td>
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</tr>
<tr>
<td>Treatment Plant</td>
<td></td>
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<tr>
<td>Waste incinerator</td>
<td></td>
<td></td>
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<tr>
<td>Animal Shelter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public works yard</td>
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<td></td>
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<tr>
<td>Recovery facility</td>
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<tr>
<td>Open storage</td>
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<tr>
<td>Salvage yard</td>
<td></td>
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<tr>
<td>Industrial sales &amp; Service</td>
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<td>WORKSHOPS</td>
<td>Custom Workshop Carpenters Shop</td>
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<tr>
<td>Industrial sales and service</td>
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<tr>
<td>Dry Cleaning</td>
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<tr>
<td>Workshops</td>
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<tr>
<td>Builders Supply Yard</td>
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<tr>
<td>WAREHOUSING &amp; STORAGE</td>
<td>Warehouse</td>
<td>WAREHOUSING &amp; STORAGE Nil</td>
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<tr>
<td>Food warehouse</td>
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<td>Cold storage</td>
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<td>Wholesaling</td>
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<td>TRANSPORTATION</td>
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<td>VEHICLE RELATED USES</td>
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<td>Vehicle repair shop</td>
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<td>Retail &amp; Services Restaurant Bank Personal service shop</td>
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<td>OFFICES</td>
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<table>
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<tr>
<th>DEVELOPMENT REGULATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAR</td>
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<tr>
<td>--------------------------</td>
</tr>
<tr>
<td>Gen Industry</td>
</tr>
</tbody>
</table>
Light Industry A (includes most uses, but no High medium impact uses)

Statement of Intent
The Light Industrial zone (A) is a zone that permits manufacturing uses which are compatible with land uses permitted in adjacent sensitive land use zones, such as residential, mixed use and open space zones. As a light industrial zone, it would permit manufacturing activities that usually do not involve significant vibration, noise, odour, or high volume of automobile and truck traffic. Warehousing of materials considered non-obnoxious or non-hazardous are permitted in buildings in this zone, with possible conditions. Outdoor storage, as an ancillary use, would be extremely limited if not outright prohibited. Office uses would be permitted with conditions in this zone, i.e. with a consent use procedure. Retail stores are limited as ancillary uses to permitted manufacturing uses (i.e., the selling of products manufactured on site). Eating establishments and most other personal service uses would not be permitted in the zone.

<table>
<thead>
<tr>
<th>USE</th>
<th>PRIMARY USE</th>
<th>LAND USE PERMITTED BY SPECIAL CONSENT</th>
<th>PROHIBITED LAND USES AND BUILDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUFACTURING</td>
<td>Manufacturing</td>
<td>Manufacturing Large scale Manufacturing (see definition)</td>
<td>Other uses not under Columns 1 and 2.</td>
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<td>Non Polluting Light Manufacturing</td>
<td>Wholesaling</td>
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<td>WORKSHOPS</td>
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<td>Carpenters Shop</td>
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<td>Industrial sales and service</td>
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<tr>
<td>Dry Cleaning Workshop</td>
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<td>TRANSPORTATION</td>
<td>Public transportation</td>
<td></td>
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<tr>
<td>INSTITUTIONS</td>
<td>Research Laboratory</td>
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<td>COMMUNITY</td>
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</tr>
<tr>
<td>VEHICLE RELATED USES</td>
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</tr>
<tr>
<td>RETAIL &amp; SERVICES</td>
<td>Restaurant Bank</td>
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<td>Personal service shop</td>
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<td>OFFICES</td>
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<tr>
<th>DEVELOPMENT REGULATIONS</th>
<th>FAR</th>
<th>COVERAGE (%)</th>
<th>HEIGHT (Storey)</th>
<th>Parking</th>
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<tbody>
<tr>
<td>Gen Industry</td>
<td>1.0</td>
<td>70</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>
Light Industry B (as above but no Open Storage)

Statement of Intent

The Light Industrial zone (B) is a zone that permits manufacturing uses which are compatible with land uses permitted in adjacent sensitive land use zones, such as residential, mixed use and open space zones. As a light industrial zone, it would permit manufacturing activities that usually do not involve significant vibration, noise, odour, or high volume of automobile and truck traffic. Warehousing of materials considered non-obnoxious or non-hazardous are permitted in buildings in this zone, with possible conditions. Outdoor storage, would be prohibited in the zone. Office uses would be permitted with conditions in this zone. Retail stores are limited as ancillary uses to permitted manufacturing uses (i.e., the selling of products manufactured on site). Eating establishments and most other personal service uses would not be permitted in the zone.
12.4. LAND USE SCHEME PROPOSALS

Logistics A (allows all uses, but no manufacturing)

Statement of Intent
Warehousing of materials considered non-obnoxious or non-hazardous are permitted in buildings in this zone. Transportation, transhipment and related uses are permitted. Outdoor storage, as both an independent and an ancillary use, may be permitted in the zone, subject to certain restrictions involving the amount of area permitted on a lot, setbacks, screening, and possibly the type of materials permitted to be stored outdoors. Office uses, retail stores, and certain eating establishments will be permitted in the zone with certain conditions. The intent is to ensure that office use is limited in size and scale and is permitted to function with permitted warehouse uses. Retail stores and eating establishments shall be permitted for the purposes of servicing manufacturing and warehouse uses in all of the employment industrial zones. Retail stores and eating establishments in the zone shall be limited in size and/or may only be permitted as an ancillary use when on a lot with other permitted uses. Financial institutions, kennels, pet services, service shops, and showrooms would be permitted uses in the zone.

<table>
<thead>
<tr>
<th>LOGISTICS A</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. PRIMARY USE</strong></td>
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<tr>
<td>MANUFACTURING</td>
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<tr>
<td>Wholesaling</td>
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<td>WORKSHOPS</td>
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<td>Carpenters Shop</td>
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<td>Dry Cleaning</td>
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<tr>
<td>Workshop</td>
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<tr>
<td>WAREHOUSING &amp; STORAGE</td>
</tr>
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<td>Warehouse</td>
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<tr>
<td>Food warehouse</td>
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<td>Research Laboratory</td>
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<td>COMMUNITY</td>
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<tr>
<td>Nil</td>
</tr>
<tr>
<td>VEHICLE RELATED USES</td>
</tr>
<tr>
<td>Nil</td>
</tr>
<tr>
<td>RETAIL &amp; SERVICES</td>
</tr>
<tr>
<td>Restaurant</td>
</tr>
<tr>
<td>Bank</td>
</tr>
<tr>
<td>Personal service shop</td>
</tr>
<tr>
<td>OFFICES</td>
</tr>
<tr>
<td>Offices</td>
</tr>
</tbody>
</table>
12.4. LAND USE SCHEME PROPOSALS

Logistics B (as above but no open storage)

Statement of Intent
Warehousing of materials considered non-obnoxious or non-hazardous are permitted in buildings in this zone.  Transportation, transhipment and related uses are permitted. Outdoor storage, as both an independent and an ancillary use, are prohibited in the zone. Office uses, retail stores, and certain eating establishments will be permitted in the zone with certain conditions. The intent is to ensure that office use is limited in size and scale and is permitted to function with permitted warehouse uses. Retail stores and eating establishments shall be permitted for the purposes of servicing manufacturing and warehouse uses in all of the employment industrial zones. Retail stores and eating establishments in the zone shall be limited in size and/or may only be permitted as an ancillary use when on a lot with other permitted uses. Financial institutions, kennels, pet services, service shops, and showrooms would be permitted uses in the zone.

<table>
<thead>
<tr>
<th>LOGISTICS B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. PRIMARY USE</strong></td>
</tr>
<tr>
<td>MANUFACTURING Wholesaling</td>
</tr>
<tr>
<td>WORKSHOPS Custom Workshop Carpenters Shop Industrial sales and service Dry Cleaning Workshop</td>
</tr>
<tr>
<td>WAREHOUSING &amp; STORAGE Warehouse Food warehouse Warehouse Cold Storage</td>
</tr>
<tr>
<td>TRANSPORTATION Public transportation</td>
</tr>
<tr>
<td>INSTITUTIONS Research Laboratory</td>
</tr>
<tr>
<td>COMMUNITY Nil</td>
</tr>
<tr>
<td>VEHICLE RELATED USES Nil</td>
</tr>
<tr>
<td>RETAIL &amp; SERVICES Restaurant Bank Personal service shop</td>
</tr>
<tr>
<td>OFFICES Offices</td>
</tr>
</tbody>
</table>
12.4. LAND USE SCHEME PROPOSALS

Interface A (same as Medium Impact Residential in Berea Scheme i.e. residential and houses converted to offices)

Statement of Intent
The Interface zone is a mixed use zone that permits both residential and office uses which are generally compatible with each other, as well as adjacent sensitive zones, such as residential, commercial, mixed use, and open space zones. These areas are typically described as buffer zones. As a mixed-use zone, it would permit a combination of detached and attached residential types; as well office uses in the form of “converted” houses and low rise (max 2 storey) new buildings that are considered compatible with residential development within and adjacent to these zones.

<table>
<thead>
<tr>
<th>INTERFACE A</th>
<th>1. PRIMARY USE</th>
<th>2. LAND USE PERMITTED BY SPECIAL CONSENT</th>
<th>3. PROHIBITED LAND USES AND BUILDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUFACTURING</td>
<td>Nil</td>
<td>MANUFACTURING</td>
<td>Nil</td>
</tr>
<tr>
<td>WORKSHOPS</td>
<td>Nil</td>
<td>WORKSHOPS</td>
<td>Nil</td>
</tr>
<tr>
<td>WAREHOUSING &amp; STORAGE</td>
<td>Nil</td>
<td>WAREHOUSING &amp; STORAGE</td>
<td>Nil</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
<td>Public transportation</td>
<td>TRANSPORTATION</td>
<td>Nil</td>
</tr>
<tr>
<td>INSTITUTIONS</td>
<td>Research Laboratory</td>
<td>INSTITUTIONS</td>
<td>Education</td>
</tr>
<tr>
<td>COMMUNITY</td>
<td>Nil</td>
<td>COMMUNITY</td>
<td>Nil</td>
</tr>
<tr>
<td>VEHICLE RELATED USES</td>
<td>Nil</td>
<td>VEHICLE RELATED USES</td>
<td>Nil</td>
</tr>
<tr>
<td>RETAIL &amp; SERVICES</td>
<td>Bank</td>
<td>RETAIL &amp; SERVICES</td>
<td>Place of Amusement</td>
</tr>
<tr>
<td></td>
<td>Personal service shop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFFICES</td>
<td>Offices</td>
<td>OFFICES</td>
<td>Nil</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>Dwelling House</td>
<td>RESIDENTIAL</td>
<td>Medium Density Housing</td>
</tr>
</tbody>
</table>
Interface B (same as High Impact Residential in Berea Scheme i.e. allows redevelopment of houses to higher density and redevelopment of low rise)

Statement of Intent
Interface Zone (B) is a mixed use zone that permits both residential and office uses which are generally compatible with each other, as well as adjacent sensitive zones, such as residential, commercial, mixed use, and open space zones. These areas are typically described as buffer zones. As a mixed-use zone, it would permit a combination of detached and attached residential types; as well office uses in the form of “converted” houses and low rise (max 3 storey) new buildings that are considered compatible with residential development within and adjacent to these zones. While financial institutions, hotels, and personal service shops would be permitted in the zone; retail stores and eating establishments would be the kind of uses permitted, but with conditions or specific limitations so that these uses are designed to serve the office and residential function of the zone.

<table>
<thead>
<tr>
<th>INTERFACE B</th>
<th>1. PRIMARY USE</th>
<th>2. LAND USE PERMITTED BY SPECIAL CONSENT</th>
<th>3. PROHIBITED LAND USES AND BUILDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUFACTURING</td>
<td>Nil</td>
<td>MANUFACTURING</td>
<td>Nil</td>
</tr>
<tr>
<td>WORKSHOPS</td>
<td>Nil</td>
<td>WORKSHOPS</td>
<td>Nil</td>
</tr>
<tr>
<td>WAREHOUSING &amp; STORAGE</td>
<td>Nil</td>
<td>WAREHOUSING &amp; STORAGE</td>
<td>Nil</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
<td>Public transportation</td>
<td>TRANSPORTATION</td>
<td>Nil</td>
</tr>
<tr>
<td>INSTITUTIONS</td>
<td>Research Laboratory</td>
<td>INSTITUTIONS</td>
<td>Education</td>
</tr>
<tr>
<td>COMMUNITY</td>
<td>Nil</td>
<td>COMMUNITY</td>
<td>Nil</td>
</tr>
<tr>
<td>VEHICLE RELATED USES</td>
<td>Nil</td>
<td>VEHICLE RELATED USES</td>
<td>Nil</td>
</tr>
<tr>
<td>RETAIL &amp; SERVICES</td>
<td>Bank</td>
<td>RETAIL &amp; SERVICES</td>
<td>Place of Amusement</td>
</tr>
<tr>
<td></td>
<td>Personal service shop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFFICES</td>
<td>Offices</td>
<td>OFFICES</td>
<td>Nil</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>Dwelling House</td>
<td>RESIDENTIAL</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Medium Density Housing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12.4. LAND USE SCHEME PROPOSALS

Business/Office Park; as per Riverhorse Valley, or similar for application in Clairwood Racecourse.

Statement of Intent
The Business / Office park zone is a mixed use zone that permits a range of office uses which are generally compatible with each other, as well as adjacent sensitive zones, such as residential, commercial, mixed use, and open space zones. These areas are typically described as ‘office business parks’ and involve large campus-like developments in prestigious landscaped settings. Financial institutions, hotels, and personal service shops would be permitted in the zone; retail stores and eating establishments would be the kind of uses permitted but with conditions or specific limitations.

<table>
<thead>
<tr>
<th>BUSINESS PARK B</th>
<th>1. PRIMARY USE</th>
<th>2. LAND USE PERMITTED BY SPECIAL CONSENT</th>
<th>3. PROHIBITED LAND USES AND BUILDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUFACTURING</td>
<td>Light Industrial</td>
<td>MANUFACTURING</td>
<td>Nil</td>
</tr>
<tr>
<td>WORKSHOPS</td>
<td>Nil</td>
<td>WORKSHOPS</td>
<td>Nil</td>
</tr>
<tr>
<td>WAREHOUSING &amp; STORAGE</td>
<td>Nil</td>
<td>WAREHOUSING &amp; STORAGE</td>
<td>Nil</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
<td>Public transportation</td>
<td>TRANSPORTATION</td>
<td>Nil</td>
</tr>
<tr>
<td>INSTITUTIONS</td>
<td>Research Laboratory</td>
<td>INSTITUTIONS</td>
<td>Education</td>
</tr>
<tr>
<td>COMMUNITY</td>
<td>Place of Amusement</td>
<td>COMMUNITY</td>
<td>Nil</td>
</tr>
<tr>
<td></td>
<td>Social Hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Place of Worship</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Crèche</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VEHICLE RELATED USES</td>
<td>Parking Garage</td>
<td>VEHICLE RELATED USES</td>
<td>PFS</td>
</tr>
<tr>
<td></td>
<td>Bus and taxi Rank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RETAIL &amp; SERVICES</td>
<td>Nil</td>
<td>RETAIL &amp; SERVICES</td>
<td>Place of Amusement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bank</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shop</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Personal service shop</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restaurant</td>
</tr>
<tr>
<td>OFFICES</td>
<td>Offices</td>
<td>OFFICES</td>
<td>Nil</td>
</tr>
<tr>
<td>RESIDENTIAL</td>
<td>Nil</td>
<td>RESIDENTIAL</td>
<td>Hotel</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dwelling House</td>
</tr>
<tr>
<td>RECREATION</td>
<td>Private Open Space</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graham Muller Associates
12.4. LAND USE SCHEME PROPOSALS

12.4.2 CONCLUSIONS

The recommendations involve a number of changes to the current zoning approach. These are:

- A new, modified and expanded set of industrial uses have been defined,
- An alternative set of Industrial Zones have been developed such that there is a gradation of industrial zones from high impact uses through to those with reduced impacts that can be compatible with adjacent residential development
- Two variations of certain zones have been suggested in that one form permits open storage and one set prohibits it.
- These zones are arranged so that high impact type zones are never adjacent to residential areas and are arranged in an “onion peel” approach.
**LAND USE DEFINITIONS: DURBAN**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Extractive industry”</td>
<td>means an industry, the nature of which is the extraction of raw materials from the land whereon such industry is situated and shall include:- (i) the crushing, sorting and storage of the raw material extracted from the land where such raw material is stoned, and (ii) the manufacture of burnt clay products where the raw material extracted from the land is extracted for this purpose;</td>
</tr>
<tr>
<td>General industrial building*</td>
<td>means an industrial building other than a noxious industrial building, light industrial building or service industrial building;</td>
</tr>
<tr>
<td>“Industrial building”</td>
<td>means any building or portion of a building used or constructed or designed or adapted to be used for industrial purposes;</td>
</tr>
<tr>
<td>“Industrial purposes”</td>
<td>means in relation to any land or building the use thereof for the manufacture, production, extraction, adaptation, alteration, renovation, repair, processing or servicing of any article or material and shall include the use thereof: (a) as a factory as defined in the Machinery and Occupational Safety Act No. 6 of 1983 as amended; (b) by a building contractor for the storage of builder's material; (c) for the stacking, storing or preparation for resale of scrap material; (d) as a storage warehouse; (e) as an office, caretaker's flat or for any other purpose which is incidental to or reasonably necessary in connection with the use thereof as a factory, builder's yard or scrap yard, but shall not include the use of any land or building as a petrol service station;</td>
</tr>
<tr>
<td>“Light industry”</td>
<td>means an industry which can be carried on in a Light Industrial zone without causing nuisance to other properties within such Light Industrial zone or to the general public or without detriment to the amenities of other use zones by reason of noise, vibration, smell, fumes, smoke, soot, ash, dust, grit, traffic generation or other causes;</td>
</tr>
<tr>
<td>“Noxious industrial building”</td>
<td>means an industrial building used or constructed or designed or adapted to be used for the purpose of any trade, business or occupation which, by reason of fumes, gases, vapours, dust, smell, noise, vibration or other causes, is deemed by the Council to be or likely to become, injurious or a source of danger, nuisance, discomfort or annoyance to the neighbourhood;</td>
</tr>
<tr>
<td>“Office”</td>
<td>means a building or part of a building designed for use as an office or for other business purposes, but does not include a place of instruction or place of amusement, or any building mentioned whether by way of inclusion or exclusion in the definition of “Institution” or a building designed for use as a shop, petrol service station, parking garage, industrial building, workshop or warehouse;</td>
</tr>
<tr>
<td>“Service industry”</td>
<td>means an industry of the kind referred to in the definition of a “light industry” but of a type in which not more than eight persons are engaged and which caters specifically for the essential day-to-day needs of a residential area;</td>
</tr>
<tr>
<td>“Storage warehouse”</td>
<td>means a building used or constructed or adapted to be used solely for the storage of goods and shall include the use of open land for such purposes;</td>
</tr>
</tbody>
</table>
### Definitions from LUMS Manual

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Crafts Workshop</td>
<td>A building in which the primary purpose is the production and selling of goods or services, where the processes operated in conjunction with a shop or office to which the public has access. Such uses could include art studios, textile design, weaving, pottery, leatherwork fashion design and printing.</td>
</tr>
<tr>
<td>Automatic Teller Machine</td>
<td>A facility, which is linked to a financial institution for financial transactions.</td>
</tr>
<tr>
<td>Automotive Showroom</td>
<td>A building or site used for the exhibition or display of substantially roadworthy motor vehicles and/or seaworthy marine craft for purposes of sale, hiring out or lease.</td>
</tr>
<tr>
<td>Automotive Workshop</td>
<td>A workshop or other area used for the repair, restoration, lubrication and/or service of motor vehicles and/or parts thereof and/or electrical and/or mechanical equipment and may include facilities such as service bays, grease pits and wash bays, but shall not include facilities for panel beating or spray painting.</td>
</tr>
<tr>
<td>Bulk Storage</td>
<td>The stockpiling, handling and distribution of products in bulk for import or export within the area of jurisdiction of the Port Authority, the storage and processing of commodities for import or export therein and the storage and processing of those bulk liquids and chemicals therein and which are directly associated with the functioning and operation of port activities, but shall exclude a Restricted Industry as defined in the Scheme.</td>
</tr>
<tr>
<td>Carwash Facility</td>
<td>A building or land used for the washing and cleaning of vehicles.</td>
</tr>
<tr>
<td>Commercial Workshop</td>
<td>A light industry which caters for the local customer or provides a service direct to the retail customer and which is directly associated with a shop or an office building in respect of which the public, as customer, has access, but excludes a Public Garage or Petrol Filling Station.</td>
</tr>
<tr>
<td>Extractive Industry</td>
<td>Any activity, undertaking, premises, building and land falling within the scope of the interpretation of a factory in terms of the Factories, Machinery and Building Work Act, 1941, Act No. 22 of 1941, as amended from time to time, and shall include any activity exercised on and/or any office and/or other building on the same site, the use of which is incidental and/or necessary in connection with the use of such factory, and may include a convenience shop restricted to the sale of goods manufactured on the site, but for the purpose of this Scheme shall exclude any activity, undertaking, premises and/or land which may be classed as an &quot;Extractive Industry&quot; or a &quot;Restricted Industry&quot;.</td>
</tr>
<tr>
<td>General Industry</td>
<td>A light industry as defined, other than a Restricted Industry or an Extractive Industry, in which the processes carried on or the machinery installed are of such nature that it could be carried out or operated without any detriment to amenity or to health by reason of, inter alia: (i) noise, vibration or glare; (ii) odour, gas, fumes or smoke; (iii) soot, ash, dust, grit or other particulate matter; (iv) radiation, fire or explosion hazards; (v) electronic or electromagnetic interference; (vi) heat or humidity; and/or (vii) the discharge of any other vapour, gas, effluvium, liquids and solid matter and may include a convenience shop restricted to the sale of goods manufactured on the site.</td>
</tr>
<tr>
<td>Light Industry</td>
<td>A light industry, providing a direct service to the retail customer.</td>
</tr>
<tr>
<td>Restricted Industry</td>
<td>Which includes the terms &quot;Special Industry&quot;, &quot;Offensive Industry&quot;, &quot;Noxious Industry&quot; and &quot;Noxious Trade&quot; means any activity or undertaking, or any buildings or land used for any purpose, which: a) Is, in terms of the &quot;Regulations Relating to Offensive Trades&quot; promulgated in respect of the area of jurisdiction of the Richards Bay Council in terms of Section 38(1) read with Section 40(1) (a) (i) of the Health Act, 1977, Act No. 63 of 1977, as amended, in the Government Gazette of 23 June 1978 under Regulation No. R1287 and as may be amended from time to time: (i) &quot;noxious&quot;, &quot;offensive&quot; or &quot;a danger or potential danger to public health&quot;; and/or (ii) referred to in Schedule A of the aforesaid regulations; b) Is used in connection with the carrying on of a &quot;Scheduled Process&quot; as defined in the Atmospheric Pollution Prevention Act, 1965, Act No. 45 of 1965, as amended, or which may give rise to a &quot;Noxious or Offensive Gas&quot; as defined in the said Act; and/or c) Falls within the scope of the definition of &quot;Explosive Factory&quot; under the Explosives Act 1965, No. 26 of 1965, as amended, whether such activity or undertaking or use of any building or land falls within the scope of the definition of Industry or not. Provided that in any application where both the Medical Officer of Health and the Municipal Manager certify that the process which it is proposed to employ in the conduct of such activity or undertaking will be such that any nuisance or danger to health will be eliminated, the activity, undertaking or use of a building or land, as the case may be, may be included within the definition of Industry.</td>
</tr>
<tr>
<td>Salvage Industry</td>
<td>The storage, depositing or collection of scrap or waste material or articles whose value lies mainly or entirely in that of the material of which they are composed; and/or (ii) the dismantling of second-hand vehicles or machines for the purpose of recovering spare parts or material therefrom; and/or (iii) the storage or sale of second-hand pipes, poles, steel or other metal sections, wire, timber, bricks, other building material, vehicle parts, containers or other articles capable of being left in the open without serious detriment thereto.</td>
</tr>
<tr>
<td>Service Industry</td>
<td>A light industry catering specifically for the local customer or domestic trade and may include a laundry, a builders yard (and similar, allied activities) and/or other related and similar uses that are compatible with the character of a service industrial area.</td>
</tr>
<tr>
<td>Service Workshop</td>
<td>A light industry catering specifically for the local customer or domestic trade and may include a laundry, a builders yard (and similar, allied activities) and/or other related and similar uses that are compatible with the character of a service industrial area.</td>
</tr>
<tr>
<td>Warehouse</td>
<td>A building or land that is used primarily for the temporary storage of goods, except those of an offensive or dangerous nature, and includes premises used for business of a wholesale nature, but does not include a building intended or used, in the opinion of the Council, for retail business as a shop.</td>
</tr>
</tbody>
</table>
### EXISTING LAND USE CATEGORIES

<table>
<thead>
<tr>
<th>LIGHT INDUSTRIAL: Durban Central</th>
<th>GENERAL INDUSTRIAL: Durban Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. PRIMARY USE</td>
<td></td>
</tr>
<tr>
<td>2. LAND USE PERMITTED BY SPECIAL CONSENT</td>
<td>3. PROHIBITED LAND USES AND BUILDINGS</td>
</tr>
<tr>
<td>INDUSTRIAL</td>
<td>RESIDENTIAL</td>
</tr>
<tr>
<td>• Light Industrial</td>
<td>• Institution COMMERCIAL</td>
</tr>
<tr>
<td>• Office</td>
<td>• Offices</td>
</tr>
<tr>
<td>• Parking Garage</td>
<td>• Parking Garage</td>
</tr>
<tr>
<td>• Petrol Service Station</td>
<td>• Petrol Service Station</td>
</tr>
<tr>
<td>• Shop in terms of clause 6(3)</td>
<td>• Shop in terms of clause 6(3)</td>
</tr>
<tr>
<td>• Restaurant</td>
<td>• Restaurant</td>
</tr>
<tr>
<td>• Totalisator Depot</td>
<td>• Totalisator Depot</td>
</tr>
<tr>
<td>OTHER</td>
<td>• Special Building or use, any other use authorised in terms of clause 6 bis.</td>
</tr>
<tr>
<td>Other uses not under Columns 1 and 2.</td>
<td>Other uses not under Columns 4 and 5.</td>
</tr>
</tbody>
</table>

| INDUSTRIAL                      | RESIDENTIAL                       |
| • Industrial Purposes other than Extractive and Noxious | • Institutional COMMERCIAL |
| • Offices                                      | • Offices       |
| • Parking Garage                             | • Parking Garage |
| • Petrol Service Station                      | • Petrol Service Station |
| • Shop in terms of clause 6(3)                | • Shop in terms of clause 6(3) |
| • Restaurant                                  | • Restaurant |
| • Totalisator Depot                           | • Totalisator Depot |
| OTHER                                          | • Special Building or use, any other use authorised in terms of clause 6 bis. |

### NOXIOUS INDUSTRIAL: Durban Central

<table>
<thead>
<tr>
<th>7. PRIMARY USE</th>
<th>8. LAND USE PERMITTED BY SPECIAL CONSENT</th>
<th>9. PROHIBITED LAND USES AND BUILDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDUSTRIAL</td>
<td>RESIDENTIAL</td>
<td></td>
</tr>
<tr>
<td>• Industrial Purposes other than Extractive and Noxious</td>
<td>• Institution COMMERCIAL</td>
<td></td>
</tr>
<tr>
<td>• Offices</td>
<td>• Offices</td>
<td></td>
</tr>
<tr>
<td>• Parking Garage</td>
<td>• Parking Garage</td>
<td></td>
</tr>
<tr>
<td>• Petrol Service Station</td>
<td>• Petrol Service Station</td>
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</tr>
<tr>
<td>• Shop in terms of clause 6(3)</td>
<td>• Shop in terms of clause 6(3)</td>
<td></td>
</tr>
<tr>
<td>• Restaurant</td>
<td>• Restaurant</td>
<td></td>
</tr>
<tr>
<td>• Totalisator Depot</td>
<td>• Totalisator Depot</td>
<td></td>
</tr>
<tr>
<td>OTHER</td>
<td>• Special Building or use, any other use authorised in terms of clause 6 bis.</td>
<td></td>
</tr>
</tbody>
</table>

### INDUSTRIAL AND COMMERCIAL: Riverhorse Valley

<table>
<thead>
<tr>
<th>10. PRIMARY USE</th>
<th>11. LAND USE PERMITTED BY SPECIAL CONSENT</th>
<th>12. PROHIBITED LAND USES AND BUILDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRICULTURE</td>
<td></td>
<td>Commerical</td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
<td>Totalisator</td>
</tr>
<tr>
<td>Industrial</td>
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<td>Other</td>
</tr>
<tr>
<td>Service Industrial</td>
<td></td>
<td>Special Building</td>
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| Other uses not under Columns 7 and 8. |
## Existing Land Use Categories

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### BUSINESS PARK  

### LIGHT INDUSTRIAL  

### GENERAL INDUSTRIAL  

### HEAVY INDUSTRY  

### SPECIAL CONSENT  

### ZONING FRAMEWORK  

### APPENDICES  

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**Note:** The table above lists various land use categories and the land uses permitted or not permitted by special consent for different types of industrial and commercial activities. The information is part of a zoning framework document, which outlines the permissible uses of land for different purposes. The document includes sections on residential, commercial, and industrial uses, as well as special consent requirements for certain activities. This is a snapshot of the content, and the full document contains more detailed information and tables.
EXISTING LAND USE CATEGORIES  continued…

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<thead>
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<th>Non polluting light manufacturing e.g.</th>
<th>Large scale Manufacturing e.g.</th>
<th>High Impact manufacturing</th>
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PUBLIC PARTICIPATION AND RECOMMENDED ACTIONS

Community Meetings
Focus Groups
Access to Documentation and Marketing
Ward Councillor
PUBLIC PARTICIPATION PLAN AND RECOMMENDED ACTIONS

Team Dynamix has been contracted through the Graham Muller Consortium to act as Independent Facilitator for the public participation process of the proposed local area plan and land use management scheme for the back of port interface zone.

The Team Dynamix methodology takes into account the complex and diverse views of the various stakeholders. It is based on our experience of having worked with the Durban South Community for the last eight years.

Team Dynamix engaged in a phased approach to the public community consultation that was designed to pave the way for a more thorough community consultation process, outlined below as Phase 5.

The Phased approach involved four preparatory phases ahead of the more involved and substantive stakeholder engagement and consultation process. The Phases are outlined below:

Phase 1 – Preparation & final design:
This phase helped the Team plan, prepare the design of the interventions that followed.

Phase 2 – Alignment:
2.1 Executive & Political Alignment: In order for proper, effective, transparent and constructive stakeholder engagement, it is crucial that all parties are aligned in the process and potential outcome of this exercise. A number of meetings were held with the former City Manager and his direct reports.

2.2 One-on-one Meetings with Political Leadership/ Key Stakeholders
This was done with a number of individuals and shaped the design of Phases 4 and 5.

Phase 3 – Expectations & Consultations
A number of individual and group sessions were held with key stakeholders to secure alignment of the process. A number of sessions were also held with the Clairwood Ratepayers Association (CRA). In addition to speaking to the Project Design, more intensive discussions were held on the status quo and actions that the Municipality needed to take to ensure proper compliance to the legislative and regulatory environment.

Phase 4 – Consortium & Municipality Workshop
We held a number of sessions with the Consortium and the Municipality to align on the path forward and settle on a strategy for the design of the consultation and engagement process.

Phase 5 – Community & Stakeholder Consultation (60 day period commencing after committee approval)
This phase outlines our recommendation on the actions to be taken to ensure transparent and qualitative engagement with all stakeholders. We list them in no particular order of importance. Team Dynamix will only be responsible for the Facilitation of the Community meetings.

5.1 Community Meetings (Facilitated by Team Dynamix)
We recommend holding stakeholder meetings in the following communities. It is essential that we hold these meetings at venues that ensure easy access, thus ensuring enhanced participation.

5.1.1 Clairwood x 2 meetings
5.1.2 Jacobs/Mobeni x 1 meeting
5.1.3 Congella x 1 meeting
5.1.4 Merevent x 1 meeting
5.1.5 Bluff x 1 meeting
5.1.6 Ispingo x 1 meeting

These meetings should be well publicised, with community members being given at least two weeks’ notice to enable maximum participation. An experienced Team Dynamix facilitator will facilitate these community meetings.

5.2 Focus Groups (Facilitated by the City)
In addition to the community meetings mentioned in 5.1, we recommend that the City consider holding Focus Group sessions with the following interest groups:

5.2.1 Business – Durban Chamber of Commerce; Jacobs Chamber; Prospecton Business Forum
5.2.2 Informal Settlements – Representatives or their organisation
5.2.3 Landowners in Clairwood and surrounds
5.2.4 Residents Association – CRA; MRA, BRA etc
5.2.5 NGO’s and CBOs that are operating in the area of the study

5.3 Access to Documentation and Marketing
We recommend that appointment of a marketing Company to take full responsibility for marketing the Project, thus ensuring maximum outreach within the project area. We recommend that the Marketing Company consider inter alia the following actions:

To ensure that stakeholders have sight of all necessary documentation we recommend the following:

5.3.1 Ensure that documentation is made available at local Libraries, local Regional Centre and at the South Durban Basin ABM Office
5.3.2 Design and deliver flyers throughout the project area. Consider delivering flyers through rates and electricity bills etc
5.3.3 Design and place posters at strategic places throughout the Project area.
5.3.4 Draft an article for insertion into the Metro newspaper
5.3.5 Radio announcements
5.3.6 Consider introducing a toll free number, enabling the community and other stakeholders to submit comments easily and efficiently
5.3.7 Consider introducing comments boxes in public areas e.g. libraries, regional centres etc.
5.4 Ward Councillor

The good offices of the Ward Councillor (where possible) should be used to solicit comments and suggestions from the various stakeholders.

Concluding Remarks

We believe if the actions outlined in Phase 5 above are undertaken, stakeholders would have been given ample opportunity to comment on the Project recommendations. Further, the nature and extent of the consultation process should not be determined on the quantity of consultation interventions but by the authentic and honest openness to receive comments with a view to acting on them. Consultation for the sake of consultation will not do. The Municipality and the different stakeholders must maintain an open mind and evolve a plan that best meets the interest of all.
CONCLUSION
CONCLUSION

As stated earlier on in the report, “An important element of continued success is enhancing the performance of the South Durban Basin and in particular its linkages to key logistics infrastructure. This infrastructure includes the Port of Durban as an important anchor and the integration of the interface of the port, back of port and city presents a formidable development challenge.”

The "dig out" port proposed at the former DIA site and the anticipated expansion of the current Port of Durban, makes the planning of the study area for BOP activities as well as infrastructure development an immensely challenging task. Undeveloped land available within the SDB is limited and therefore the most likely development to occur is "brownfield" redevelopment particularly within the Mobeni area which currently is the most favourable area for logistics expansion. The format and larger land parcels make it relatively easier to convert, as opposed to Jacobs which has smaller site sizes and a relatively a tight urban grid.

The BOP study was temporarily placed on hold while a new study, the East-West Corridor Project was completed. The East-West Corridor Project findings were expected to impact and influence the findings of the BOP study. The finality of this work confirms that the BOP area is urgently required as a high demand area to support the port and port related industry that must be coupled with land release in the north and west.

In the event, over the same time period, the National Planning Commission formulated its plans for a national logistics platform that confirmed key national infrastructure such as a new port at Reunion on the southern boundary of the BOP study area, new road freight and rail infrastructure between the Port of Durban (including the new port) and Gauteng and modernisation of logistics infrastructure throughout the Durban – Gauteng corridor (including the ports).

This plan has been styled the 2050 Vision and has been adopted by the KwaZulu-Natal Government in the Provincial Growth and Development Strategy, By eThekwini Municipality and by Transnet and other key players. This BOP plan is an adequate response to this vision and plan.

Together with an improved movement, open space and land use network, the BOP framework plan demonstrates not only an efficient structure that will complement and improve the efficiency of port operations but also indicates ways in which the regeneration of the SDB can occur through this process. For instance;

- The diversion of heavy vehicles away from residential routes. Heavy vehicles no longer need to traverse residential areas as the new alignments proposed significantly reduce the conflict plaguing traffic routes throughout the SDB over the past decade;
- Land Use Management guidelines promoting interface transitional zones such as offices along former residential/light industrial interfaces;
- Flexible zonings that protects existing rights however in some cases allowing for the natural transition of uses to occur such as brownfield redevelopment or greenfield redevelopment when the port expands;
- Notwithstanding the trade-offs necessary in the Clairwood precinct, the plan acknowledges the cultural and heritage value within the Clairwood Precinct which the new logistics framework will seek to preserve;
- The rehabilitation of open spaces including the existing parkway system by enhancing the edges of the canal with indigenous tree and plant species. This will enhance the attractiveness of the area especially for the areas that lie along side the parkway system;

Most importantly, the BOP study presents an approach that creates an enabling environment for the expansion and development, in an incremental manner, of supporting infrastructure to ultimately achieve, for the Port of Durban, a “world-class seaport” of international significance.
As previously stated, the Economic Development Committee (ECOD) approved the following recommendation on 23 November 2006:

“1. THAT, the Committee supports the strategic review of zoning and land use within the study area;
2. THAT, the Team be mandated to consult with Interested and Affected Parties in order to arrive at the most appropriate effective and optimal zoning / land use options for the study area;
3. THAT, subject to approval of (1) and (2) above, it is requested that committee recommend authority for resources to be allocated to meet the objectives as indicated in (1) and (2) above”

In terms of addressing point 1, the strategic review of the zoning and land-use within the study area, following is recommended:

**Existing Zoning:**

- Land use along the Congella strip although amended in places, will remain virtually unchanged. Noxious Industry to be maintained to the east of Williams Roads and Sydney Roads. Consideration must be given to down-zoning the General Industry to that of Light Industrial with logistics uses being discouraged in this area.
- It is suggested that logistics uses within this area, be considered as consent uses only in order to manage change, with the ability to apply “conditions” such as restrictions on the street parking of trucks.

**Umbilo / Rossburgh**

Noxious Industry and General Industry to be maintained east of Sydney Road. Logistics can be permitted, but only via a “consent use” procedure in order to manage change with the ability to apply specific “conditions” such as restrictions on the street parking of trucks. The opportunities for redevelopment exist in the quadrant where Edwin Swales VC Drive and Umbilo Road are re-aligned through this area to accommodate the dedicated truck road link to the N2.
It is recommended that the Clairwood central residential core be rezoned from special residential to a logistics uses. Logistics within this area would be permitted to have open storage. In order to work efficiently and effectively a totally new layout is required. With wider roads and improved access from truck freight routes. Due to the land use changes in the area the movement structure would need to be upgraded to allow and accommodate a local logistics circulation system. This would require that some of the major through routes be widened, and other roads eliminated or down-graded to internal service roads within larger lots. On-site parking and handling should be accommodated in all developments in the precinct.

The preconditions for this solution suggests that there is a complete redevelopment of the Clairwood residential core with consolidated lots as well as a new larger sub divisional layout to allow for a core better structured for the circulation of large trucks. The development of new infrastructure would need to be addressed to support the logistics uses within the core including the new local road network. In order to achieve this the Municipality would need to encourage and support the removal of all existing residential and non-logistics related industrial uses from the core. The redevelopment of Fresh Produce Market and the Transnet Diesel Depot is suggested as the site of the initial logistics platform.

Listed buildings, places of worship and cognate institutional uses would be retained. Redevelopment will enable the drainage and flooding problems in the north-west of the precinct to be addressed.
A number of changes are proposed for the Jacobs area in terms of zoning. The zoning changes suggested allows for a gradation within the zoning types from noxious industry along the M4, general industry starting from Chamberlain Road, east of the M4 and light industry between the general industry and residential areas. The light industry bordering the residential will require a transition zone to prevent any is highly desirable.
Minor changes in land use are proposed to facilitate conversion to logistics adjacent to the Southern Freeway and the railway lines. The logistics proposed within this area prohibit the use of open storage.

**Mobeni West**
The existing noxious and general industrial zones are recommended be transformed to a Logistics A zone that permits open storage. The hospital and hostel areas on the periphery of this precinct are recommended to be retained, and these in turn will act as buffers from the logistics zones to the adjacent residential areas.

**Merewent Industrial Area**
This area is proposed to be converted to a Logistics B zone, prohibiting open storage in order to better interface with the adjacent residential area. A controlled interface circumscribing a landscaping strip and office positioning is proscribed on the eastern edge of the area to act as a buffer with the residential area.
Existing industrial developments will continue in their present form and new industrial areas will be accessed through a direct link from the new dig-out port.

The existing noxious and general industrial zones will be permitted to continue in their present format. The extension to the industrial area will require a buffer of offices between itself and the adjacent residential areas. Improved and less congested access roads with a segregation of local and light vehicular traffic from heavy vehicular traffic will greatly reduce pollution levels in the South Durban Basin.
PHASING
PHASING

Roads Phasing
There is relatively little new development or redevelopment across the entire Back of Port project area, as most of the area already exists as land zoned for industrial purposes; and is essentially fully developed for those purposes.

New and/or redeveloped land is primarily the redevelopment of Clairwood for logistics purposes in the form of a new layout with new infrastructure; the redevelopment of the Transnet Diesel Depot and Fresh Produce Market sites to create the initial intermodal platform as a catalyst for the transition of the Back of Port area for logistics activities; and the partial development of Clairwood Racecourse for logistics orientated uses.

The major intervention is the upgrading and improvement of the movement system as a whole, with the provision of new dedicated truck routes and improved linkages. This new movement system represents the key infrastructural backbone for the development of a modern Back of Port zone.

This system will be phased over time. As regards road infrastructure phasing the following is proposed:

Roads Phase One roads include a dedicated truck freight route link from the existing harbour to the N2; and a proposed internal port route that connects to this system. This route will have implications for the development of the initial logistics platform which can be considered as a first phase of land use development. These roads run through the eastern edge of Clairwood and thus it would be appropriate to consider that Clairwood as a whole be rezoned in the first phase, in order to facilitate both the alignment of the new dedicated truck route and those wishing to avail themselves of the opportunity to redevelop in Clairwood.

Roads Phase Two roads include a dedicated truck freight link from the harbour across the M7 to the N2 (linking to the planned truck freight route through western (Maydon Wharf) side of the Umhlatuzana River Valley to the N2.

Roads Phase Three roads includes a link from the existing harbour to the new harbour via Jacobs and the M4. This is an important north-south linkage that strengthens the completes “backbone” of the improved east-west logistics platform developed in phases one and two.

This development also opens up the possibility of office development on the Clairwood Racecourse and may be instrumental in sparking the regeneration process within established business areas of Jacobs and Mobeni.

Land Use Phasing

Phase 1A
• Proposed relocation and rezoning of the Fresh Produce Market
• Proposed Rezoning of Transnet’s Diesel Depot

Both the Fresh Produce Market and Transnet’s Diesel Depot is viewed as catalytic land parcels and are proposed as the initial logistics platform

NOTE: Phase 1 of the proposed dedicated truck freight route run through the eastern edge of Clairwood linking the existing harbour to the N2 and a proposed internal port route that connects to this system.
**PHASING**

Land Use Phase 1B
- Proposed statutory process and rezoning of Clairwood core from Residential to Logistics
- Implementation vehicle to negotiate with property owners in Clairwood within the context of securing for existing property owners maximum value for land and building acquisition and/or stakeholder involvement as property investors in the area.
- Listed buildings, places of worship and cognate institutional uses would be retained
- Approval of housing plan for relocation of all informal settlements

**Note:** Phase 1 of the dedicated truck freight route run through the eastern edge of Clairwood linking the existing harbour to the N2 and a proposed internal port route that connects to this system.

Land Use Phase 2
- Town Planning Scheme reviews for Mobeni East from General Industrial to Logistics
- Statutory process and Rezoning of Clairwood Racecourse from Private Open Space to Office Park, Logistics (including a possible automotive supplier park)
- Clairwood Racecourse: Central and northern end to be zoned for a combination of passive and active land uses, as well as protecting the environmental spring area, source of the Amanzimnyana River.
- Minor Scheme review for Jacobs
- Proposed rezoning in order to allow for an extension of the existing Merewent industrial area

**Note:** The "Dig-out" Port at the former Durban International Airport site at Reunion would be partially developed in parallel with Land Use Phase 2. A link road is proposed from the existing harbour to the new harbour via Jacobs and the M4, thereby creating an important north-south linkage.
Land Use Phase 3

• Proposed rezoning of Mobeni West from General Industrial to Logistics

Note: The later phases of the “Dig-out” Port at the former Durban International Airport site at Reunion will be developed in parallel with Land Use Phase 3.
IMPLEMENTATION
In order to give both the public participation and Council decision making process maximum support and flexibility it is important that the implementation framework evolves and is one that is negotiated as far as possible.

It for this reason that only principles are offered to take into consideration when implementing the Back of Port Zone re-development.

Establish a Dedicated Institutional Vehicle to Implement the Back of Port Zone Re-development:

It is imperative that the City invests in a relevant institutional vehicle (internal or external) to the Council to ensure the implementation of the Back of Port Zone re-development. This vehicle must have the necessary capacity, legal and financial mandates to ensure the re-development of the Back of Port area. It is recommended that the institutional vehicle makes provision for current property owners (as an option) to invest in the re-development of the area, using their property as equity.

Inter-Government Co-operation and Investment and Partnerships:

Given the benefits the Back of Port Zone re-development offers to the Country, Province and City and magnitude of the project, the project cost and inter-government alignment and decision making for project success, it is imperative that all three spheres of government (and government agencies and parastatals) jointly co-operate and invest in the study area. It is further recommend that the various government departments directly contributing to the success of the re-development of the area, also commit to an approach that allows for grant transfers for the funding of economic infrastructure, social and environmental mitigation and the joint project implementation through the alignment of medium term expenditure frameworks (MTEFs). The opportunity also exist for public-public and private partnerships, which should include Transnet and the EThekwini Municipality and relevant private partners to be involved in the re-development of the area.

Clairwood Stakeholders:

Noting the impact this proposal has on the Clairwood area (property owners - business and residential) informal settlements, it is imperative that when taking a decision on the study that such decision/s are understood and inherently coupled with some underlying principles to reduce the impacts of this proposal. In particular the following principles are recorded for consideration.

The legal status and use of property owners will not be affected and the residential and legal business use of such property will continue for as long a owner would like to;

Fair negotiated outcomes regarding property acquisition to be sought with individual land owners. All options of acquisition be considered and the best value to the property owner be the option of choice.

Property owners be given the option to invest their property into a legal entity for the re-development of the area;

The rates code status of current legal use of property to remain unchanged. A change in rates code should only take effect when the proposed rezoning and associated infrastructure is in place and the use of the land is in accordance with the proposed zoning (logistics)

Informal Housing:

Housing options and a housing plan for the current and recognised informal settlements should be expedited and treated as a special housing programme that may call for an alternative funding sources that gives recognition to the relocation of informal settlements within areas which have a high value for re-development and economic infrastructural development and which has special significance at a City, Provincial and National level, as is the case of the Back of Port re-development area.

Clairwood Racecourse:

The development footprint and future use of Clairwood racecourse to be determined through the required Environmental Impact Assessment and Rezoning process.

Fresh Produce Bulk Market:

The relocation of the Fresh Produce Bulk market will have both economic and social implications and it is recommend that a suitable feasibility and identification of an alternative site is identified and prepared for a seamless transition from the current to the future fresh produce bulk market.

Heritage Value:

All heritage sites and areas in study are will be protected or relocated and preserved in terms of the National Heritage Resources Act, No 25 of 1999.
Environmental Protection and Mitigation:

The re-development of this area will also have environmental impacts and therefore the environmental mitigation plans identified in this project to be actively committed to and pursued. In particular the commitment protection, rehabilitation, expansion and enhancement, to mitigation and offsets are important for the current Back of Port Zone re-development and future major economic infrastructure installation within the study and beyond (the freight route and dig out ports).

The protection of the environmental sensitive components of the Clairwood Racecourse and the integration and linkages of the open space system within the area and the wider system. The clean up, greening and maintenance of the canal systems serving both as an environment and social asset are important environmental interventions required to balance support and balance the economic aspects and re-development of the area.

Wider Social –Environmental Systems:

Noting that this project is framed within the context of major port expansion and freight route infrastructure installation, it is therefore important for the City and other spheres of government (government agencies and parastatals) to safeguard social and environmental certainty and quality in order to sustain sustainable growth within the EThekwini region.

Changes in Town Planning Schemes for Current Industrial Zoning within the Study Area:

Town Planning Scheme changes proposed for current industrial areas and in particular Mobeni would also need to be coupled with the principle that ensure that current business can and should remain in the area. And new zoning changes only considered when re-development on a site by site basis happens.

Back of Port Zone RE-development to be Coupled with Other Strategic Development Areas within EThekwini and Beyond:

It is clearly evident that the Port and port expansion in EThekwini area drives the demand for land closets to the port. Given limited supply of land within the Back of Port zone and the South Durban Basin in general, coupled with the shortage of serviced industrial land within EThekwini, release of new industrial land is urgent to accommodate non-port related industry that will be impacted with the Back of Port Zone Re-development.

Detailed Implementation Framework:

Coupled with the final decision of the Back of Port Plan (this plan). It is recommended that an urgent and core function of the implementing institutional vehicle be mandated to develop and update an implementation framework for future Council consideration.
## IMPLEMENTATION

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<thead>
<tr>
<th>PROJECT</th>
<th>PROJECT NAME</th>
<th>PURPOSE</th>
<th>PROJECT TYPE</th>
<th>SEQUENCE</th>
<th>PRIORITY</th>
<th>RESPONSIBILITY</th>
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<tbody>
<tr>
<td>1</td>
<td>Amend existing Scheme- LUMS plan and Guidelines</td>
<td>Create new Logistics Zone Modify Existing Industrial Zones</td>
<td>Statutory Procedure</td>
<td>1</td>
<td>High</td>
<td>eThekwini Municipality</td>
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<tr>
<td>2</td>
<td>Application of Scheme -Targeted Precinct plans + Rezoning (2 areas)</td>
<td>Rezone / Adjust portions of BOP area to accord with intentions of Plan</td>
<td>Statutory Procedure</td>
<td>2</td>
<td>High</td>
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<td>3</td>
<td>Waterway Development, Concept Feasibility</td>
<td>Develop existing Canal into a parkway system</td>
<td>Research /investigation into possibilities of the development. Plan preparation for Waterway implementation</td>
<td>1</td>
<td>Medium</td>
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<td>4</td>
<td>Waterway Development</td>
<td>Implement Plan</td>
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<tr>
<td>6</td>
<td>Clairwood Race Course-Urban Development Framework</td>
<td>Prepare Precinct Plan to guide Development</td>
<td>Plan Preparation</td>
<td>1</td>
<td>Medium</td>
<td>eThekwini Municipality</td>
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<td>7</td>
<td>Clairwood Race Course- Implementation- Precinct Plan, Rezoning, Infrastructural plan</td>
<td>Phase and Implement- Obtain Development rights, preliminary infrastructure design</td>
<td>Implementation Plan</td>
<td>2</td>
<td></td>
<td>eThekwini Municipality/Private Developer</td>
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<td>7</td>
<td>Landscaping Projects:</td>
<td>Key Routes- Tara Road reclaimed as a residential Spine; Chamberlain Road, Edwin Swales, South Coast Road, East West Links</td>
<td>Plan and Implementation</td>
<td>1</td>
<td>Medium</td>
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<th>RESPONSIBILITY</th>
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<tr>
<td>1</td>
<td>Freight Route (Road) East West – Bayhead to N2</td>
<td>Link Road for transporting of freight between N2 freeway and the Port of Durban</td>
<td>Road and Bridge Construction</td>
<td>1a</td>
<td>High (2012 – 2017)</td>
<td>eThekwini Municipality / Transnet / SANRAL</td>
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<tr>
<td>1b</td>
<td>Road Freight Route North-South: Solomon Mahlangu to New Dig Out Port</td>
<td>Link Road for transporting of freight between the new port at Reunion and the existing Port of Durban</td>
<td>6.5 km new 4-lane freight road • Substantial overpass structures • Interchange at E-W Freight Route • 2 x 13m carriageways • 1200HV/hr carrying capacity</td>
<td>1b</td>
<td>High (2014 – 2020)</td>
<td>eThekwini Municipality / Transnet / SANRAL</td>
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<tr>
<td>1c</td>
<td>Road Freight Route East-West : N2 to Mariannhill</td>
<td>Link Road for transporting of freight between the N2 and Mariannhill to link with the N3</td>
<td>New 4-lane freight road • New interchanges at N2, MR85 and Stockville</td>
<td>1c</td>
<td>High (2014 – 2020)</td>
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<td>2</td>
<td>uMhlatuzana Arterial to Sydney Road Link</td>
<td>Improved access from uMhlatuzana Arterial to Maydon Wharf area</td>
<td>Road and Bridge Construction</td>
<td>2</td>
<td>High</td>
<td>eThekwini Municipality / Transnet</td>
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<tr>
<td>3</td>
<td>Road Freight Route East-West : Cato Ridge to Gauteng</td>
<td>Extension of Port of Durban road freight route from Cato Ridge to Gauteng</td>
<td>Upgrade of existing N3 infrastructure to accommodate additional lanes and loading</td>
<td>3</td>
<td>High</td>
<td>SANRAL</td>
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<tr>
<td>4a</td>
<td>Grimsby Road link and Bridge to Jacobs and M4</td>
<td>Improved access across South Coast Road linking Mbeni with M4 Freeway</td>
<td>Upgrade existing roads to accommodate diverted traffic • New lanes and freight management infrastructure</td>
<td>4a</td>
<td>Medium</td>
<td>eThekwini Municipality / Transnet</td>
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<tr>
<td>4b</td>
<td>DIA to Stanvac area Bridge and Access (Tara Road)</td>
<td>Freight link from the Enref Refinery to DIA to reduce HGV movement through residential areas</td>
<td>Upgrade existing roads to accommodate diverted traffic • New bridge, lanes and freight management infrastructure</td>
<td>4b</td>
<td>Low</td>
<td>eThekwini Municipality / Transnet</td>
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<tr>
<td>4c</td>
<td>Quality Street extension to Mbeni</td>
<td>Direct link and bridge across south coast road to link Jacobs area with Mbeni</td>
<td>Upgrade existing roads to accommodate diverted traffic • New lanes and freight management infrastructure</td>
<td>4c</td>
<td>Medium</td>
<td>eThekwini Municipality / Transnet</td>
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<td>5</td>
<td>Road Closure of Quality and Duranta Roads</td>
<td>Restrict access for HGV vehicles onto residential road network</td>
<td>Road Construction</td>
<td>5</td>
<td>Low</td>
<td>eThekwini Municipality / Transnet</td>
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REFERENCES


ANNEXURES

A – PREVIOUS STUDIES
B – CITY STRUCTURE AND GROWTH PATTERNS
C – CHANGES IN THE NATURE OF INDUSTRIAL DEVELOPMENT
D – BOP-SPATIAL FRAMEWORK PLAN
E – BOP-ZONING FRAMEWORK PLAN
F – BACK OF PORT AREA - SOCIAL ISSUES
G – SOCIAL ISSUES IN AREAS LYING ON THE PERIPHERY OF THE BOP STUDY AREA
H – CLAIRWOOD PROPERTY MARKET ASSESSMENT
I – ENVIRONMENTAL REPORT
J – REAL ESTATE OPPORTUNITY ANALYSIS
K – TRAFFIC REPORT
L – UPDATED TRANSNET DEVELOPMENT PLANS FOR THE PORT OF DURBAN
M – GIBB REPORT ON THE PUBLIC PARTICIPATION PROCESS
A PREVIOUS STUDIES
INTRODUCTION
A large number of Studies/Reports have been undertaken within the designated Back-of-Port Study area. In addition, the “Team” was supplied with a number of Power Point presentations identifying the issues at stake in the general area of concern.

These studies/reports/presentations include;

• Socio-economic evaluations of the South Durban Basin and Clairwood, in particular;
• The assessment of the local economic development potentials of the SDB and Clairwood;
• Position Papers about the SDB;
• Traffic/Transport reports and plans;
• An assessment of the potential of the re-use of the DIA site; and
• A number of plans for both Clairwood and the SDB.

These studies were completed during the period 2000 to date. Clearly, although the earliest of these documents are not more than 8 years old, elements embodied in the early studies are now superseded by newer aspects and considerations.

What follows is a “Review” of the essential findings, concerns, and proposals embodied in those reports/studies.

1. **CLAIRWOOD BUSINESS SURVEY – 2000**

**ASSESSMENT**

The study emphasized measures to be considered in “maintaining the area”. The orientation and direction of the Survey were clearly to assess businesses in the Clairwood area, and how to assist businesses to remain in the area. The current need and trend to expand “Back-of-Port” type of activities into the area, is likely to conflict with the conclusions of this study, which is predicated on the impact of change, rather than on retention of what is.

2. **CLAIRWOOD SOCIAL AND DEMOGRAPHIC SURVEY 2000**

This was a parallel study to the one above, but with an emphasis on the residential component of Clairwood.

**ASSESSMENT**

Clearly this study and its findings identify the nature of current residents and their needs and aspirations. Any decision to change zoning from retain a residential component in Clairwood would have to take into account these concerns.

3. **DEC 2000: CLAIRWOOD REPORT 2**

This study identified concerns and aspirations via a “Community Consultation process”.

**ASSESSMENT**

Again, this study was orientated to engaging with current occupiers and owners of property in Clairwood. The study identified the needs and aspirations of these people and essentially involved what was needed to retain Clairwood with its then configuration of land uses and activities by “cleaning” it up and maintaining it. While important, the study did not address changing needs, trends or development imperatives, given its context.

4. **May 2004: SOUTH DURBAN BASIN SPATIAL DEVELOPMENT FRAMEWORK**

**ASSESSMENT**

This report addresses the context and setting of the SDB. It begins to indicate the need to consider the expansion of the port and its consequent implications.

The report emphasizes the need to consider increased use of rail and the need improve the road network.

The implication of the relocation of Durban International Airport to La Mercy begins to receive recognition.


**PURPOSE OF THE STUDY**

This study was prepared as part of a brief issued by the eThekwini Municipality for the development of a Spatial Framework for the area known as the South Durban Basin (SDB).

**ASSESSMENT**

The study identified that the industrial component of the SDB was still primarily a conventional industrial area, but there was recognition that it was not able to offer the attributes necessitated by the changing global economy in general, the demands that were likely to occur for increasing logistics activities, and it also identified a need for acknowledging the needs of emerging small scale firms, of all kinds.
Despite the contradiction about meeting the needs of an expanding set of port related activities, the needs of the newer forms of industrial activities, and the needs of existing development; and whether these two sets of needs could be complimentary and/or compatible- all in the same area.


**INTRODUCTION**
In common with other studies, this study appeared to be orientated to the maintenance of Clairwood as it then was. The exploration of the issues in the study and the recommendations treated Clairwood as though it was sufficiently large, and with a sufficient threshold to be well-balanced and self-sufficient. This approach is narrow and limited and results in a less than adequate set of responses. The recommendations are somewhat simplistic in that they suggest that the residential component can in fact support all the suggested land uses such as a large shopping area.

Most of the findings were obvious, but almost all recommendations failed to appreciate the realities and possibilities of the small population and limited employment opportunities to fulfil the directives. It treated the area as though it was a large well balanced town, rather than a small residual population with a limited threshold of support.

**ASSESSMENT**
Many of the findings are idealistic and unrealistic and the comments and recommendations are naive. The area has been treated as though it was large enough to relate to creating sufficient thresholds and with insufficient consideration to macro impacts.

7. **JULY 2004: CLAIRWOOD PRECINCT PLAN, PLANNING STATUS QUO REPORT (LINDA MASINGA & ASSOCIATES)***

**INTRODUCTION**
The Clairwood Precinct area forms an integral part of the SDB and the city. Consequently it undergoes a continuous process of development and change which, in this case, through internal and external influences, has created a great variety of changes, particularly to the original residential sub-precinct.

**ASSESSMENT**
Despite being called a precinct plan, the report is essentially a description and analysis of the existing situation. The issues pertaining to each of the identified “sub-precincts” is identified.

The “Plan” itself has little in the way of description or explanation. By interpretation, the “Plan” maintains a small centrally located residential area with a higher density core and a “shopping Centre” for a very small population. The Plan identifies the majority of the balance of the Clairwood area as “Non-Residential” uses. It makes no other distinction.

The diagrammatic plan identifies a “temporary” bus depot and truck holding area adjacent to the residential area and in the middle of an area with poor road reticulation. This is deceptive, as the land use is likely to require a large area and will tend to “drag” traffic right into the centre of Clairwood.

The encircled residential area is too small and too disconnected to create a viable residential area. The plan is essentially an attempt to give an appearance of incorporating all the various needs and demands of the area, but is simply not rational.

8. **OCTOBER 2004 CLAIRWOOD PRECINCT PLAN: COMPOSITE REPORT FOCUSED INTERVENTIONS AND IMPLEMENTATION STRATEGY (URBAN ECON)***

This South Durban Basin (SDB) identified a five-year plan to assist in implementing all planned objectives. Several studies were used in so doing, namely the South Durban Basin Economic Study, the Spatial Development Framework and an environmental consolidation study. The above mentioned studies will also took Clairwood into consideration. The South Durban Basin Area Based Management intends to proceed with development for the already identified Clairwood Precinct Plan.

**ASSESSMENT**
This report is orientated to a set of implementation strategies to give affect to the “Precinct Plan”. This level of detail is a combination of being no longer appropriate; being superseded by the current study; the efflux of time, and in essence not being opposite.

9. **SEPT 2004: ENVIRONMENTAL POSITION PAPER***

**ASSESSMENT**
This report identifies a conventional approach of issues to be addressed.
A PREVIOUS STUDIES

10. MARCH 2005 TRAFFIC IMPROVEMENTS
Based on Integrated Traffic Plan
This report identifies various road plans for the medium to long-term.

ASSESSMENT
Many of the road improvements are medium to long term.

11. SEPT 2005 SCR DEVELOPMENT PRINCIPLES CONCEPTS
The SDB business plan has identified specific local areas and nodes within the basin to develop and improve over a five-year period. South Coast Road has been identified as a priority area, due to its strategic importance as the central spine of the SDB, the traffic congestion and dense economic activities and opportunities that occur along the length of the road. This was reinforced by the SDB Spatial Plan. The primary objective of the project is to prepare a South Coast Road Spine Precinct Plan.

Assessment: Key Findings
- South Coast Road is a true economic activity corridor;
- South Coast roads main function is to provide accessibility and road based public transport;
- Some sections play a mobility role mainly where poor connections to major routes;
- Physical infrastructure requires attention;
- Concepts designs were done for the areas interfacing South Coast Road such as Bayhead, Mobeni, Clairwood, Umhlanga, Isipingo and Lotus Park. The findings for area pertinent to this study is summarised below:

Bayhead: Given the imminent redevelopment of the Bayhead area to accommodate port expansion, container handling and increased transport & logistics; this character zone will experience an increase in logistics transport volumes (trucks); as well as public transport and the growth of the station into a multi-modal transport interchange. Accordingly greater commuter flows are envisaged. The proposed Congella bridge will reduce traffic load on South Coast Road; the focus is therefore on mobility.

Clairwood: This section of South Coast Road in two parts; north and south of the Mhiatzana canal. South Coast Road south of the canal is part of the Clairwood mixed use activity node (or ‘mini’ CBD). The South Coast Road part north of the canal is a typical “ribbon” development along a major route, comprising transport, logistics and distribution activities, with lower order retail, as well as building supplies.

Mobeni: South Coast Road is considered to be a parkway, lavishly landscaped and greened. Improved public environment and pedestrian links to accommodate pedestrian movement throughout the area. The section between Kenyon Howden and Pendulbury is a mixture of mobility & accessibility. Thus it is partly Parkway and Activity Strip.

Isipingo and Isipingo Rail: The opportunity has been identified for Isipingo Rail to accommodate the future expansion of the Isipingo CBD. The reasons for this are:
- The area already comprises mixed use commercial industrial activity;
- The area is in economic decline and in severe physical decay, requiring redevelopment and extensive upgrading;
- The South Coast Road split represents an ideal opportunity whereby South Coast Road is retained as the parallel mobility route and Old South Coast is redeveloped as the Main Activity Street within the expanded Isipingo CBD.

12. AUGUST 2005 - SDB ECONOMIC FRAMEWORK

ASSESSMENT
The analysis was constrained by an attempt to retain the area for its current set of uses and to improve it, in those terms. Insufficient consideration was given to the nature of change, and the impact of the need and demand for “logistics” activities. Limited comment was made as to the nature and penetration of small scale service industrial uses.

The beginnings of a recognition of the advent and need for logistics uses is made. However, there is a contradiction in that these newer forms of industrial activity are unlikely to be labour intensive as suggested in this report.

The broad strategies identified are still applicable.

13. NOV 2006 - PORT INTERFACE ZONE LOCAL AREA PLAN
(ppt presentation)
This presentation is a comprehensive, more up to date, situational analysis and culminates in a set of broad proposals and a request to chart a new way forward.

the formal recognition and evaluation of what to do with the site.
ASSESSMENT

This presentation makes a “break” from previous studies. It grasps the basic dilemma and contradictory choice, viz:

i. Does the city attempt to address the current problems of the SDB and attempt to rectify them by finding a solution that essentially maintains the areas as they are currently, or

ii. Does the city recognise that the areas are undergoing change and that it is these new roles that must be accommodated and the changes have quite dramatic implications for the longer-term nature of the area.

For the first time the city appears to not only recognise this choice, but that it appears to suggest that there should be a review of previous plans and that a new, albeit difficult changing role, and its implications must be addressed.

There is an implicit fundamental and important shift in strategic response to accepting and formulating a response that will address the change both occurring and expected.

14. DECISION MAKING FRAMEWORK FOR REDEVELOPMENT OF THE OLD AIRPORT SITE

ASSESSMENT

This report details the options/alternatives and implications of the relocation of Durban International Airport (DIA) to the King Shaka location and what is possible on the DIA site. This is nothing more than Any evaluation and consideration of the findings of the report could be superseded by decisions already in train; and is no longer required to be considered as an informant.
CITY STRUCTURE AND GROWTH PATTERNS

The structure of any city is a consequence of several factors working in consort. These factors include:

- The topography and natural context of its location;
- The raison d'etre for its existence (or its economic base);
- Any changes or alterations to its economic base;
- Its history and evolution;
- The needs and demand for different land uses (market forces);
- The transport system that reacts to these land use demands and in turn directs the location of certain uses;
- Any prescriptive planning (political) intervention.

Modern cities exhibit regularities in land-use patterns which result from the distribution of urban activities and populations. These basic patterns (or structure) reflect the degree of internal spatial organization that arises from the operation of the processes of urban development. These basic patterns are also subject to change as advances in transportation, building and communication technology combine with shifts in social and economic requirements for space and location. The processes producing these patterns and changes are varied, but intimately interrelated.

Processes of Growth and Cycle of Change in Cities

The evolution and development of the urban form involve the sequences of change that occur within particular parts of the city. These processes are generated primarily through the mobility of residents and shifts in land-uses in the course of adjustment. These processes of growth have been identified by Chapin (1964, p23) as:

i. Dominance, gradient and segregation;
ii. Centralization and decentralization, and
iii. Invasion and succession.

The changing patterns of metropolitan spatial organization are the result of the processes of growth and the influences of many forces.

According to John Dyckman, the forces exerting the greatest influence include:

- The new advances of technology;
- The trends of modern organization towards complexes involving interdependent and hierarchical ordering of parts because of a process of specialization;
- The appearance, in advanced economies, of a different society, that permits a weakening of old economic drives and motivation;
- The increase in communication facilities that has raised the potential for changing old boundaries; and
- The growing awareness of the importance of cultural consumption in modern society with concomitant respect for the communal arts and public services.

The advances in technology have led to an expanded range of locational choice with changes in standards and aspirations of urban residents. It must be borne in mind that "these developments are so closely inter-woven that it is impossible to separate their contributions to the changing physical form and the cultural image of the city". (Dyckman 1961,p15).

Rising real income, increased personal and functional mobility, shifting age composition of the population, household size and formation and changing tastes have combined to provide both the means and incentive for altering spatial relationships.

The physical ageing (or deterioration), and the economic obsolescence that ageing implies contrive another set of factors which in themselves tend to encourage locational changes. (Bourne 1967). Only where central locations are of such importance can replacement costs be justified. These changes in the patterns of land uses and social areas in the city are referred to as the processes of "invasion and succession" (Chapin 1964).

The existing spatial structure and building inventory act as a constraining framework for change. The inner city in large metropolitan areas and other areas developed with large scale and costly buildings, are highly developed and redevelopment often requires replacement with a more intensive use. Because of the durability of buildings, and high land values, change is costly and slow; and where reduction in intensity is demanded, change is largely impossible, unless an area is subject to degeneration.

These growing areas of the CBD and other areas expand at the expense of the surrounding generally capable of competing with these intensive land uses and therefore bear the brunt of such expansion. Older parts of cities, especially those in central areas often represents many phases of rebuilding as a result of a series of general invasion-succession cycles with increasing intensity of use.
These trends are seen within a broader theoretical framework of urban structural change and take the form of an adaption process. Buildings go through a continuous cycle of change with increasing age and external pressures for re-use. Replacement as a form of adaption in the spatial structure of the city is therefore directly related to replacement in the life cycle of buildings (Boume. 1987).

The process of centralization and decentralization is operating over and above the inter-place process.

It is obvious that the form of a city is also affected by the decisions made by institutions as well as individuals. Individual decisions reflect that man is not entirely economically rational and these decisions reflect personal preferences, objectives, ignorance and errors. (Boume 1971, p135).

These factors have relevance in the discussions on industrial areas, in that the changes occurring are not necessarily due to rational decisions.

The institutional decisions, taken by local and government politicians can drastically affect the form and changes in the urban structure. These "political" decisions reflect what is acceptable to those elements in the community who wield influence and make decisions. It is sufficient for present purposes to recognize that the "Political Climate" is a basic consideration in understanding how the general processes common to all cities can take on a unique aspect. (Chapin 1964, p60-62).

The most significant aspect of the modern metropolis is that it is polycentric. The central business district clearly serves as the major nucleus or focus. Others may appear in the form of industrial or wholesaling centres where specialized economic activities of similar or complementing character have gravitated. Still others may emerge in the guise of major outlying retail centres or university centres. Finally, the suburban centre and the more distant satellite community for commuters become additional nuclei or centres.

Harris and Ullman identified four factors that tend to account for the emergence of separate nuclei in urban land use patterns;

- The interdependence of certain types of activities and their need for close physical proximity;
- A natural clustering tendency among certain types of activities that find it mutually profitable to locate together, as evidenced in retail centres, medical centres, and outlying office-building centres;
- the converse of the last point, viz. the appearance of centres to accommodate activities that may have no particular affinity for one another, but are inimical to other uses by virtue of the traffic they generate, the extensive railroad or truck-loading facilities they require, and so on;
- Finally, there is the related factor of high rents or high land costs which have the effect of attracting or repelling users in the process of nucleation.

Towns and cities are dynamic entities and constantly change or evolve. Growth is not the only change occurring in cities, with newer forms of development occurring primarily at a growing edge and other forms of alteration occurring in older parts of the city.

The “Edge City” Concept:
A shift to a new kind of urban growth has occurred over the last 20 years. This form of suburbanised growth has been characterised as “edge cities”. These developments obviously occur at the growing edge of a city, but more particularly at substantial distances away from the central focus of a metropolitan area.

Several authors have attempted to classify edge cities, viz. Leinberger (1988), Gareau (1991), and Romanos, Chifos and Fenner (1989). The latter authors classify “edge cities” as:

- Places formed out of the growth or revival of older suburban centres containing an older settlement core;
- New centres of growth within areas of urban sprawl, usually surrounding a strong node such as a mall, university or office complex;
- New planned communities where the form is a consequence of professional planning rather than uncontrolled growth. (Gateway/Umhlanga Town Centre is such an Edge City).

The following trends and differences can be identified in these edge city developments;

- The nature of how the street networks are created, whether they are planned or chaotic, but subsequently “tamed” into some form of order;
- The spread of the edge city exhibits a major change of scale and can be several sizes larger than a traditional CBD, although containing less people and jobs. In this case the edge city contains large parcels of land each operating semi or completely independently. The larger the edge city the greater is the lack of integration, as the development as a whole lies far beyond a reasonable walking locus that still keeps traditional CBD’s viable;
- Thirdly, there tends to be disengagement of the street, lot and buildings from each other, unless carefully guided.

Stages of Change in any particular area
There are several forms of growth that can occur in any particular area over time. These types of growth or change for any particular area have been identified as:
Stage 1 – “Rural”
This stage is characterized by development that occurs at the growing edge of development and change to agricultural use. Development at this stage possesses uniformity in age and condition. Development can also often be ad hoc and “spotty”, and the entire prescribed area is not fully developed.

Stage 2 – First Wave of Development
(sometimes referred to as “greenfields” development). This usually begins with a round of high level construction

Stage 3 – Fully Developed.
The initial development has run its full course. Property values and rental are close to their maximum, relative to similar development.

Stage 4 - Packing.
As the age of structures built during the first 3 stages increases, the buildings often no longer fully meet the needs of the activities that occupy them. Two processes occur during “Packing”; viz. alterations, extensions, and adjustments to the existing buildings for the existing users; and new more intensive users filter in to older buildings (i.e. the process of multi-tenant reuse.) Often this results in the areas possessing higher densities of activities than the areas were ever designed for.

Stage 5 - Thinning.
The buildings of Stage 4 have either deteriorated further or longer meet the needs of occupants. Many original users have relocated or decentralized to newer and more appropriate facilities. Density of activity can also decline.

Stage 6 - Recapture.
At some stage the land occupied by lower rent payers and older inadequate buildings becomes too valuable to justify its current use. Obsolete property is then acquired, and rehabilitated or redeveloped. This results in what is known as “Brownfields” development.

This model of change is broad. An area will often have the characteristics of more than one stage, but the characteristics of one stage will dominate. As areas go through these stages, they tend to be stable for relatively long periods, and then shift quite quickly to the next stage. It is also possible that certain areas can skip certain of these stages. For example, depending on contextual situations and changing demands, a cycle can be arrested by “renewal” before a complete sequence is completed.
CHANGES IN THE NATURE OF INDUSTRIAL DEVELOPMENT
INTRODUCTION

The size and shape of industrial buildings has altered over time. As a consequence, the size, shape and format of industrial sites have also evolved to accommodate these changes. The layout of industrial sites, blocks and townships, have, also, accordingly altered to meet these demands and changing expectations and needs.

Zoning for industrial purposes, depending on the types on industrial development, and their impacts on each other and their impacts on adjacent developments, has been separated into several categories; viz:

- Noxious Industrial Zones (in some cases also called Heavy Industry);
- General Industrial Zones;
- Light Industrial Zones; and
- Service Industrial Zones.

In addition, certain types of industry are permitted in Commercial Zones.

Generally, most of these zones permit a variety of “industrial” activities that vary from conventional manufacturing types of industry and types of assembly orientated industries.

All storage and distribution facilities are also permitted in these zones, regardless of whether they occur as pure storage/warehousing, break-bulk operations, short-to-long term storage facilities, general distribution facilities, etc. In other words, there has not been a specific zone defined for warehouse or freight-forwarding related facilities.

The current system of zoning for the various types of industrial uses is inadequate to identify the altering format of industrial activities.

The most recent classification of industrial development emerges from the USA (Guide to Classifying Industrial Property & M Rene, ULI, 2003).

These categories can be organized into a continuum, in different ways, depending on the criteria used.

The most common system is for the types to be organized in terms of potential impacts — pollution, noise, traffic movements, loading, etc.
PHYSICAL INDUSTRIAL CLASSIFICATION DEFINITIONS

WAREHOUSING AND DISTRIBUTION

Warehousing and distribution involves moving goods at high volume and/or high frequency, and requires adequate loading capabilities. The different types of Warehousing imply differences in dock configuration, truck and trailer parking, power resources, and floor levelness.

Some of these are not necessarily well or fully represented at present – these include new and growing trends.

- **Regional Warehousing**
  - These usually do not exceed 10,000 m²
  - Usually built for or occupied by a single tenant
  - Limited amount of long-term storage
  - Has variable amounts of office accommodation
  - Manufacturing or assembly is less than 10% of floor space

- **Bulk Warehousing**
  - Stores large quantities of goods for varying periods – some could be long-term.
  - Floor areas exceed 10,000 m²
  - No manufacturing or assembly
  - Small amount of office space
  - Extensive loading capabilities – with and without multiple docking

- **Refrigerated Distribution**
  - Usually limited in number
  - Deliberate link between docking and refrigeration

- **Rack Supported Warehousing**
  - Fairly rare – usually automated
  - Substantial internal racked storage space – often specific tenant designed
  - Has separate storage and shipping areas

- **Heavy Distribution**
  - Design is orientated to accommodating distribution rather than warehousing
  - Stores goods for extended periods
  - Multiple loading docks (this is the distinguishing feature from Bulk Warehousing)
  - Sizes vary – from 10-50,000 m²
  - Extensive truck and trailer parking on site
  - Variable office space
CHANGES IN THE NATURE OF INDUSTRIAL DEVELOPMENT

MANUFACTURING
All these buildings are likely to contain manufacturing space, storage space, office space and sometimes some showroom space. Exterior spaces have minimal provision for loading. With high employment densities they often require high car parking space.

Heavy Manufacturing
Vary greatly in size,
Has some office space
Requires multiple modes of transport
Uses large/heavy machinery
Requires large power source
Has heavy floor loads requires stable virgin soil
Can be polluting

Light Industry
Varied types of tenants
Smaller in size than heavy industry
Can use both rail and truck transport
Has higher frequency of product flow and needs more loading facilities
Moves smaller and lighter products
Buildings have lower ceilings
Buildings need to be increasingly airtight
Orientation to assembly rather than manufacturing

Service Industry
Similar to light industry, but with greater emphasis on repair and reworking finished goods, rather than on manufacturing or assembly activities.
Can be polluting.

Limited need for loading
Very varied in size, but usually much smaller in scale than other industrial activities.
Can be polluting.
Limited need for loading
Very varied in size, but usually much smaller in scale than other industrial activities.
CHANGES IN THE NATURE OF INDUSTRIAL DEVELOPMENT

FLEX
This refers to flexibly designed buildings with quite a large amount of variation. They accommodate essentially technology and service tenants, such as laboratories, high-tech manufacturing and assembly, and office space. Consequently they can occur as "flatted" buildings (i.e. several floors). They often resemble office buildings. With high employment densities they require much car parking.

Research and Development Flex (R&D)
Most space is either high-tech manufacturing, laboratory or office space Office type accommodation can be as much as 75% of space
Usually requires air-conditioned space
Requires clean environment
Warehouse is least used space.
Lesser need for docking facilities because of low traffic volumes.
Needs workers car parking

Office Showroom
Tend to resemble office space, but with some storage.
Upmarket buildings,
Needs workers and visitors car parking
Needs high curb appeal
Needs high visibility and accessibility
Makes a useful focal point/gateway into an industrial estate
FREIGHT FORWARDING

Freight forwarding can involve both the use of buildings and often does not involve the use of buildings. A great deal of activities can occur outside of buildings. Increasingly some activities involve both “stuffing” and “de-stuffing” of containers. Loading capabilities, building configuration and space build out are the physical attributes that classify the buildings in this category. Where buildings are concerned they often require multiple docking facilities, truck and trailer stacking space, and circulation space; as well as ancillary buildings. Docking facilities, truck and trailer stacking space, and circulation space; as well as ancillary buildings, docking facilities, truck and trailer stacking space, and circulation space; as well as ancillary buildings.

Container Depots
- These are essentially open air storage facilities
- Containers can be stacked to substantial heights (often higher than most industrial buildings)
- They are moved by mechanical gantries
- They need sufficient circulation and truck stacking space
- They have little in the way of constructed buildings
- They are often unsightly and do not add to the built environment

Truck Terminals
- These buildings require cross-docking facilities
- The need for administrating these facilities often requires substantial office accommodation.
- A level of warehousing is associated with these facilities
- They have little in the way of constructed buildings
- They are often unsightly and do not add to the built environment

Truck Terminals
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CHANGES IN THE NATURE OF INDUSTRIAL DEVELOPMENT

Industrial Township Format

The evolution of industrial townships has altered as follows:

Early format

Early industrial buildings occurred in and adjacent to Town Centres as well as related to ports and rail facilities. These early buildings usually occupied an entire site, i.e. 100% coverage. Loading and off-loading occurred from the street. No or little parking for either vehicles of staff or for trucks occurred on the site itself.

Industrial Estates

Industrial Estates commenced in the early 1960’s. These formats permitted larger buildings. Loading and off-loading occurred on site, usually from one or two positions in the building. A limited amount of parking also occurred on site. Roads were freed from loading and parked vehicles in order to maintain free flowing roads. The buildings usually covered of the order of 50-60% of the site. Sites were consequently substantially larger than earlier developments.

Industrial Park

These types of industrial townships were a further evolution, but were usually for cleaner types of industries and to facilitate the location of industries adjacent to residential areas. Coverages were lower and of the order of 20-30%. Sites were often landscaped as well.

Contemporary Logistics Building

The latest evolution of industrial buildings are those that are linked to JIT assembly and distribution facilities. These buildings possess multiple docking facilities, that require large circulation areas. The complex tracking and organizing of pallets and containers simultaneously requires large computer and related office functions compared to earlier forms. Buildings are longer and narrower. Coverage is lower. More highly skilled workers need parking facilities.
CHANGES IN THE NATURE OF INDUSTRIAL DEVELOPMENT

In addition to the generally increasing sizes of some buildings, but especially the increasing size of the sites and the altering layout systems, the requirements for buildings themselves have altered.

Clearly, older forms of industrial development do not, and may not be suitable for or appropriate for the requirements of the newer forms of industrial classification. Just as in other forms of development, industrial areas are likely to be subject to change. Change occurs in various ways, viz:

- Retrofitting;
- Rehabilitation;
- Redevelopment

MAJOR TRENDS IN MANUFACTURING AND DISTRIBUTION
(Source: Exceptional Industrial Projects: Beyond the Box, National Association of Industrial and Office Properties, 2003)

1. CONSOLIDATION OF MAJOR MANUFACTURING AND DISTRIBUTION OPERATIONS - FEWER LOCATIONS AND LARGER FACILITIES
   - Larger buildings on larger tracts of ground;
   - Taller ceilings;
   - More on-site trailer/container parking and storage;
   - Office Suites on site.

2. SPEED-TO-MARKET DEMANDS AND THE LOGISTICS OF "JUST-IN-TIME" SHIPPING
   - More cross-docking to accommodate deeper buildings
   - Upgraded dock equipment
   - Wider bays and column spacing
   - Flatter floors
   - Optimal ingress/egress

3. STRATEGIC IMPORTANCE OF PROXIMITY TO INTERMODAL TRANSPORTATION AND SUPPLIERS
   - The re-emergence of rail;
   - Clustering suppliers around a manufacturer.

4. FLEXIBILITY TO ACCOMMODATE GROWTH AND CHANGE
   - Need for expansion options; or
   - Re-leasing with multi-tenants
   - Building flexibility in design – office to warehouse and warehouse to office
   - Office appeal for multi-use industrial facility

5. SOPHISTICATED MATERIALS HANDLING SYSTEMS THAT SUPPORT INCREASING MARKET DEMANDS FOR EFFICIENCY, CUSTOMIZATION AND "HIGH TOUCH"
   - Flexible and portable mezzanines;
   - Very narrow aisle configuration for high density, high land cost operations;
   - Computerised inventory controls.

6. INDIVIDUALIZED REQUIREMENTS THAT DEMAND AN "INSIDE OUT" APPROACH TO INFRASTRUCTURE
   - Power e.g. refrigeration;
   - Security/safety;
   - Water pressure;
   - Technology - communications

7. ACCESS TO A COMPETITIVE LABOR MARKET
   - Stratification of different work environments for creating different employers;
   - Parking to accommodate 24/7 shifts and future growth;
   - Amenities

8. A RETURN TO THE URBAN CENTRALITY/CORE AND ADAPTIVE REUSE
   - Proximity to transportation and suppliers;
   - Impediments to creating greenfield developments (infrastructure);
   - Tax incentives for adaptive reuse.

9. AN INCREASED AWARENESS OF ENERGY AND ENVIRONMENTAL ISSUES
   - Working with local communities;
   - Trends in conservancy and green space development
STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
BOP ZONING FRAMEWORK
STUDY AREA EXTENDED BY ADDITION OF THE DIA SITE PLUS ADJOINING AREAS OF INFLUENCE. NOTE: THESE ADDITIONAL AREAS DO NOT FORM PART OF A REVISED LAND USE FRAMEWORK PLAN AS A DELIVERABLE OF THIS PROJECT.
ANNEXURE F: BACK OF PORT AREA - SOCIAL ISSUES

INTRODUCTION

This annexure and the one following focus on the social value in the whole of the study area and the residential areas lying adjacent to the study which are likely to be affected by the BOP plans. It is very important to have an understanding of the relationship between residential and the industrial zones in South Durban. Refer to Figure 1 above. There are a number of stable communities that live in South Durban, where residents have lived for a long time, have strong social connections with friends and family in these communities. They value the places that they live in.

There are also strong work-residential linkages in the South Durban Basin, where people live close to work for convenience, cost and quality of life reasons. The lives of residents in the South Durban Basin are well contained within this area: residents indicate that almost all of their needs are met in this area - they live, work and play in this area or in areas immediately adjacent to it and this has a significant impact on their quality of life and social connections in the area. There are a large number of functioning social organizations operating throughout South Durban in these communities that add value and contribute to the social capital of the communities and neighbourhoods. Religious and sporting organizations are the most important social organizations in the area and residents want these organizations to be supported and further developed (especially sport) to provide healthy activities for the youth in the area, which are at risk of becoming deviant. Table 1 summarizes the important existing social dimensions of the residential communities of South Durban and suggests what actions can be taken to enhance the value of the social environment. Table 2 lists the main issues raised and measures to address them.

Annexure F has been added to the main Back of Port report due to unavoidable delays in finalising the social assessment and in order to include research on social issues and impacts in the final Summary Framework Report. It is important that all reading the report also read the parts of Annexure F which accompany the various sections of the Summary Framework Report.

Annexure F contains a synopsis of the social value, social issues, and the social challenges and potential of the residential areas in the South Durban Basin that lie in the study area.

These areas are:

1. Congella, Umbilo and Rossburgh
2. Clairwood
3. Jacobs
4. Mobeni West
5. Merewent
6. Isipingo Rail and Prospecton

Annexure G, following, provides a brief overview of the value and social issues of areas lying adjacent to the study area. Both Annexures are based on an extensive social assessment which was undertaken as part of the Back of Port Project. This situational analysis is based on extensive primary and secondary data and reports on the existing value that residents place on the areas they live in, their sense of place and the positive social dimensions that exist in the communities of South Durban.

In addition, the following annexures need to be read in conjunction with sections of the report in order to provide the full social perspective:

- Annexure to Section 5: The Social Environment: Study Area Analysis
- Annexure to Section 6: The Social Environment: Local Scale Analysis
- Annexure to Section 7: The Social Environment: Problems, Possibilities and Strategic actions
- Annexure to Section 11: The Social Environment: Precinct Plans
- Annexure to Section 12: The Social Environment: Zoning Framework
- Annexure to Section 13: The Social Environment: Conclusion
### Table 1: Value of the social environment in South Durban

<table>
<thead>
<tr>
<th>Social value: Status Quo</th>
<th>Enhancement</th>
</tr>
</thead>
</table>
| 1 The South Durban Basin is a residential space | Recognition that the South Durban space is as much a residential space as it is an economic and industrial production space. Residential system to be acknowledged in all aspects of planning for BOP zone.  
BOP interventions through the development of new transport systems will significantly improve traffic issues in the area, reduce the conflict between trucks and residents and improve quality of life for all residents in the South Durban Basin. Development of a logistics orientated zone should reduce the impact of noxious and heavy industry on surrounding communities through the location of cleaner industry in the area. |
| 2 Existence of stable communities | Residential areas are coherent as neighbourhoods in terms of housing, convenience, services and facilities, linkages to spaces of work, and strong social capital which is offset against serious social, economic and environmental problems (see Table 2). Planning needs to enhance and maintain positive attributes of this stable residential area where residents have a strong sense of belonging and commitment to the area.  
Positive attributes of South Durban Basin will be enhanced through BOP planning interventions through improvement and re-zoning of industrial areas to logistics, improvement of infrastructure and services and improved transport networks.  
Protect communities from division (by roads) and intrusion (by creating buffers). Avoid social displacement and where unavoidable, provide fair compensation. Consider all edges. |
| 3 Strong sense of place/belonging | Enhance through maintaining and promoting sense of place.                                                                                                                                                      |
| 4 Clairwood residents want to remain in Clairwood and will defend this position very strongly | Planning of BOP zone to protect residential rights of residents of Clairwood.  
State versus the market’s control of land use in the area.  
Clairwood residents to engage with city over the future of the neighbourhood.  
Three options exist in the planning framework for the future of Clairwood: Residential dominant zone; Logistics dominant zone and a Cluster precinct (residential, office and logistics). A deliberative process needs to be established to determine which scenario is acceptable to key stakeholders.  
Office/residential mix allows the market too much power in deciding residential rights in the area and is socially unjust. This is applied strictly in other residential areas in the city where ‘office’ invasion into residential areas has become problematic. Treat all residents of Clairwood equally. |
| 5 Heritage values | Protect and preserve heritage and create access to heritage for all. Provide measures for protecting heritage of Clairwood as the historical ‘heart’ of South Durban - Durban’s District Six. |
| 6 Strong social connections within communities with friends and family | Ensure that planning interventions do not disrupt or displace existing communities through spatial displacement, road barriers or the development of impenetrable zones. |
| 7 Ability to live, work and access services in South Durban | To manage the impact of rezoning and changing land use in the logistics zone which will result in the displacement of existing businesses and employment. There are high opportunity costs associated with the relocation and displacement and loss of jobs in close proximity to residences which will impact further on vulnerable communities (including transport costs). Business Support Forum to be established to support those displaced through re-zoning or increasing costs of sites due to increased value. |
| 8 Wide range of social organizations | To enhance social organizations, especially sport and religious organizations through planning interventions (for example: interface zones as sports fields, do not dislocate religious spaces from their catchments). BOP interventions provide good opportunities for the development and support of social organizations through the creation of new recreational/open spaces (Clairwood racecourse and Waterway).  
To develop facilities in interface zones and on public open space (Clairwood Racecourse) that supports the social activities of residents in the area (sport, need for more recreation spaces). Ensure local citizens are part of the planning of these facilities and activities.  
Increase engagement between city and social organizations. |
| 9 Parks, sports grounds and open spaces are widely used by the youth for recreation | BOP Spatial Framework Plan, Local Area Plan and detailed precinct plans create opportunities for recreation spaces to be developed in the South Durban Basin that will benefit residents living in the area. The development of the Clairwood racecourse and the Waterway as two recreational spaces will enhance quality of life in the area and is a direct planning response in the BOP project to the community needs that were identified through the social assessment.  
Clear parks of illegal activities and ensure their usage for recreational activities. Develop safe and well managed parks and sport facilities in interface zones and along canal. |
## Table 2: Issues in South Durban and measures to address them

<table>
<thead>
<tr>
<th>Status Quo Problems/Issues</th>
<th>Measure to address issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Crime/ deviant behaviour/ Drugs</td>
<td>Develop activities (sport, youth programmes) that engage the youth. Take measures to remove illegal land uses which encourage socially deviant behaviour.</td>
</tr>
<tr>
<td>2 Lack of facilities for recreation for youth</td>
<td>Provide/upgrade further open space/facilities for sport and other recreational activities. Do not place any further burden on this group. E.g. there is a need for a well maintained community hall in Merebank.</td>
</tr>
<tr>
<td>3 Poor maintenance of services and facilities/ housing and roads</td>
<td>Plan a programme of maintenance starting with priority issues that are linked to Back of Port infrastructure interventions.</td>
</tr>
<tr>
<td>4 Housing shortages in South Durban Basin are high</td>
<td>Planning of BOP zone should not decrease the availability of housing stock further.</td>
</tr>
<tr>
<td>5 Informal housing</td>
<td>Plan for upgrading or housing provision. Recognition of informal settlements in warehouses in industrial zones in South Durban Basin: recognize and address problems of buildings that may be hiding a subverted residential layer in the city.</td>
</tr>
<tr>
<td>6 Pollution from industries</td>
<td>Reduce noxious, heavy and general industry wherever possible. Development of logistics zone along principles of sustainability and environmental performance is critical. Improved transport system will reduce pollution levels. Development of rail system wherever possible to improve environmental sustainability.</td>
</tr>
<tr>
<td>7 Danger from trucks</td>
<td>Enhance safety and reduce trucking dangers. Provide buffers between new transport routes and residential areas. Create pattern of dedicated truck routes. Prevent trucks from transversing residential areas. Manage edges of new roads systems and residential areas through interface zones. New transport system which forms a key element of BOP interventions will have a significant positive impact on the above problem.</td>
</tr>
<tr>
<td>8 Long and contested history of social struggle in South Durban</td>
<td>Deepen democracy through deliberative participation process with communities over BOP plan, through negotiation and debate with multiple stakeholders.</td>
</tr>
<tr>
<td>9 Sense of neglect/ lack of trust in city</td>
<td>Address legacy of neglect – show that ‘the city cares’. Build trust. Provide evidence of high levels of goodwill and commitment of residents to their area. Through democratic partnerships the city can build on and derive value from this goodwill and commitment.</td>
</tr>
<tr>
<td>10 Vulnerability of poorer communities, poverty and unemployment</td>
<td>Recognition and management of impacts of displacement of businesses as a result of the re-orientation of the Clairwood/Mobeni corridor as a logistics zone. Development of a Business Support Forum to support displaced businesses.</td>
</tr>
<tr>
<td>11 Overcrowded hostels/ related informal settlement in Jacobs/Mobeni (Zone 8/9)</td>
<td>BOP plan for local area (Mobeni/Jacobs) needs to address the special concerns of the hostel.</td>
</tr>
<tr>
<td>12 Social relocation</td>
<td>Avoid relocation, and if implemented provide adequate compensation.</td>
</tr>
<tr>
<td>13 Social problems in South Durban</td>
<td>To integrate sustainability principles into the land use plan for the BOP zone and to directly incorporate social enhancement plans into the BOP zone land use plan.</td>
</tr>
</tbody>
</table>
BACK OF PORT AREA - SOCIAL ISSUES

ANNEXURE to Section 6: Local Scale Analysis
The main report analyses each area along the following criteria: Natural Systems; Movement; Zoning; Land Use; Land Ownership; Land Value Profile. This Annexure Fdds the analysis of the social environment of each area.

6.2 Congella, Umbilo, and Rosshburgh: The Social Environment

Table 1. The Social Environment: Congella, Umbilo, and Rosshburgh

<table>
<thead>
<tr>
<th>Description of social environment</th>
<th>Positive characteristics</th>
<th>Negative Characteristics</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential and industrial zone comprising lower and middle/upper income residential areas of Umbilo, Glenwood and Bulwer Road. Some areas have transitional population due to movement of vulnerable groups through this area.</td>
<td>Affordable, stable, convenient and well located residential areas. Glenwood contains good educational services. Presence of social organizations and strong social interactions in some areas. Higher levels of employment in some parts of this local area. Social tolerance and diversity. Active religious organizations provide social cohesion.</td>
<td>Conflict between industrial, commercial activities and residential areas. Invasion of businesses into residential area. Poverty and unemployment: Vulnerable groups contained within more stable residential area. High demand for housing for low income groups in this area. Illegal conversion of residential space to office space. Crime, drugs, prostitution and alcohol abuse. Problem of managing open spaces such as parks – vagrants and crime.</td>
<td>Reduce impact of industry and commercial activities on residential communities where possible, given that limited change is envisioned for this area. Reduce impacts of trucks on residential environment by controlling movement through residential areas. Noise impacts of trucks which operate 24 hours a day. Strict control of land use zoning in this area is required due to invasion of businesses into residential areas. Manage parks so they can become important functional spaces of recreation.</td>
</tr>
</tbody>
</table>

6.3 The Social Environment: Clairwood

Table 2: The social environment: Clairwood

<table>
<thead>
<tr>
<th>Description of social environment</th>
<th>Positive characteristics</th>
<th>Negative Characteristics</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well established residential community with long history associated with intense social struggles. Symbolic of historical struggle of early Indian settlers in Durban. Vulnerable informal settlers located within formal residential fabric.</td>
<td>Residential community with very strong attachment to place, strong identity and very strong social networks and organizations. Strong family networks in the area. Conveniet and well located for residents - close to places of work (in five residents live close to work).</td>
<td>History of neglect by City Council. Residential community under continuous threat of removal. Invasion of businesses and illegal activities into the residential area resulting in inappropriate and unmanaged mixed land use.</td>
<td>Ensure that residents of Clairwood can remain in the area. Negotiate the role of the market and the state in protecting the rights of residents to remain in the area over the long term – displacement through the market is still displacement which is socially unjust. Manage the interface between the new logistics zone and the existing residential area.</td>
</tr>
</tbody>
</table>

6.4 The Social Environment: Jacobs

Table 3: The social environment: Jacobs

<table>
<thead>
<tr>
<th>Description of social environment</th>
<th>Positive characteristics</th>
<th>Negative Characteristics</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Largely industrial and commercial area with some residential properties. Jacobs contains 1653 low income residents, high percentage of males, with strong link between place of work and place of residence. Vulnerable communities with high levels of unemployment. Shorter periods of residence, transitory. Location of hostels in this area that contain highly vulnerable communities.</td>
<td>Strong family and social connections with other residents in the area. Strong engagement in political parties which is both positive and negative. Affordable area for transport costs. Close to work and employment opportunities. Cultural groups (singing and dancing) and sport part of social networks.</td>
<td>Poor quality of life and low attachment to place. High unemployment. Dangerous area, crime and alcohol abuse. Overcrowding. Poor services. Pollution and health impacts of industry on residents. Political interference in housing.</td>
<td>Creation of phased interface zones in Jacobs, with some re-zoning closer to residential areas should aim to reduce residential-industrial conflict. Re-orientation of Moberi-East to logistics orientated zone needs to take into account vulnerable residential communities living in Jacobs/Moberi. Displacement of work opportunities through industrial transformation will have severe impacts on highly vulnerable groups who live and work in this area. Business Support Forum to support those that are displaced from work through relocation. Development of canal and Clairwood racecourse must take into account social (sport, recreation, social organizations) needs of surrounding residents, especially vulnerable groups in this area.</td>
</tr>
</tbody>
</table>
### 6.5 The Social Environment: Mobeni West

**Table 4. The Social Environment: Mobeni West**

<table>
<thead>
<tr>
<th>Description of social environment</th>
<th>Positive characteristics</th>
<th>Negative Characteristics</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobi contains 3248 low-income residents, high percentage of males, with strong link between place of work and place of residence. Vulnerable communities with high levels of unemployment. Shorter periods of residence, transitory.</td>
<td>Strong family and social connections with other residents in the area. Strong engagement in political parties which is both positive and negative. Affordable area for transport costs. Close to work and employment opportunities. Cultural groups (singing and dancing) and sport part of social networks.</td>
<td>Poor quality of life and low attachment to place. High unemployment. Dangerous area, crime and alcohol abuse. Overcrowding. Poor services. Pollution and health impacts of industry on residents. Political interference in housing.</td>
<td>Re-orientation of Mobi West to logistics orientated zone needs to take into account vulnerable residential communities living in Mobi. Displacement of work opportunities through industrial transformation will have severe impacts on highly vulnerable groups who live and work in this area. Business Support Forum to support those that are displaced from work through relocation.</td>
</tr>
</tbody>
</table>

### 6.6 The Social Environment: Merewent

**Table 5. The Social Environment: Merewent**

<table>
<thead>
<tr>
<th>Description of social environment</th>
<th>Positive characteristics</th>
<th>Negative Characteristics</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predominantly low to middle income residential area, family neighbourhood. Contains poor and vulnerable communities. Families lived in area since the 1950s</td>
<td>Quiet, peaceful and convenient. Good access to facilities. Strong social and religious networks and connections (friends and family). Strong attachment to place. Security of tenure important to residents in this area. Affordable, well located area. Sports clubs and religious groups well established and important to the area.</td>
<td>Impacts of pollution on quality of life and health. Dangerous area, crime and drug and alcohol abuse. Dirty and polluted. Poor maintenance of area.</td>
<td>Need to reduce residential-industrial conflict in the area by upgrading industrial zones. Change in land use to more logistics orientated activities should improve the impact of heavy and general industry on Merewent. Use interface zones to develop sport and religious activities that can engage the youth in the area. Create strong linkages both socially and in terms of access between Merewent community and sport and recreation activities to be developed on Clairwood racecourse. Manage and control interface zones between logistics orientated zone and residential areas. Monitor long term succession in interface zones.</td>
</tr>
</tbody>
</table>
6.7 The Social Environment: Isipingo Rail and Prospecton

This area comprises two areas adjacent to the DIA site. The Prospecton Industrial Estate is bounded by the N2 Freeway to the west and Isipingo Beach to the south and lies between the DIA site to the north and Mbokodweni River in the south. This is a general Industrial area. The Isipingo Rail Industrial area lie between Old South Coast Road and the railway line to its west and the N2 Freeway to the east.

Table 6: The Social Environment: Isipingo Rail and Prospecton

<table>
<thead>
<tr>
<th>Description of social environment</th>
<th>Positive characteristics</th>
<th>Negative Characteristics</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isipingo Rail and Prospecton are industrial areas. However, they lie adjacent to the residential</td>
<td>Quiet, affordable and pleasant living environment</td>
<td>Crime</td>
<td>Reduce the impact of industry on residential areas, may be achieved through development of a logistics orientated zone in Isipingo Rail.</td>
</tr>
<tr>
<td>areas of Isipingo and Isipingo Beach which are residential. The residential areas are stable</td>
<td>Good facilities, convenient with many well established sports, religious and beach</td>
<td>Conflicts between residential and industrial areas due to pollution, noise and impacts of</td>
<td>Continued effort to reduce impacts of general industrial activity of Prospecton on surrounding residential areas.</td>
</tr>
<tr>
<td>communities containing low to high income residents who have lived in the area for a long time.</td>
<td>activities forming a key focus of social life in the area.</td>
<td>trucks.</td>
<td>Support the development of sports and religious activities through use of space in the interface zones.</td>
</tr>
<tr>
<td></td>
<td>Strong attachment to place and strong social networks with strong connections between</td>
<td>Poor maintenance of municipal services in the area.</td>
<td>New transport systems to improve impacts of trucks in the area.</td>
</tr>
<tr>
<td></td>
<td>neighbours and families.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## BACK OF PORT AREA - SOCIAL ISSUES

**ANNEXURE to Section 7: The Social Environment: Problems, Possibilities and Strategic actions**

<table>
<thead>
<tr>
<th>PROBLEMS</th>
<th>POSSIBILITIES</th>
<th>STRATEGIC ISSUES FOR BoP PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NATIONAL CONTEXT</strong></td>
<td>1. Need for additional container capacity at a port (Super Port / Hub Port) which will intensify the relationship between industry and residential areas in the South Durban Basin.</td>
<td>1. Recognition of a major residential system within an industrial zone of national significance.</td>
</tr>
<tr>
<td></td>
<td>2. The impact of the legacy of spatial engineering based on race will be intensified: industry in close proximity to residential areas.</td>
<td>2. Recognition and protection of significant heritage sites in cities.</td>
</tr>
<tr>
<td></td>
<td>3. The conflict between the national focus on South Durban as key petro-chemical hub/industrial growth zone and the local desire of communities to continue living in South Durban.</td>
<td>3. Need to raise the profile and power of social concerns in decision making in cities in relation to economic imperatives.</td>
</tr>
<tr>
<td></td>
<td>4. Poverty, unemployment and slow pace of transformation impacts on the social character and conditions of neighbourhoods in SDB.</td>
<td>4. The South Durban Basin (SDB) is a challenging area to re-design (highly contested spaces and extremely busy / productive zones) with tensions between residential areas and industry.</td>
</tr>
<tr>
<td></td>
<td>5. Social decline of large inner city zones as a result of the lack of interventions to address critical social issues: crime, drugs, alcohol abuse, life skills, social norms and activities for the youth, and HIV/AIDS.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Crime and the inability to manage social problems at all levels of government impacts on quality of life and stability of neighbourhoods</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Loss of significant national heritage sites that reflect historical social struggles in SA continues to increase with the dominance of economic &amp; industrial development</td>
<td></td>
</tr>
<tr>
<td><strong>PROVINCIAL CONTEXT</strong></td>
<td>1. Business activity (manufacturing etc.) in the SDB has a national and provincial significance and inefficiencies in this area will impact on the provincial economy and hence on the social environment of KZN</td>
<td>1. The redevelopment of the transport system associated with the BoP zone (local, regional and national transport routes - road, pipeline and rail) will lead to the improvement of the provincial transport system, especially rail, and improve the social and environmental sustainability of the province.</td>
</tr>
<tr>
<td></td>
<td>1. Develop new industrial area/s at a regional level to accommodate any displacement from the SDB over the next 40 years. However, this will impact on those that live and work in the South Durban Basin. The shortage of employment will result in large numbers of people spending much time and money commuting away from their local area to work, which has social and environmental implications.</td>
<td>2. The impact of trucks on provincial roads and people will be reduced with associated changes to the transport system</td>
</tr>
<tr>
<td></td>
<td>2. Alter the regional transport system to include more rail transport, which will significantly improve the social and environmental sustainability of transport in the Province and the city.</td>
<td>3. There is no easy solution to finding land for additional industrial development in and around Durban and this has serious social implications re place of work in relation to place of residence.</td>
</tr>
</tbody>
</table>

*GRAHAM MULLER ASSOCIATES*

SPATIAL FRAMEWORK, PRECINCT PLANS AND ZONING FRAMEWORK – BACK OF PORT – MAY 2011
## BACK OF PORT AREA - SOCIAL ISSUES

### METROPOLITAN CONTEXT

<table>
<thead>
<tr>
<th>PROBLEMS</th>
<th>POSSIBILITIES</th>
<th>STRATEGIC ISSUES FOR BoP PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. South Durban Basin is significant to the economic development of the city and has a key role to play in terms of Durban’s position as a global port.</td>
<td>1. Many of the social problems in the residential areas of South Durban can be resolved using reasonably simple interventions that reflect the basic qualities that residents hope for in neighbourhoods – open spaces for sport and recreation, a secure and safe environment and well maintained services and facilities.</td>
<td>1. Key interventions required in terms of crime control, the control of drug and alcohol abuse, the provision of sport and recreation programmes for the youth, and the maintenance of services and facilities.</td>
</tr>
<tr>
<td>2. South Durban Basin has a long and contested history within the city as a site of residential and social struggles.</td>
<td>2. The South Durban Basin provides a relatively good living environment in relation to other neighbourhoods in the city where lower income people live – the area contains formal housing, although this is overcrowded in many places, and it has basic services and facilities. A large number of residents have indicated that they value the convenience of their neighbourhood as everything they need is available close by.</td>
<td>2. City needs to maintain and enhance positive attributes of stable neighbourhoods where residents have a sense of belonging.</td>
</tr>
<tr>
<td>3. Relationship between the city and South Durban communities has been undermined at times by a lack of co-operation and trust</td>
<td>3. Services and facilities are available in South Durban and have contributed to the presence of stable and coherent neighbourhoods; however, these services and facilities need to be maintained.</td>
<td>3. City needs to create sustainable partnerships with well established social organisations in the area.</td>
</tr>
<tr>
<td>4. South Durban Basin has been exposed to a wide range of planning processes and exercises, many of which have not been implemented, specifically in Clairwood. This has led to a lack of confidence in these Municipal processes.</td>
<td>4. The heritage area of Clairwood offers immense social and cultural value to the city and this could be developed for socio-economic benefit, such as happened in Bo-Kaap in Cape Town.</td>
<td></td>
</tr>
<tr>
<td>5. The use of space in the South Durban Basin is intense and often conflictual and the city has attempted to address this through a wide range of interventions but it is a complex and difficult problem to solve.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. The pollution problems in South Durban and their relationship to residential areas are challenging to resolve. The increase in height of the stacks once the airport moves may reduce some of this impact, however, this solution raises serious questions about broader energy sustainability choices.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. The intensification of industrial and related activities in South Durban continues to place pressure on an area that is also fundamentally residential.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### PROBLEMS

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Middle to working class area with relatively high levels of unemployment and vulnerable communities.</td>
</tr>
<tr>
<td>2.</td>
<td>Residential areas that are coherent as neighbourhoods in terms of housing, services and facilities and social capital, the value of which is offset against serious social problems. There are concerns about the potential impacts of disruptions caused by BoP to this coherence.</td>
</tr>
<tr>
<td>3.</td>
<td>Potential residential displacement of a key concern for residents.</td>
</tr>
<tr>
<td>4.</td>
<td>There is a strong relationship between place of work and place of residence in the South Durban Basin and adjacent suburbs. People both live and work in this area. Displacement of businesses that employ local people will therefore have high social impacts.</td>
</tr>
<tr>
<td>5.</td>
<td>Relocation of non-port related activities to alternative locations will have social impacts.</td>
</tr>
<tr>
<td>6.</td>
<td>Residents value what the South Durban Basin offers as a residential space and hence do not want to move away from the area (convenience, strong identity, community and family support, facilities and available services).</td>
</tr>
<tr>
<td>7.</td>
<td>Key social problems will increase with the second port as social problems such as drugs, criminal activities and prostitution are associated with ports in cities.</td>
</tr>
<tr>
<td>8.</td>
<td>Some argue that South Durban is declining in terms of its general quality and character; it needs to be upgraded and maintained, with housing and services improved.</td>
</tr>
<tr>
<td>9.</td>
<td>Trucks are a critical social issue in the area: danger, parking illegally on all open spaces, congestion, noise and pollution.</td>
</tr>
</tbody>
</table>

### POSSIBILITIES

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Socio-economic conditions and provision of services and facilities in SDB are relatively better than many other parts of the city – can build and enhance the capacity of this area to create stable neighbourhoods through increased employment through BoP, improvement in infrastructure and services, and improved transport networks.</td>
</tr>
<tr>
<td>2.</td>
<td>Residents value this space as a space of tolerance and diversity - it may represent, in part, the social transformation that South Africa is trying to achieve so use this and build on this by the city showing a willingness to engage with and support these communities – i.e. build on goodwill that exists.</td>
</tr>
<tr>
<td>3.</td>
<td>Rail traffic, Port traffic (trucks) and general traffic (residential and general business) can be segregated, i.e. dedicated truck routes with alternative routes for residents.</td>
</tr>
<tr>
<td>4.</td>
<td>Residents’ value parks and sporting facilities and these could be upgraded or added in buffer zones on edges in the BoP zone.</td>
</tr>
<tr>
<td>5.</td>
<td>Investment, change and redevelopment in the SDB are positive for the general image of the area.</td>
</tr>
<tr>
<td>6.</td>
<td>To create a historical precinct out of Clairwood and to ensure its protection through the National Heritage Act - and to incorporate it as a special residential zone with indefinite protection as part of the BoP development – key heritage resource, desirable residential area and goodwill.</td>
</tr>
<tr>
<td>7.</td>
<td>The activities in the rest of Clairwood (and in other areas) that are owned by residents will be displaced as a result of BoP development.</td>
</tr>
</tbody>
</table>

### STRATEGIC ISSUES FOR BoP PROJECT

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>South Durban neighbourhoods are coherent and relatively stable in terms of what a neighbourhood should offer.</td>
</tr>
<tr>
<td>2.</td>
<td>Social problems undermine and shift this neighbourhood stability and quality of life.</td>
</tr>
<tr>
<td>3.</td>
<td>Religious groups and sport plays a key role in social cohesion and quality of life in the area.</td>
</tr>
<tr>
<td>4.</td>
<td>Imperative to ensure road and rail design to meet the needs of the port as well as the residential communities.</td>
</tr>
<tr>
<td>5.</td>
<td>Dedicated routes should be put in place, giving segregated access to different systems.</td>
</tr>
<tr>
<td>6.</td>
<td>There is a need to consider overall how the proposed new transport routes and systems impact on the social environment and as they will produce new edges and new impact zones.</td>
</tr>
<tr>
<td>7.</td>
<td>To address the issue of Clairwood and to make decisions about Clairwood at the conceptual phase of the BoP project design. The heritage value of Clairwood needs to be secured before any other planning decisions about its future can be made.</td>
</tr>
<tr>
<td>8.</td>
<td>To further explore the relationship between current businesses and place of residence. To do further research about the social impact of relocation of businesses.</td>
</tr>
<tr>
<td>9.</td>
<td>To think seriously about the meaning of the social data in relation to the BoP project: local social issues that have emerged in this study that are really significant need to be addressed.</td>
</tr>
<tr>
<td>PROBLEMS</td>
<td>POSSIBILITIES</td>
</tr>
<tr>
<td>----------</td>
<td>---------------</td>
</tr>
<tr>
<td>10. Open spaces and sporting facilities are highly valued in this area, but need to be managed and not left unattended and unkempt as they are then taken over by vagrants and criminals.</td>
<td>10. To consider the edges of the BoP zone and their relationship to the social environment. The use of the gradation of zoning and/or buffer zones is significant here.</td>
</tr>
<tr>
<td>11. Highly congested area in relation to traffic movement but still considered to be a desirable residential area in the city due to its central location.</td>
<td>11. Social displacement especially of work places is critical in this project.</td>
</tr>
<tr>
<td>12. Road access to the container terminal is currently concentrated on South Coast Road and Maydon Road (via Edwin Swales and Francois) into Bayhead Road – roads cannot cope with truck volumes at peak times. These roads have to be shared with residential communities - this has high impacts on quality of life of residents.</td>
<td>12. To explore the informal settlements that have developed in buildings in the study area that may be hiding a subverted residential layer in the city.</td>
</tr>
<tr>
<td>13. Residents use the Fresh Produce Market and related businesses to purchase food &amp; vegetables and the relocation of this market will impact on those local residents who have traditionally shopped there (need more detailed analysis).</td>
<td>13. Green spaces – parks and sports fields are critical to people living in this area.</td>
</tr>
<tr>
<td>14. Clairwood is a heritage space with high symbolic value that has been threatened for over 50 years</td>
<td>14. Green spaces also have ecological value and are being used for their ecological replacement value, but this then is contested socially as natural areas do not offer the facilities people require.</td>
</tr>
<tr>
<td>15. The broader SDB community values the social and historical significance of Clairwood. This is supported by numerous studies on Clairwood which has been trying to maintain its function and identity in the face of industrial expansion AND NEGLECT over many decades.</td>
<td>15. The role of the Clairwood racecourse as an open space is important.</td>
</tr>
<tr>
<td>16. There are already housing shortages and overcrowding in the area; housing stock should therefore not be decreased further.</td>
<td>16. The youth are an extremely vulnerable group in this area. BoP related changes must recognise the pressure and problems associated with the youth in this area and should not induce further impacts on this group.</td>
</tr>
<tr>
<td>17. Market forces should not be used as the only mechanism for land use decisions and regulating and controlling of land use by the state</td>
<td>17. Flooding and wetlands appear to be a problem in relation to housing.</td>
</tr>
<tr>
<td>18.</td>
<td>18. Reduce pollution and associated health impacts in the area.</td>
</tr>
<tr>
<td>19. New roads should not divide up communities.</td>
<td>19.</td>
</tr>
<tr>
<td>20. Adequate compensation must be offered for any significant social impacts on communities.</td>
<td>20.</td>
</tr>
<tr>
<td>21. To develop buffer zones that serve as safe and well maintained parks, sports fields and open spaces.</td>
<td>21.</td>
</tr>
</tbody>
</table>
## BACK OF PORT AREA - SOCIAL ISSUES

<table>
<thead>
<tr>
<th>PROBLEMS</th>
<th>POSSIBILITIES</th>
<th>STRATEGIC ISSUES FOR BoP PROJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCIAL ENVIRONMENT</td>
<td>SOCIAL ENVIRONMENT</td>
<td>SOCIAL ENVIRONMENT</td>
</tr>
<tr>
<td>1. Displacement of residential properties as a result of development of BoP zone is problematic.</td>
<td>1. Planning interventions related to BoP can enhance the social environment by separating trucks and residential roads, ordering and managing the landscape, controlling land use zoning and invasion of industry into residential areas.</td>
<td>1. Industrial-residential interface needs to be managed through creative use of buffer zones.</td>
</tr>
<tr>
<td>2. Future of Clairwood needs to be addressed, residents do not wish to move away from the area and it also has significant heritage value.</td>
<td>2. Opportunity to develop Clairwood into a historical precinct thereby cleaning it up, ordering it and ensuring its long term future.</td>
<td>2. New transport routes need to be sensitive to local residential environment.</td>
</tr>
<tr>
<td>3. Planning interventions must not increase the loading on vulnerable communities, especially in relation to crime, drug and alcohol abuse and pollution.</td>
<td>3. Clairwood should be preserved as a historical precinct within the BoP zone.</td>
<td>3. Clairwood should be preserved as a historical precinct within the BoP zone.</td>
</tr>
<tr>
<td>4. New transport routes will impact on the residential areas they move through. These routes should not divide communities.</td>
<td>4. Residents need to be involved in decision making re BoP.</td>
<td>4. Residents need to be involved in decision making process re BoP.</td>
</tr>
<tr>
<td>5. Transformation and development of South Durban must not be determined by market forces alone.</td>
<td>5. City to intervene to improve social problems in South Durban Basin as a related product of the BoP project. This will add value to BoP and build trust with communities.</td>
<td>5. City to intervene to improve social problems in South Durban Basin as a related product of the BoP project. This will add value to BoP and build trust with communities.</td>
</tr>
</tbody>
</table>
Annexure to Section 11: PRECINCT PLANS

11.2 Congella, Umbilo, and Rossburgh

Planning interventions and social enhancement plans: Congella, Umbilo, and Rossburgh

Table 1 presents the planning interventions associated with the vision, concept and spatial framework of the Back of Port zone. These interventions are assessed in terms of their social benefits and costs and recommendations for the social enhancement of these plans are made. These recommendations are included in the spatial framework as physical planning interventions.

<table>
<thead>
<tr>
<th>Planning intervention</th>
<th>Benefits</th>
<th>Costs</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broad Land Use Concept</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No substantial interventions</td>
<td>No significant change to social environment</td>
<td>Existing impacts of commercial and industrial area on residential areas</td>
<td></td>
</tr>
<tr>
<td>Land use zoning adjustment</td>
<td>Cosmetic improvement may enhance social environment</td>
<td></td>
<td>To upgrade the area to reduce social impacts such as pollution, noise, movement of trucks</td>
</tr>
<tr>
<td>Area maintained with cosmetic improvements</td>
<td></td>
<td></td>
<td>Manage and control invasion and succession of industrial and commercial uses into residential areas.</td>
</tr>
<tr>
<td><strong>Detailed Land Use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East of Sydney Road: Noxious industry to be maintained</td>
<td>Remaining conflict between residential &amp; industrial zones</td>
<td>Continued effort required to reduce impacts of noxious industry on surrounding residential communities</td>
<td></td>
</tr>
<tr>
<td>Congella: General industry down-zoned to light industrial use, logistics discouraged</td>
<td>Down-zoning should result in reduction of industrial impacts on residential area</td>
<td>May lead to displacement of existing businesses with associated social impacts</td>
<td>Good management and control of land use zoning</td>
</tr>
<tr>
<td>Umbilo, Rossburgh: General industry maintained, logistics permitted through consent</td>
<td></td>
<td></td>
<td>Management of traffic movement, no trucks to move through residential areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Awareness of vulnerable people living informally in industrial and commercial buildings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Set up Business Support Forum for displaced businesses</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Invasion into surrounding residential areas must be controlled through zoning and management</td>
</tr>
</tbody>
</table>
11.3 Clairwood

Planning interventions and social enhancement plans: Clairwood

Table 2 presents the planning interventions associated with the vision, concept and spatial framework of the Back of Port zone. These interventions are assessed in terms of their social benefits and costs and recommendations for the social enhancement of these plans are made. These recommendations are included in the spatial framework as physical planning interventions. It must be noted that the planning interventions proposed here differ from the recommendations of the rest of the team.

Table 2: Planning interventions and social enhancement plans: Clairwood

<table>
<thead>
<tr>
<th>Planning intervention</th>
<th>Benefits</th>
<th>Costs</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broad Land Use Concept</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three options for development of Clairwood:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Residential dominant option</td>
<td>Residential and cluster precinct option enables residents who wish to continue living in the area to reside within a controlled residential area free from illegal businesses and incompatible activities.</td>
<td>Development of the logistics option will result in the spatial removal of people and expropriation of properties.</td>
<td>In order to ensure the protection of the historical portion, with its current high social value, the central residential area needs to remain as residential zoning. This will protect residential rights and the neighbourhood of Clairwood.</td>
</tr>
<tr>
<td>2. Logistics dominant option</td>
<td>The conservation of a historical heritage zone (which includes residential zoning) in the central portion, will meet the desires and wishes of current residents to remain in the area.</td>
<td>Historical sites in the logistics zone will be isolated from their social catchment.</td>
<td>Cluster precinct option enables land uses (residential, office and logistics) to be separated in a way which is compatible with the different functions of each activity.</td>
</tr>
<tr>
<td>3. Cluster precinct option</td>
<td>The conservation of this area will conserve an important historical site for Durban.</td>
<td></td>
<td>Residents in the outer zone that will contain offices can be compensated and relocated to residential sites that are redeveloped through the removal of illegal businesses in the inner zone in Clairwood.</td>
</tr>
<tr>
<td></td>
<td>The introduction of managed office space in the area will enhance the value of residential land.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create a dedicated freight route through the area from the N2 to the existing Port</td>
<td>Dedicated freight route will improve congestion, risk, pollution and noise throughout South Durban.</td>
<td>Ensure that the new transport routes do not isolate the residential core, create impenetrable barriers and do not impact on the living environment of residents in the area.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gated development in the central portion will improve quality of life by removing industrial traffic in the area.</td>
<td>Ensure that the gated development meets the needs and social and economic network flows of local residents.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>This new route will have significant positive social benefits for the South Durban Basin.</td>
<td></td>
</tr>
<tr>
<td>Upgrading of internal roads.</td>
<td>Will improve traffic flow through the area.</td>
<td>Ensure that roads do not impact on the living environment of residents in the inner core.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 2: Planning interventions and social enhancement plans: Clairwood

<table>
<thead>
<tr>
<th>Planning intervention</th>
<th>Benefits</th>
<th>Costs</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clairwood:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Residential dominant zone</td>
<td>Retain existing residential area in inner portion which meets the desire of residents of Clairwood to continue living in the area.</td>
<td>b) High social costs and significant social disruption as a result of removal of residents from Clairwood.</td>
<td>All interventions should aim to retain the residential function, character and identity of Clairwood.</td>
</tr>
<tr>
<td>b) Logistics dominant zone</td>
<td>General upgrading of Clairwood residential area through structured planning will remove current informal and illegal activities (e.g. panel beaters, truck stops and container depots).</td>
<td>Loss of area of significant historical and cultural value in the area.</td>
<td>Logistics dominant zone has very high social costs and hence is not recommended as an option in the social enhancement plans.</td>
</tr>
<tr>
<td>c) Three cluster precinct</td>
<td>Logistics platform will promote cleaner, higher order and more service oriented industry in the area.</td>
<td>Logistics and residential land uses are not compatible in close proximity as logistics zones operate 24/7.</td>
<td>The Cluster precinct option meets the needs of the competing interests in Clairwood as far as is possible given the different demands placed on land in this area.</td>
</tr>
<tr>
<td></td>
<td>Cluster option will enable all three land uses that are desirable to be located in Clairwood in a compatible manner: a residential area will remain and be upgraded in the central portion, office space which is in high demand will be developed in the outer eastern edge and logistics will be developed as a buffer along Archery Road.</td>
<td>c) Some residents will need to be relocated from the office zone but they could be compensated and relocated into upgraded and cleared sites within the central residential zone.</td>
<td>The new office and logistics zone in the cluster option should support and enhance the residential core.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The communities living and working in the area need to part of the negotiations regarding whether market mechanisms are a socially just way of determining future land use in the area – the role of the state versus the role of the market.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The city, residents in the area and other primary stakeholders need to debate and deliberate which option is the most acceptable.</td>
</tr>
<tr>
<td><strong>South Coast Road:</strong></td>
<td>Maintain existing retail activities in South Coast Road supports work/residential linkages and availability of local shopping facilities.</td>
<td></td>
<td>The new transport networks must enhance the residential space of South Durban by separating freight from other transport: reduce congestion, accidents, and pollution; use rail where possible; and assess the social impacts of the new road infrastructure.</td>
</tr>
<tr>
<td>Retain general industrial with commercial/retail in central zone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fresh Produce Market/Diesel Depot:</strong></td>
<td>Improved use of Diesel Depot site.</td>
<td>Loss of access to local fresh produce market for Clairwood residents and other residents in the South Durban Basin</td>
<td>A detailed social assessment of the social impacts of the removal of the Fresh Produce Market must be undertaken</td>
</tr>
<tr>
<td>Redeveloped as catalyst logistics platform</td>
<td></td>
<td>Displacement of work/residential linkage of workers in Fresh Produce Market.</td>
<td></td>
</tr>
<tr>
<td><strong>Existing cemeteries and schools will be retained</strong></td>
<td>Cultural and social facilities to be retained</td>
<td>Cultural and social facilities will be isolated from their catchments.</td>
<td>Linkages between schools and their catchment areas needs more detailed assessment (the status quo report does reflect on school/catchment information but this needs more detailed study).</td>
</tr>
</tbody>
</table>
### 11.4 Jacobs

**Planning interventions and social enhancement plans: Jacobs**

Table 3 presents the planning interventions associated with the vision, concept and spatial framework of the Back of Port zone. These interventions are assessed in terms of their social benefits and costs and recommendations for the social enhancement of these plans are made. These recommendations are included in the spatial framework as physical planning interventions.

#### Table 3: Planning interventions and social enhancement plans: Jacobs

<table>
<thead>
<tr>
<th>Planning intervention</th>
<th>Benefits</th>
<th>Costs</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broad Land Use Concept</strong></td>
<td></td>
<td><strong>Limited costs.</strong></td>
<td><strong>Control of land use zoning is critical to ensure there is not invasion into surrounding residential area. The role and management of the interface zones in ensuring this is therefore critical.</strong></td>
</tr>
<tr>
<td>To sustain current industrial, logistics, manufacturing and service land use in a more direct manner.</td>
<td>Formalisation and improvement of industrial land use should improve living environments for surrounding residential areas (less congestion, pollution, noxious industry).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop existing canal into a waterway.</td>
<td>Opportunity to create a recreational space.</td>
<td><strong>If not properly managed it could become an area of social deviance and crime.</strong></td>
<td><strong>Incorporate principles of environmental safe space design to waterway design.</strong></td>
</tr>
<tr>
<td></td>
<td>Improves the amenity of the area.</td>
<td></td>
<td>The management and security of this space is critical.</td>
</tr>
<tr>
<td></td>
<td>Conserves open space in the area.</td>
<td></td>
<td>To include local stakeholders in the design and use value of the waterway, establish a stakeholder forum (see Keil paper on Los Angeles).</td>
</tr>
<tr>
<td>To develop a shopping centre at a central node.</td>
<td>Provides additional shopping and recreational facilities for those employed in the area.</td>
<td><strong>Will increase competition with existing shopping facilities.</strong></td>
<td><strong>To adopt the design principles of openness, connectivity, environmental performance and safe space design.</strong></td>
</tr>
<tr>
<td></td>
<td>Improves amenity of the area.</td>
<td><strong>Viability should be assessed given that people living and working in the area already have their shopping needs met – they rarely travel outside the area for shopping.</strong></td>
<td>To use local vernacular architecture.</td>
</tr>
<tr>
<td>To retain Clairwood Racecourse as a green lung with recreation and office parks.</td>
<td>An accessible recreation space that supports the wishes of residents to have more sports facilities and parks to provide recreation for the youth.</td>
<td>The space could be wasted if not managed as social deviance and crime will lead to it becoming to an abandoned or illegally used space like many other parks in the area.</td>
<td><strong>Significant positive outcome for residents of South Durban as a result of the BOP plan.</strong></td>
</tr>
<tr>
<td></td>
<td>Retains public open space in a dense residential environment and in the city.</td>
<td></td>
<td><strong>Design recreational and office space using stakeholder participation and incorporating the design principles of openness, connectivity, environmental performance and safe space design.</strong></td>
</tr>
<tr>
<td></td>
<td>Provides opportunities for sport development programmes.</td>
<td></td>
<td>The space should reflect the recreational needs and culture of the people living in the area. Special attention must be paid to the youth.</td>
</tr>
<tr>
<td>To develop local access roads along the waterway.</td>
<td>Will improve traffic flow in the area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning Intervention</td>
<td>Benefits</td>
<td>Costs</td>
<td>Social Enhancement</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------</td>
<td>-------</td>
<td>--------------------</td>
</tr>
<tr>
<td><strong>Detailed Land Use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Jacobs: No substantial interventions, zoning will create interface zones between residential, light industry, general industry and noxious industry. | - Graded buffers will be created between residential and industrial land use.  
- Downzoning will improve overall industrial impacts on the surrounding areas. | - Failure of the management and control of the interface zones will result in industrial impacts on surrounding areas. | - In the development of interface zones, special attention must be paid to vulnerable groups living in the Austerville area adjacent the industrial zone.  
- Monitor the impacts of the long term succession in the interface zones. |
| Mobeni East: Will become part of the logistics orientated belt. Large sites with offices facing the new canal and roads. Focus on higher order amenity and visual status. Includes development of small shopping centre. | - Significant upgrading of the industrial area will improve amenity, quality and status of existing area. | - Displacement of current activities.  
- Loss of jobs  
- Impact on current small businesses.  
- Potential interruption of work/residential linkages. | - Manage the displacement of current activities through the establishment of a help desk and Business Support Forum.  
- To support current land users in finding alternatives and new opportunities through business development support mechanisms.  
- Monitor the impacts of the long term succession. |
| Racecourse: Converted to recreation and offices. | - An accessible recreation space that supports the wishes of residents to have more sports facilities and parks to provide recreation for the youth.  
- Retains public open space in a dense residential environment and in the city.  
- Provides opportunities for sport development programmes. | - The space could be wasted if not managed as social deviance and crime will lead to it becoming to an abandoned or illegally used space like many other parks in the area. | - Design recreational and office space using stakeholder participation and incorporating the design principles of openness, connectivity, environmental performance and safe space design.  
- The space should reflect the recreational needs and culture of the people living in the area. Special attention must be paid to the youth. |
11.5 Mobeni West
Planning interventions and social enhancement plans: Mobeni West

Table 4 presents the planning interventions associated with the vision, concept and spatial framework of the Back of Port zone. These interventions are assessed in terms of their social benefits and costs and recommendations for the social enhancement of these plans are made. These recommendations are included in the spatial framework as physical planning interventions.

### Table 4: Planning interventions and social enhancement plans: Mobeni West

<table>
<thead>
<tr>
<th>Planning intervention</th>
<th>Benefits</th>
<th>Costs</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broad Land Use Concept</strong></td>
<td>Improvement in industrial character to cleaner industry which will reduce impacts of industrial and commercial activity on surrounding residential areas. Will result in upgrading and hence general improvement in the value and status of the broader area.</td>
<td>Will result in displacement of current businesses which will impact on work-residential linkages. If zoning and interface zones not managed and controlled invasion of industrial activities into surrounding residential areas will occur</td>
<td>Ensure management and control of zoning regulations. Good management of interface zones. Include interface zones on the Merewent edge of this zone as vulnerable communities live here. Monitor long term succession in interface zones.</td>
</tr>
<tr>
<td>Area to form part of logistics orientated zone running from Clairwood to DIA dig out port</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjustment to land use zoning: down-zoning from noxious and general industry to logistics use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrading of South Coast Road, including a dedicated bus route</td>
<td>Improvement of traffic problems: congestion, risk, pollution. Availability of improved public transport</td>
<td>Impacts of road upgrade on adjacent residential areas</td>
<td>To ensure road upgrade does not impact significantly on surrounding residential communities.</td>
</tr>
<tr>
<td>Redevelopment of Grimsby Road for shared mobility</td>
<td>Improvement of traffic problems: congestion, risk, pollution.</td>
<td>Grimsby road must not form a barrier between green open space and catchment communities</td>
<td>To ensure that road does not create a physical barrier between the public open space being created on Clairwood racecourse and the communities that will support and use it especially given that it has been designed as a ring road (see for example impacts of road system on Cape Town Waterfront/city)</td>
</tr>
<tr>
<td>Improvement of rail system in the area</td>
<td>Reduction of freight traffic which will improve all traffic problems: congestion, risk and pollution. Reduction of trucks on roads in Durban has broader social benefits</td>
<td></td>
<td>To be supported as part of the broader goals of sustainability in Durban. Value in communicating this approach as part of Durban’s commitment to a more sustainable city especially in relation to climate change interventions</td>
</tr>
</tbody>
</table>
### Planning intervention and social enhancement plans: Merewent

Table 5 presents the planning interventions associated with the vision, concept and spatial framework of the Back of Port zone. These interventions are assessed in terms of their social benefits and costs and recommendations for the social enhancement of these plans are made. These recommendations are included in the spatial framework as physical planning interventions.

<table>
<thead>
<tr>
<th>Planning intervention</th>
<th>Benefits</th>
<th>Costs</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broad Land Use Concept</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current land use to remain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New access system to Stanvac, Mondi, and Sapref with linkages to new DIA dug out port</td>
<td>Will remove heavy traffic and trucks from residential road resulting in significant improvement of safety and quality of life for residents in Merewent: congestion, risk (accidents) and pollution will be reduced.</td>
<td>Possible impacts of new road system on surrounding residents</td>
<td>Detailed social assessment of proposed new access system on residential areas</td>
</tr>
</tbody>
</table>
11.7 Isipingo Rail and Prospecton

Planning interventions and social enhancement plans: Isipingo Rail and Prospecton

Table 6 presents the planning interventions associated with the vision, concept and spatial framework of the Back of Port zone. These interventions are assessed in terms of their social benefits and costs and recommendations for the social enhancement of these plans are made. These recommendations are included in the spatial framework as physical planning interventions.

Table 6: Planning interventions and social enhancement plans: Isipingo Rail and Prospecton

<table>
<thead>
<tr>
<th>Planning intervention</th>
<th>Benefits</th>
<th>Costs</th>
<th>Social Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Broad Land Use Concept</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial activity to continue in current form</td>
<td>Improvement of industrial activity in Isipingo Rail will reduce industrial impacts on surrounding communities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re-orientation of Isipingo Rail to logistics orientated zone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prospecton to remain general industrial and hence surrounding communities will continue to experience impacts of industrial activity.</td>
<td></td>
<td>Create interface zones between Isipingo Rail and Reunion.</td>
<td></td>
</tr>
<tr>
<td>Monitor long term succession in interface zones.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Detailed Land Use</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prospecton: General industrial area to continue in its current form</td>
<td>No benefits</td>
<td>Industrial activity in this area will continue to impact on surrounding residential areas</td>
<td></td>
</tr>
<tr>
<td>Isipingo Rail: To be re-orientated to form part of logistics belt from Clairwood to new dug out port</td>
<td>Improvement of industrial activity in Isipingo Rail will reduce industrial impacts on surrounding communities</td>
<td>Relocation of current businesses in this area will have social impacts on business owners and employees, will impact on work-residential linkages</td>
<td>Establish help desk and Business Support Forum for businesses to be displaced by changes to zoning in the area.</td>
</tr>
<tr>
<td>Reunion: To remain residential</td>
<td>No residential displacement Improvement in living environment given change from general industry to logistics</td>
<td>Possible invasion of current activities through displacement into the area unless zoning is carefully controlled</td>
<td>Create interface zone between Isipingo Rail and Reunion Management and control of zoning</td>
</tr>
</tbody>
</table>
Annexure to Section 12: ZONING FRAMEWORK

11.4 Land Use Scheme Proposals
The Social Assessment recommends that the options for Clairwood remain open and to be negotiated with the residents/landowners rather than be zoned a logistics zone. The Social Assessment recommends the retention of a residential precinct and the conservation of the symbolic and historical value of Clairwood.

Annexure to Section 13: CONCLUSION

The Social Assessment agrees with the concluding statement that the future of Clairwood "lies in the hands of the residents/landowners?. Clairwood will, due to its proximity to the east-west road freight truck route to Gauteng, play a significant role as a logistics zone in the proposed overall restructuring of the Back of Port Zone. The proposed plans in this document will create a viable and efficient Back of Port Zone which will enable Durban to become a world class port. However, the retention of the social, historical and cultural value of this area, and the adherence to the wishes of a prominent group of residents to remain in this historically symbolic area will test the municipality’s intention to compensate for the decades of neglect of the area and build trust and commitment to its residents. The municipality’s credibility will be severely damaged if it goes ahead and forcibly removes people who for generations have lived in the Clairwood area. The gains will be insignificant compared to the losses. The municipality will also lose the opportunity of creating an interesting historical precinct within a post-modern post-industrial space that can add value to the logistics zone through its linkages to other social amenities that are being proposed in the design of a more liveable and human post-industrial landscape for the city. Successful cities and back of port zones around the world reveal that mixed land uses that include the human dimension of people living and working in logistics spaces are highly desirable. The upgrading and retention of a viable portion of Clairwood as an historical precinct within this zone will add significant value to the development of the logistics zone, as do the open spaces, canals, walkways and human scale buildings and office parks.
SOCIAL ISSUES IN AREAS LYING ON THE PERIPHERY OF THE BoP STUDY AREA
SOCIAL ISSUES IN AREAS LYING ON THE
PERIPHERY OF THE BoP STUDY AREA

SOCIAL ISSUES IN AREAS LYING ON THE PERIPHERY OF THE BoP STUDY AREA

INTRODUCTION

This Annexure has been added to this report in order to include social assessment research in the final Summary Framework Report of the Back of Port Study. It is critical that all those reading the Summary Framework Report also read Annexure G.

This Annexure contains a summary of the social value and social issues of the residential areas in the South Durban Basin which lie on the periphery of the study area.

Table 1 shows the areas that were initially included in the Social Assessment. It was agreed that the Social Assessment would include residential areas adjacent to those that fell into the study area as mapped in the Summary Framework Report. The Table shows the following areas that lie on the periphery of the study area:

1. Montclair
2. Fynlands/Grosvenor
3. Bluff
4. Wentworth
5. Austerville
6. Reunion
7. Isipingo Beach
8. Umlazi and Lamontville

It is important to note that the areas identified in the Summary Framework Report are in most cases mixed residential/industrial/commercial areas. Furthermore, different boundaries were apparent in the delineation of zones/areas, and thus in some cases, zones have been combined. In the Social Assessment only the residential component of the study areas listed above were assessed to determine the social value, social issues and challenges faced by these areas. Since these areas listed above do not lie in the study area, no social enhancement plans were specifically designed for them. However, the Summary Framework Report shows that consideration has been taken of likely impacts on these residential areas through the proposed zoning framework. Table 2 describes the value of the peripheral residential areas and the issues that are apparent in these areas. This table therefore contributes to the understanding of Section 6: Local Scale Analysis in the Summary Framework Report.
## SOCIAL ISSUES IN AREAS LYING ON THE PERIPHERY OF THE BoP STUDY AREA

Table 1:
Areas included in the initial social assessment showing those areas lying on the periphery of the Back of Port (BoP) study area as shaded. (Source: Adapted from Table 1 of the Social Assessment, p. 2)

<table>
<thead>
<tr>
<th>Area / Planning Units</th>
<th>Relation to BoP study area</th>
<th>Reason for inclusion in study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Congella</td>
<td>Inside study area</td>
<td>Mixed use residential area adjacent to Maydon Wharf</td>
</tr>
<tr>
<td>2 Clairwood</td>
<td>Inside study area</td>
<td>Mixed use residential area in close proximity to port activities at Bayhead. In South Durban Basin.</td>
</tr>
<tr>
<td>3 Jacobs/Mobeni West</td>
<td>Inside study area</td>
<td>Mixed use with high concentration of small, medium and large businesses, some residential properties. In South Durban Basin.</td>
</tr>
<tr>
<td>4 Merewent (known as Merebank)</td>
<td>Inside of study area</td>
<td>Residential area comprised of three distinct areas, all of which are located in close proximity to the DIA and hence to new proposed port related activities. In South Durban Basin</td>
</tr>
<tr>
<td>5 Isipingo Rail/Hills</td>
<td>Outside study area</td>
<td>Contained residential area that will be impacted upon by port development on the DIA site. In South Durban Basin. Isipingo Rail lies in South Durban Basin in study area.</td>
</tr>
<tr>
<td>6 Montclair</td>
<td>Outside study area</td>
<td>Residential area adjacent to the study area and may be impacted upon by changes in Jacobs and Mobeni</td>
</tr>
<tr>
<td>7 Fynnlands/Grosvenor (north of the Bluff)</td>
<td>Outside study area</td>
<td>Residential area located in close proximity to key port related activities and transport routes to the east of the port.</td>
</tr>
<tr>
<td>8 Bluff</td>
<td>Outside study area</td>
<td>Contains a number of residential areas that have been grouped together as they are impacted upon by traffic issues and industrial pollution that arises in the study area but do not contain primary stakeholders (people directly impacted) in terms of new port related activities. However, people living here have to move through the study area to access other parts of the city.</td>
</tr>
<tr>
<td>9 Wentworth (original farm name)</td>
<td>Outside study area</td>
<td>Contained residential area in close proximity to port activities and main transport routes, separated by nature reserve (old buffer zone) from Austerville. Adjacent to study area and impacted on by the range of Transnet Options. In South Durban Basin.</td>
</tr>
<tr>
<td>10 Austerville (known as both Wentworth or Austerville)</td>
<td>Outside study area</td>
<td>Residential area in close proximity to proposed port activities and adjacent to the study area. In South Durban Basin</td>
</tr>
<tr>
<td>11 Reunion (Part of Umlazi)</td>
<td>Outside of study area</td>
<td>Small contained residential area adjacent to airport site that would be impacted by port related changes on the DIA site.</td>
</tr>
<tr>
<td>12 Isipingo Beach</td>
<td>Outside of study area</td>
<td>Contained residential area that will be impacted upon by port development on the DIA site. In South Durban Basin.</td>
</tr>
<tr>
<td>13 Umlazi and Lamontville</td>
<td>Outside of study area</td>
<td>Large residential areas adjacent to the airport site and port expansion areas. The eastern portion of these areas lies adjacent to the study area.</td>
</tr>
</tbody>
</table>

**Note:**
Shaded boxes in the table above signify neighbourhoods that fall outside of the Back of Port study area but which lie in close proximity to the Back of Port study area.
## SOCIAL ISSUES IN AREAS LYING ON THE PERIPHERY OF THE BoP STUDY AREA

The value and issues of areas within and on the periphery of the study area (Source: Table 446: of Social Assessment) (Shaded areas outside study area)

<table>
<thead>
<tr>
<th>Zone</th>
<th>Value</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1: Congella, Rosburgh, Umbilo, Samia, Glenwood</td>
<td>Affordable, cost, location, convenience, quiet, peaceful, safe Group that does not like the area</td>
<td>Crime Deviant behaviour Congested roads and trucks</td>
</tr>
<tr>
<td>Zone 2: Bluff, Grosvenor, Fynnlnds</td>
<td>Peaceful, quiet, comfortable, safe, close to beaches, convenient. Close knit, caring community. Close to work, affordable.</td>
<td>Management and maintenance of basic services, crime, pollution from industry, trucks and traffic on roads, housing and informal settlements, facilities for youth.</td>
</tr>
<tr>
<td>Zone 3: Merebank, Wentworth, Merewent, Austerville</td>
<td>Wide range of responses Peaceful, quiet place with nice atmosphere, safe and dangerous, friendly and caring with a strong identity. Family has always been here. It is convenient with good access to services and facilities and transport is reasonable. It is also polluted and noisy.</td>
<td>Reduce pollution of all forms and impact of industry on health. Deal with crime and deviant behaviour, especially drug abuse, maintain services and facilities (parks, community hall) and provide facilities for the youth. Upgrade roads and deal with trucks.</td>
</tr>
<tr>
<td>Zone 4: Clairwood</td>
<td>Convenient with good services and facilities. Quiet, peaceful, nice atmosphere, dangerous, friendly, caring and sociable, polluted and close to the beach. Strong identity due to history. Close to work.</td>
<td>Crime and deviant behaviour, impact of trucks on living environment, industrial pollution, illegal dumping, informal settlements and housing.</td>
</tr>
<tr>
<td>Zone 5: Ocean View Brighton Beach, Treasure Beach</td>
<td>Quiet peaceful place with nice atmosphere dominant, close to the beach, safe, family lives here, Group Areas Act, convenient.</td>
<td>Upgrade of roads and truck routes, deal with dangerous roads, impact of industrial pollution, maintenance of roads, crime and other deviant behaviour, and illegal dumping. Provide parks and facilities for the youth.</td>
</tr>
<tr>
<td>Zone 6: Isipingo Beach, Isipingo Rail, Isipingo Hills (Isipingo rail in study area)</td>
<td>Contrast between a quiet peaceful safe place to live with a nice atmosphere and a dangerous and polluted place. Strong family and neighbourhood ties, convenient area, close to the beach, live with people of the same religion. Strong attachment to place.</td>
<td>Crime, maintenance of municipal services, reduction of industrial pollution. Facilities and sports grounds for youth.</td>
</tr>
<tr>
<td>Zone 7: Lamontville</td>
<td>Convenient with good services and facilities, quiet, peaceful, pleasant place, friendly caring community, Tolerance, diversity, strong identity, close to schools, good access to transport.</td>
<td>Crime and deviant behaviour, municipal services, facilities for youth, poverty and unemployment, improve housing; upgrade roads, pollution and rats.</td>
</tr>
<tr>
<td>Zone 8/9: Jacobs / Mobeni</td>
<td>Close to work, convenient, affordable, secure and safe, close knit community. Lower attachment to place.</td>
<td>Dangerous, crime, housing and overcrowding especially in hostels, need more facilities – sports fields, deal with industrial pollution and impact of trucks, political interference in daily life, rats and maintenance of services.</td>
</tr>
<tr>
<td>Zone 10: Woodlands and Montclair</td>
<td>Quiet, peaceful, nice atmosphere, safe, convenient, friendly close knit community, access to transport.</td>
<td>Dangerous, crime, pollution, maintenance of roads and litter, facilities for the youth and children, deal with traffic and trucks on the roads.</td>
</tr>
</tbody>
</table>

**Note:**
Shaded boxes in the table above signify neighbourhoods that fall outside of the Back of Port study area but which lie in close proximity to the Back of Port study area.
INTRODUCTION

The eThekwini Council is considering the acquisition of the remaining residential properties in Clairwood, and an analysis and understanding of the property market in Clairwood is therefore required, to enable an appropriate acquisition strategy to be determined, and compensation assessed, should the Council proceed with the acquisitions. Such a strategy should ensure that affected residents, are equitably compensated, by taking the logistics/commercial potential of their properties into consideration, and their ability to acquire substitute residential properties in neighbouring residential areas and further afield.

2.0 CLAIRWOOD’S RESIDENTIAL ZONE

The “zoned” special residential area of Clairwood is approximately 100 hectares gross, which reduces to about 90 hectares gross if one excludes the de-facto industrial area to the S.W. of the Amanzimnyama Canal i.e. the Industria Street complex, bounded by the canal, the Inkosi Albert Luthuli Freeway (Southern), the railway line and Teakwood/Balfour Roads.

THE MARKET FOR RESIDENTIAL PROPERTIES

My analysis of sales data over the past four years, reveals that very few properties have been sold in Clairwood for residential use. Mr Rakesh Ramlugaon, Senior Rating Valuer of the Real Estate Department, has furnished KEN DAVIES AND ASSOCIATES CC (Registration No. CK19990364/12/23) VAT REG NO: 4670 192 469 MEMBER: K R DAVIES – B.COMM., MBL FIN (SA), M.D.P. (UNISA), REGISTERED VALUER, me with sales of seven “residential” properties, sold in Clairwood in the three years 2009 – 2011, which The Real Estate Department analysed for valuation purposes, for the 4 year rating cycle with a fixed valuation date of 1st July 2011. These seven sales are set out in Schedule 1 attached.

After inspecting the properties, I am of the opinion that possibly a maximum of 3 of the 7 sales are relevant residential sales, where one can state with confidence, that the motive of the purchaser, was to acquire a property for residential use. However, most of these sales add to our understanding of the property market within Clairwood, which is important.

The three sales are:

1. 91 Houghton Road which sold for R900 000 in November 2010 for a very substantial (building area 248 m²), well maintained home. Rateable Value (R.V.) R690 000. Bonded to Standard Bank R700 000. Site area 1302 m². Price per m² site R691.24.

2. The second residential sale is that of 242 Sirdar Road, purchased for R800 000 in December 2009, with a R.V. of R620 000. A substantial older house of 209 m². A business operates from the adjoining house to the east (also partially used as residential), and the entire length of Sirdar Road to the north-east, between Flower and Persad Roads is used for industry, whilst zoned residential. Site area 733 m². Price per m² site R1091.

3. The third sale is that of 30 Lockhat Road, in extent 705 m², purchased for R180 000 in October 2010. Lockhat Road is only 4.57 wide and is one-way, making it unsuitable for logistics/commercial use. The out-building type structure has an area of 75 m², R.V. R250 000. With a site area of 705 m², the price per m² calculates to R255 per m², probably in keeping with a residential site. This is not the norm as most houses in the road are substantially larger. All of the sites with Lockhat Road forming their northern boundaries have the same/similar areas i.e. 705 m² or 706 m². The fact that there is no bond, the out-building type accommodation, and the purchaser being a sophisticated “family trust” would indicate that this is probably a speculative buy.

An analysis of the remaining four sales is revealing:

The most recent sale (No. 1 at 163 Flower Road), probably highlights the lost opportunity of the seller. This property in extent 1012 m², was sold in March 2011 for R300 000/R296,44 m² of site area (its rateable value). It has an 18.25 metre frontage to Flower Road, and the properties on its rear and side boundaries are used for industrial/commercial purposes, as are the properties on the opposite side of Flower Road. There was a dilapidated/derelict house on the property, which has been re-roofed. It was not occupied at the time of inspection, and whether or not it will be used as an office or a dwelling is unknown. What is clear though, is that the seller did not obtain the price benefit of future industrial/logistics use. Logic says that in this location the price per m² of site area should have been about R850 per m², or R860 000, and not the R300 000 actually obtained, (i.e. only 35% of value), notwithstanding its residential zoning – refer sale 4 below, 17 Horsham Road. The buyer of the Flower Road property was a sophisticated “Family Trust”.

17 Horsham Road, was sold for R1 000 000 in July 2010, and backs onto the Archway Road properties which are all used for logistics/commercial/industrial use. There is an older house of 146 m² on the property, which was purchased for R150 000 in June 2006. At the time of the inspection the house appeared un-occupied, with a number of trucks parked in the yard. The site area is 1151 m² and the sale price calculates to R686,81 per m², which probably reflects the risk discount of acquiring a residentially zoned property for industrial use. The rateable value is R540 000.

Of the two remaining sales, that of 229 Pine Road, at R180 000, is clearly not arms-length sale (Osman to Osman, and with an extended dwelling of 394 m² on a 650 m² site). This dwelling is in good condition and by comparison, with 91 Houghton Road, which sold for R900 000, would have a value exceeding R1,0 million, possibly R1,1 million or higher. On a 650 m² site a price/value of R1,1 million calculates to +/- R1700 per m², twice the current “unzoned” site value, and the owner would probably need to be compensated with reference to residential sales. It is noted that this dwelling backs on to the intensively developed, Houghton Road informal settlement, which would limit the marketability and hence price/value of the property. Whilst the adjoining property, Erf 634 is very similar, houses of this quality and size are the exception in Clairwood.

49 Sir Kumar Reddi Road, on which there is a relatively dilapidated house and outbuildings (166 m²) on a 1343 m² site, sold in September 2009 for R130 000/R36,80 per m². Currently used as a dwelling (tenant/some squatters?). Price paid is for a poor S.R. site (refer Schedule 2 – 49 Sarii Street, R90 000 for 433 m²). With industry extending from Jacobs Road to Sir Kumar Reddi Road to the south of this property, the purchaser must believe that logistics/commercial development will be allowed in the future. It is noted that in only one instance, that of 91 Houghton Road, is there a bond registered (R700 000 Standard Bank), and in the final analysis 91 Houghton Road, and possibly 242 Sirdar Road, are the only two true sales of dwellings in the schedule of seven sales.

THE NON-RESIDENTIAL MARKET AND VACANT LAND MARKET

As we see from 3.0 above, in Clairwood, there are very few residential sales and generally a blurring of the distinction between residential and non-residential. In many instances this blurring or lack of clarity as to whether or not logistics/commercial use will be permitted and eventually result in a rezoning, has in my opinion, led to many sellers pricing their properties using residential criteria, whilst many purchasers, seemingly more informed, have acquired the properties at discounts to their true value/potential, which is sometimes also reflected in the resales of properties, by the purchasers, at far higher prices. A prime example being 17 Horsham Road, purchased in June 2006 for R150 000 and resold on 9th July 2010 for R1 000 000 (Sale 4, Schedule 1) – a 6.6 times increase in price.
From Schedule 2, we will see that 64 Houghton Road was purchased for R165 000 on 6th November 2007, and sold six months later in April 2008 for R800 000 – a 4.8 times increase in price.

The 31st March 2011 sale of 163 Flower Road for R300 000/R296.44 per m² (Sale 1, Schedule 1), is as shown in 3.0 above, another example of a seller not realising the true value/potential of his/her property. This sale can be contrasted with the 17 Horsham Road sale, referred to above, for R1 000 000/R868.81 per m² of site area, and Sale 1, Schedule 2. 48 Ganesh Road, which sold for R850.94 per m² (R757 000/876 m²) as vacant (and on 4th May 2011 (this property was previously purchased on 23rd September 2010, for R375 000/R554.73 per m²).

The evidence overwhelmingly indicates that 163 Flower Road, possibly sold for about 35% of its true realisable value, and supporting this conclusion, we note that 21 months earlier, on 15th June 2009, vacant land at 90 Houghton Road (Sale 6, Schedule 2), sold for R900 000/R91.24 per m² (1302 m²), exactly the same price as the large dwelling at 91 Houghton Road (Schedule 1, Sale 2), and even earlier in May 2008, 77 Sirdar Road (Schedule 2, Sale 6), sold for R842.65 per m².

CONCLUSIONS

Notwithstanding the residential zoning of Clairwood, most purchasers, if not sellers, now realise the logistics/commercial potential of Clairwood, and if necessary are prepared to pay for that potential.

From sales analysed in Schedule 2, the optimum prices of residential zoned land, suitable for logistics/commercial use, is in the range +/- R 850 per m² to +/- R870 per m² of site area, with a sale at R842.65 per m² taking place as early as May 2008. By way of contrast only R96.80 per m² of site area was paid for 49 Sir Kumar Reddi Road on 16th September 2009, and as late as 31st March 2011, only R296.44 per m² paid for 163 Flower Road.

Should Clairwood be zoned logistics/commercial, even with its present, generally poor infrastructure, I am of the opinion that prices would generally fall in the range R1000 per m² to R1250 per m², with those sales fronting the main roads and closer to Solomon Mahlangu Drive (Edwin Swales), at the upper end of the spectrum, and reducing for smaller and internal sites, and sites fronting narrow roads, such as Lockhat Road, which is only 4.57 metres wide, and one-way, which would need to be consolidated with other sites. Fully serviced with widened roads, adequate storm water etc., the probable price range would be R1500 per m² to R1750 per m². Current demand is generally for very large logistics sites i.e. 10 ha – 20 ha, and the higher prices would be applicable to smaller sites.

Note (1): It is mainly the northern segment of Clairwood bounded by the Mhlatuzana Canal and Solomon Mahlangu Drive that is affected by the 1:100 year flood line, which lies to the south of Sirdar Road between Persadh Road and halfway between Ganesh and Flower Roads.

IMPLICATIONS FOR ACQUIRING /FAIRLY COMPENSATING OWNERS OF RESIDENTIAL PROPERTIES IN CLAIRWOOD.

Site Sizes

5.1.1 To the West of Persadh Road

The majority of residential properties to the west of Persadh Road are in excess of 1000 m², the median possibly 1302 m², and at a current "unzoned" value of say R850 per m², would achieve R1 106 700, say R1.1 million, probably more than most of the dwellings are worth (highest recorded residential sale R900 000). At R1000 per m² to R1250 per m² i.e. assuming the relevant logistic/commercial zoning is in place, values would generally fall in the range R1 302 000, say R1.3 million to R1 627 500. At these levels most owners would have a wide choice of areas to which to relocate.

However a relatively small number of properties fronting Sastri Road, and Pine/Sir Kumar Reddi Roads, have been subdivided (minimum plot size 400 m²), and those with houses, even at the upper end of the spectrum of "zoned" value i.e. R1250 per m² or R500 000 would probably need to be compensated on a residential basis (2).
5.1.2.5.2 Block bounded by Ganesh, Houghton, Flower and Pine Roads.
This block has large variations in site sizes, with the large sites 621 – 623, each of 1336m², fully developed with informal dwellings. Generally though the sites fronting Houghton Road are 686 m², and those fronting Pine Road 650 m². We see from Schedule 1, Sale 5, 229 Pine Road, that some of the houses fronting Pine Road are large – in this instance 394 m², and whilst these are exceptions those owners, to replace the building area (multi-family?), would have difficulty.

5.1.2.5.3 Block bounded by Ganesh, Pine and Flower Roads.
The smallest site is about 611 m² i.e. Rem. of 1 of 687, with the balance all significantly larger (next smallest 681 m²), and again adequate compensation probably requires R1 000 per m¹2 – R1 250 per m² of site area.

Summary and Conclusions.
In general terms, the “market” derived rate of R850 per m² of site area, for a residential zoned site in Clairwood, should adequately compensate the majority of residential owners in Clairwood, and specifically all those owning properties to the west of Persad Road, where the median site size is 1302 m².

However the major difficulty will lie in compensating those to the east of Persad Road, and specifically the area bounded by Persad, Sirdar and Flower Roads, about 16 hectares, 195 properties of which +/- 125 are residential, where the median site size is 696 m² (average about 700 m²). At R850 per m², compensation on a site basis is R591,600, i.e. R600,000, which is at the bottom of the spectrum of values of acceptable substitute properties i.e. R600 000 – R750 000. Such properties are to be found as close as Grosvenor (Bluff), or as far afield at Tongaat and Verulam. Adequate compensation for most would probably come at R1000 per m² for the smaller site owners, and the bonus/incentive to co-operate at R1250 per m² of site i.e. R870 000 for a 696 m² site. The expropriation benefits would add a minimum of R41 100 at the figure of R870 000. This would allow for the owner to purchase one of the better houses in Grosvenor on the Bluff, or in Verulam or Tongaat. There are however a number of large houses, with limited market appeal/value in this location e.g. 229 Pine Road, with a floor area of 394 m², but with a market value probably not much in excess of R1,1 million (650 m² site/R1700 per m²).

14th FEBRUARY 2012
NOTE: RATES AND RATEABLE VALUES
For the year ended 30th June 2012, the following rates randages apply:

<table>
<thead>
<tr>
<th>Use</th>
<th>Cents/Rand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential:</td>
<td>0.907</td>
</tr>
<tr>
<td>Business and commercial:</td>
<td>2.057</td>
</tr>
<tr>
<td>Industrial:</td>
<td>2.655</td>
</tr>
<tr>
<td>Vacant land:</td>
<td>4.345</td>
</tr>
<tr>
<td>Unauthorised/Illegal Use :</td>
<td>4.345</td>
</tr>
</tbody>
</table>

Clairwood is zoned for residential use and the majority of the properties appear to be valued on this basis, although many of the properties are rated business commercial. I am of the opinion that those properties used for business commercial purposes should also be valued as such, even if such is not authorised.

The rating of the properties as commercial would see a more than doubling of rates (0.907c/R to 2.057 c/R plus no residential reduction of R120 000 per property, before rates are applied).

On the question of value, an examination of the seven “residential” sales of Real Estate, we note that the total rateable value is R3,44 million or R491 430 per property including buildings (R498,84 per m²). The total area of the sites is 6896 m², an average of 985,14 m². Assuming the R120 000 reduction per property i.e. R840 000, leaves rates to be paid on R2,6 million at 0.907c/R i.e. total rates R23 582 or R3 386,86 per property per annum.

If the properties were all used and valued as business/commercial legally, i.e. a minimum of R850 per m² of site (no rezoning), the total value disregarding buildings would be R5 938 100 (6896 m² x R850). Rates payable R122 146,72, or an average of R17 449,53, a 5,18 times increase on current residential rates.

Assuming the properties are all zoned and used as logistics/commercial at say R1125 per m² (average of range R1000 per m² – R1250 per m²), the 7 properties would be worth a total of R7 758 000 (R1125 x 6896m²), and rates at 2,057c/R a total of R159 582,06, 6,77 times current residential rates payable of R23 582 p.a.

NOTE : LOGISTICS/COMMERCIAL SITE VALUES.
In September 2009 prices in Riverhorse had fallen to their lowest level e.g. Portion 192 with a platformed area of 10 377 m² selling for R1 100 per m², and Portion 140 with a platformed area of 13 713 m² selling for R1 200 per m².

From that point the market began to improve slowly and on 3rd November, Portion 143 of Riverhorse sold for R1 650 per m² (3 161 m² net) – sale by Thynk – however note relatively small area.

2010

There was increased demand in 2010 although the market was not buoyant.

On the 15th February, Thynk sold to Unilever Portion 157 (of 125) of Erf 1 Riverhorse, in extent 7,784 ha net for R1 400 per m² – refer Drawing No. 5611 A/SP2/OPT5/C date June 2010 attached. This is a R.O.W. site and taking the R.O.W. into consideration, the value of the “body” of the site calculates to about R1 485 per m².

In August 2010 both Portion 158 (of 125) of Riverhorse in extent 1,599,76 ha net at R1 325 per m² and Portion 159 (of 125) of Riverhorse in extent 2,373 ha net sold for R1 395 per m². In respect of Portion 158 note awkward, almost triangular shape and for Portion 159, limited frontage and S & D servitude.

On 27th August 2010, Portion 134 of Riverhorse, was sold for R99 911 480,56 (8,549 ha net)/R1168,61 per m². It was however reported that Zemprop paid a total of R104 000 000 or R1216,43 per m². This is a superior site to the Uniliever site and probably reflects the pressure the seller was under.

In September Portion 191 of Riverhorse was re-sold for R24 918 120 inclusive or R21 858 000/R1 500 per m² of net of vat for 14 572 m² of platformed area. We were advised that the purchaser actually paid R1 600 per m².

To the north in Canelands, Checkers acquired Erf 224 in March 2010 from THD (bulk undeveloped site +/- 15 ha net once developed), and in June 2010 paid R740 per m² for a 4,3340 ha site and in September 2010 R775,20 per m² for a 2,2044 ha site.

In Mt Edgecombe, in November 2010, 1,7404 ha, Portions 2,3 and 4 of 3196, were sold for R1000 per m².

2011

2011 started off well with Portion 101 Riverhorse (above the hospital), selling for R2988,85 per m² of platformed area (R47 million/R1,583 ha) in January – the relevance of this sale for industrial purposes, is however questionable. This property was originally sold in late 2007 for R2021 per m².
In March 2011, R1750 per m² was obtained for Portion 55 of Riverhorse with a net area of 2977 m² – the highest price achieved by the township developers. Outside of Riverhorse there were relatively few sites, but a reported share transaction in mid-2011 yielded the highest price in Phoenix i.e. R1550.94 per m² of site area (4191 m²) for Portions 2, 3 and 12 of Phoenix Industrial Park and Erven 1360 and 1361 of Redfern.

Also mid 2011 (June) saw 2 small sites in Stonebridge (Southgate) achieving R1320 per m² (1462 m² and 1340 m²).

New highs were also achieved in the central/southern areas in the last quarter of 2011, with 2 Willcox Road, Prospecton (Erf 411 Isipingo) in extent 2,6637 ha achieving R1897.72 per m² on 27th October. Buildings to be demolished. Purchasers from India and paid premium, indicative of scarcity in Southern Industrial Basin.

In November an offer of R20 million/R2098 per m² was made for a property at 208 Gale Street (Erven 7079 and 7080 Durban) in extent 9531 m². Buildings to be demolished. Rode’s Report 2011:4 has a headline “Values of industrial stands struggling” i.e. similar to industrial rentals showing poor to moderate growth – however stand values in Durban (+9%) showed the strongest growth in the third quarter of 2011”.

Market information is that R1500 per m² is the price value determined by the purchaser/developer of the Clairwood Race – this is for very large warehouse/logistic sites i.e. generally 10 ha – 20 ha.
1 INTRODUCTION

1.1 STUDY AREA
The study area was defined by the terms of reference provided by the eThekwini Municipality. This was expanded during the project period through discussion between the Project Team and the Municipality.

The original terms of reference highlighted four areas of focus which make up the study area. The four areas are: Clairwood, Congella, Jacobs and Mobeni respectively.

During the study Merewent and the old airport site were added to the study area.
The areas of Clairwood, Congella, Jacobs, Mobeni and Merewent defined the areas for which zoning proposals were required.

The Study Area is indicated in Figure 1.

1.2 PROJECT OBJECTIVE
The overarching objective of the Study was the preparation of a Local Area Plan for the Back of Port Interface Zone as defined by the Study Area.

1.3 PROJECT STRUCTURE
The Study was structured around the following deliverables;
• Inception Report
• Situational Analysis
• Best Practice Report
• Conceptual Plan
• Spatial Framework
• Local Area Plans

1.4 ENVIRONMENTAL PLANNING TEAM
Environmental Planning Input was provided by:
• Jon Marshall of Environmental Planning and Design who was responsible for coordinating environmental input and for research and advice regarding; Biodiversity, Geology, Hydrology and Water Quality
• Peter Butland of COEX Environmental Planners who was responsible for research and advice regarding; Air Quality.
• Debbie Mitchell of ISHECON who was responsible for research and advice regarding risk due to industrial processes and storage.

1.5 ENVIRONMENTAL PLANNING ROLE
The Inception Report confirmed the approach, methodology, source documents and deliverables.
It was confirmed that the environmental team would:
• Record the existing condition of the environment;
• Investigate lessons learnt from other areas;
• Outline environmental opportunities and constraints; and
• Guide planning towards a solution that maintains key environmental qualities.

The Inception Report also confirmed that the Environmental Planning Team would interact with the project team at critical points in the project to review plans and highlight potential environmental issues and suggest possible mitigation strategies.
Areas of research and advice were also confirmed as;
• Biodiversity
• Geology
• Hydrology
• Water Quality
• Air Quality
• Risk due to industrial processes / chemical storage.

Due to the wealth knowledge available, it was confirmed that the study would make use of existing information including;
• The South Durban Strategic Environmental Assessment.
• Durban Metropolitan Open Space System (MÖSS).
• Environmental Impact Assessment applications that have been undertaken for developments within the area.
• eThekwini Municipality’s monitoring data which includes air and water quality information.
• eThekwini Municipality’s Major Hazardous Installation Notification Records.

1.6 PURPOSE OF THIS REPORT
The purpose of this report is to;
• Provide an overview of findings from research undertaken for the Situational Analysis and Best Practice Reports
• Provide an overview of project recommendations.
• Outline the environmental issues arising from the project
• Provide an overview of environmental planning responses
• Provide detail of additional environmental management measures that will be necessary to address issues that are likely to arise.

It should be noted that without this document it is possible that the environmental management measures that typically do not reflect in the spatial planning may be forgotten.
This document should be read in conjunction with the Situational Analysis, Best Practice Report and Spatial Plans.
ENVIRONMENTAL PLANNING SYNOPSIS REPORT

Client: ETHEKWINI MUNICIPALITY

Notes:
Data Source: IYER
Map for discussion.

Revisions:

DURBAN BACK OF PORT
STUDY AREA BOUNDARY
figure 1

Indian Ocean
2 EXISTING ENVIRONMENTAL SITUATION

The Situational Analysis (August 2009) provides detail of the current environmental situation. It is not intended to repeat this detail but to provide an overview of findings.

2.1 BIODIVERSITY

The biodiversity value of the Back of Port area is high due to;

- The large areas of undeveloped land that exist around the airport and Clairwood Race Track. Whilst on initial observation this has limited biodiversity attributes, its main value is due to;
  - The fact that it is a large expanse of open grassland within an extensive and densely developed urban area. This provides birds migrating across the urban area with a potential roosting, feeding area. The value of open areas of grassland close to the coast is also increased due to the fact that coastal grassland habitats in KwaZulu Natal have been severely depleted by development and agricultural activities.
  - At Clairwood, the open area of grassland and surrounding trees are used by numerous bird species.
  - The Clairwood site is known to have a number of groups of a plant species that was previously thought to be extinct in the wild.
  - There are thought to be areas of wetland on within Clairwood and surrounding the airport site.

- The extent of relatively undisturbed coastal dune.
- The number of estuaries, water courses and wetland areas.
- The general lack of open coastal grasslands within the Municipal area and the extent of coastal grassland within the study area which includes the Clairwood Race Course as well as the Durban International Airport and surrounding areas.

The Ezemvelo KZN Wildlife C-Plan provides an indication of the endangered species that exist within each 2km square area of the Province. It also provides an indication of the importance of retaining open space within each area. The C-Plan indicates that habitat types within large sections of the study area are irreplaceable and that mandatory or negotiated reserve areas are required to be retained. It also indicates that the following endangered species are likely to occur in the area;

- Centrobolus anulatus (Ringed millipede)
- Doratogonus cristatus (millipede) is indicated on the Red Data List as a threatened species.
- Kniphofia pauciflora (miniature red hot poker) is indicated on the Red Data List as extinct but is known to exist on at least one site in the study area.

In addition to the species listed above, the area is known to be home to Bradypodion melanocephalum (Black-headed Dwarf Chameleon). This endangered species is relatively prolific in the area. It is understood that a number of chameleons have been transferred to this area under the guidance of Ezemvelo KZN Wildlife in order to protect them from developments in other areas. This area has been used for relocation due to the fact that there is known to be a large existing population in the area and because the habitat is suitable.

Due to the extent of wetland, the area is also likely to be critical for amphibians. Because of the biodiversity importance of the area, in addition to designated MOSS areas, it is possible that any undeveloped sections of land could prove critical and require retention.

In order to provide an assessment of the possible extent of undeveloped land that could be required, Figure 6 indicates areas in addition to current MOSS areas that are known to be wetland / grassland and where rare and endangered species are suspected.

2.2 WATER QUALITY

Research indicates that sewage is a significant intermittent source of pollution of water courses within the study area. Pollution from industrial effluent may also be occurring. This is difficult to identify from the test results as each pollution event is likely to result in different elements entering the drainage system. Where an industrial spill is suspected it is understood that the Municipality undertakes testing that is specifically designed to identify potential pollutants. Personal observation of current conditions in the Back of Port area also indicate the following problem areas;

- The cleaning of trucks occurs in roadside parking areas. The wash water and suspended matter from these operations is washed directly into roadside drains from where it drains directly into water courses and ultimately the harbor. These cleaning operations also appear to be causing / exacerbating the blockage of drains and poor water quality.
- There are numerous old and unregulated below ground fuel tanks some of which are probably leaking fuel into groundwater and adjacent water courses.
- The maintenance of heavy goods vehicles occurs in an informal manner on many roadsides in the area. This is likely to result in spillage of oils and fuel that will drain into the harbor via road drains.

2.3 AIR QUALITY

Research indicates that;

- While annual average SO$_2$ concentrations are below the Limit Value (LV), there are occasions when exceedances are measured over short time periods, posing a health threat in certain areas.
- Highest SO$_2$ concentrations are measured in the Sapref and Merewent areas; this is mainly related to proximity of heavy industry relative to predominant winds and topography. Strong gradients are evident away from this area and areas falling within the BoP area do not experience as high concentrations.
- SO$_2$ is mainly related to industry and ongoing efforts to reduce emissions have resulted in a progressive decrease in SO$_2$ concentrations.
- There is less variability in PM$_{10}$ concentrations, and annual averages are close to the limit value, and exceeding it at the kerbside Ganges station. The daily average LV for PM$_{10}$ is exceeded at all stations, with most exceedances occurring during winter. PM$_{10}$ is at saturation level within the SDB and BoP area, however there has been a progressive reduction in smoke over the past 10 years.
- NO$_x$ concentrations are higher at roadside locations and approach the annual limit value. Exceedances of the hourly average LV have been recorded, mainly during the morning associated with peaks in traffic and poor dispersion conditions.
- Pollutant concentrations are generally higher in winter, related to poor dispersion conditions.
- Odours are problematic in certain areas, mainly local to sources such as the refineries, Southern Sewage Works and Island View complex, however offensive odours have also been recorded from BOP areas and this should be considered in planning.
- Ozone, CO and lead are not considered as problematic, however annual average benzene is close to the target value and is of some concern, particularly at kerbside areas.
- The synergistic effect of pollutants in combination may result in higher risk and increased health impacts and should therefore be considered in planning.

IYER

Graham Muller Associates
2.4 RISK
There are approximately 40 major hazard installations in the study area or in close proximity. This is one of the largest concentrations of hazardous industries in eThekwini.
There are potential releases of toxic gas that can arise both within the study zone or can extend into the study area from outside. The most significant gases are:

- Ammonia from various refrigeration facilities within and close to the study area e.g. South Africa Breweries, Durban Fresh Produce Market, Fresh Produce Terminal, Maydon Warf Cold Storage, Bay Head Cold Storage.
- Hydrogen fluoride and hydrogen sulphide from the two large refineries, ENGEN and SAPREF, adjacent to the study area.
There are potential fire and explosion scenarios that can occur within the study zone. Most of these are associated with LPG installations at various factories, e.g. Feltex Automotive, Dunlop etc or with bulk hydrocarbon storage facilities such as the solvents at Valspar or Revertex or ethanol at Illovo Sugar etc.
There are large concentrations of hydrocarbons, such as LPG, crude, alcohols etc, at various facilities just outside the study area which can impact with fires and explosions into the study area, e.g. SAPREF, ISEGEN, Island View Complex, NATCOS at the airport etc.
There are numerous hydrocarbon pipelines running through the area, e.g. Sasol Natural Gas, ENGEN Crude, SAPREF LPG etc these also pose fire and explosion hazards.
Although the consequences of potential accident scenarios can extend over large parts of the study area, the likelihood of these accidents occurring is low and therefore the risks are low.

The risks over the entire study area are suitably low to allow for industrial type developments that would typically be associated with back of port activities. There may however be some restrictions on the population density at these facilities if they are located within 0.1 – 0.2 km of small MHI’s (e.g. Valspar, Durban Fresh Produce Market etc) and 0.5 – 1 km of large MHI’s (e.g. SAPREF, ISEGEN).

In this regard the area of the current airport would require the most attention to ensure minimization of risks to possible future activities.

MHI type risks in the residential areas of Merewent West and Clairwood are not unacceptably high but are also not as low as would be ideal for residential areas. The conversion of these areas to industrial areas would likely reduce the overall societal risks.

2.5 CONTAMINATED LAND
Contaminated land falls into two categories;

- Contaminated waste sites the extent of which is relatively well known and documented.
- Contamination from existing and historical industrial operations, the extent of which is not known.

Contaminated waste sites are contaminated with industrial waste including chrome and liquid waste. Contamination from industrial activities could occur anywhere within industrial areas of South Durban. In order to understand the likely type of contamination, it is necessary to review the operations that have been undertaken as well as the materials used and stored on each site.

Contamination is not likely to prevent development, however, it could necessitate rehabilitation before work can proceed which may add significant cost and time to development.

2.6 HYDROLOGY
The rivers and streams of South Durban that bisect the study area include; Amanzimyana, Umhlathuzana / Umbilo, Umlazi and the Isipingo / Mbrookodweni. All watercourses have been considerably modified by development. This modification takes the form of canalization through the study area.

In areas canalization has been designed to relatively low standards. The Umlazi Canal has been designed to approximately 1.25 year flood levels. This means that areas adjacent to the canal and particularly the lower sections of the canal are subject to flooding during extreme conditions.

Areas that are most subject to flooding and / or coastal erosion are indicated in the Situational Analysis. The research indicates that in addition to areas adjacent to the Umlazi Canal, large areas of the study area close to the Umhlathuzana, Umbilo and Mbrookodweni are also subject to flooding.

From review of the information available it appears that flood lines have been calculated only for the larger rivers. It is likely that the canals and streams that flow through the area will also flood during periods of heavy rain. It is possible therefore that flooding could be more extensive than indicated.

In terms of potential coastal erosion only a small strip which includes existing coastal dunes to the east of the current airport is affected.

The Municipal State of the Environment Report for 2003/4 highlights the fact that water quality in the Isipingo River, the Umlaas, Durban Bay, the Mhlathuzana and the Umbilo catchments was poor.

The 2006 State of Rivers Report also highlights the following impacts and threats associated with each river system;

<table>
<thead>
<tr>
<th>River</th>
<th>Impacts and Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>Umbilo</td>
<td>Poor water quality from upstream catchment activities affecting the aquatic biota of the river.</td>
</tr>
<tr>
<td></td>
<td>Alien weeds in the riparian zone.</td>
</tr>
<tr>
<td>Umlaas</td>
<td>Minimal (poor) integrity of the instream and riparian zones due to the concrete canal.</td>
</tr>
<tr>
<td></td>
<td>Poor water quality from upstream activities.</td>
</tr>
<tr>
<td></td>
<td>The canal acting as an effective barrier to migration for those species dependant on getting to and from the sea/freshwater for various stages of their life cycle.</td>
</tr>
<tr>
<td>Isipingo</td>
<td>Treated and intermittent effluent discharge to the river.</td>
</tr>
<tr>
<td></td>
<td>Pollutant loads from upstream activities</td>
</tr>
<tr>
<td></td>
<td>Alien weed infestation of the riparian zone.</td>
</tr>
<tr>
<td>Mbrookodweni</td>
<td>Raw sewage pollution inputs.</td>
</tr>
<tr>
<td></td>
<td>Alien aquatic weeds covering the water surface.</td>
</tr>
<tr>
<td></td>
<td>Indiscriminate and uncontrolled solid waste disposal along the river banks and into the riparian zone.</td>
</tr>
<tr>
<td></td>
<td>Uncontrolled sand mining and lack of rehabilitation of historically mined areas.</td>
</tr>
<tr>
<td></td>
<td>Alien terrestrial weed invasion of the riparian zone, particularly in disturbed areas.</td>
</tr>
</tbody>
</table>

The review indicates that all catchments within the study area are under pressure. The main problems appear to be pollution and poor water quality as these issues affect all catchments.
OVERALL PROJECT PLANNING RECOMMENDATIONS

3.1 PORT PLANNING

Planning proposals have been compiled against the background of significant changes that are proposed by the Port Authority. These include both an extension of the existing port facility into the Bayhead area at the southern end of the existing port as well as a new port facility that will require the majority of the old Airport Site in South Durban. The timing and order of these proposed extensions has not been confirmed although at the time of reporting it was understood that the Old Airport Site might be the first area of development and that this may be required by 2020. Given the significant lead time for such a major project, this could mean that construction may be required to commence within five years. From discussion with the planning team it is understood that both port extensions will be required in the future.

Planning proposals are also undertaken against the background of current port operations which see port access and transportation issues as being major constraining factors leading to operational inefficiencies and major traffic congestion within surrounding areas which brings with it air quality, risk and nuisance problems for local residents, road users and businesses.

Uncordinated development and lack of enforcement in recent years has also seen development occurring that is incompatible with its neighbours. The growth of logistics operators and container storage depots in close proximity to residential areas and wetland are obvious problems.

Back of Port Planning has therefore focused on:

- In the short term, addressing existing conflict areas particularly transport and areas of conflicting use in order to minimize their impact on existing port operations.
- In the medium term, ensuring that the Back of Port configuration enables each port extension option to operate efficiently irrespective of which option is developed first.
- In the long term, ensuring that the Back of Port configuration enables the full envisaged port development to operate efficiently.

The main proposed planning interventions include:

1. Rationalising and separating port related and local traffic routes. This should ensure that port related traffic will be kept out of residential areas and should speed simplify port operations allowing quicker access for container traffic in particular.
2. Ensuring that there is a direct dedicated truck route linking the existing port to the National Road System. This will also help with port access allowing quicker access for goods into and out of the port.
3. Ensuring that there is a direct and dedicated truck route linking the separate future port developments. This should help to maintain i and ii following the full envisaged port expansion and should help the separate port areas to be operated as one entity.
4. Modifying zoning within the relatively low land value and low job employment level area of Mobeni from industrial to logistics uses. It is envisaged that this will provide approximately 750ha of logistics space compared with the 770ha that is estimated to be required by 2043. This should enable the logistics companies that are critical to efficient port operations to establish in close proximity to and with easy access to the port areas.
5. Rationalising conflict areas particularly Clairwood where a large number of transport operators have established within the residential area. The proposed rationalization includes acceptance of existing uses and possible protection of the core residential area.
6. Encouragement of business uses (particularly port related) into buffer areas between existing residential areas and proposed logistics areas.

Figure 2 indicates the extent of the proposed port development areas. Figure 3 indicates proposed transportation links. Figure 4 indicates the extent of proposed logistics areas. Figure 5 indicates the full planning proposal.

RELATED DEVELOPMENT

The proposed Port expansion and BoP planning will result in related development outside the project area. This is likely to include:

- The growth of existing industrial areas and possibly the development of new industrial areas in order to accommodate industry that will be displaced by the expansion of the logistics sector within the BoP. This displacement is likely to be a gradual process that will occur over tens of years. Because it is not possible to be specific with regard to either timing or location it is currently only possible to note this issue.

The development and upgrading of key infrastructure that will help to support the BoP and Port areas. This should include both rail and road links. These infrastructure developments could have significant impacts, however, because they are largely unplanned, currently it is not possible to address them in any more than general comment in this process. One such link that has been raised in some detail during the planning process is the proposed Umhlathuzana Link Road that will initially provide dedicated access for heavy vehicles between the Port and the N2 Freeway. It is intended over time that this is extended to link with the N3 in the vicinity of Cato Ridge. Whilst the development of the full link is not likely to happen in the near future, the immediate link between the Port and the N2 are seen by the study as critical to the resolution of some of the traffic issues associated with the current BoP and surrounding areas. Because this is seen as a critical element it has been addressed by this document.

An approximate alignment for the proposed Umhlathuzana Link Road is indicated in Appendix III.
FIGURE 2 – PROPOSED PORT EXPANSION AREAS
FIGURE 3 – PROPOSED TRANSPORTATION LINKS
FIGURE 4 – PROPOSED LOGISTICS ZONING
ENVIRONMENTAL ISSUES
- There are three characteristics of the study area that are critical to the local environment. They include;
- Originally, most of the study area was at or near sea-level and was largely comprised of wetland and water courses. It therefore supported many naturally rich habitat areas. The land and water systems of the area were drastically altered at or around 1952 to create the site for the airport as well as usable industrial land. The rivers were canalised, the Bluff dune was cut through to divert the Umzali River away from its original outlet at Isipingo, and the wetlands were drained. Implications of this for development include;
  - Remnant areas of wetland and key habitats remain outside the existing development footprint.
  - Whilst the area was drained, standards for large sections of the study area particularly around the existing airport and Clairwood are not sufficient for general development of the area. It is likely that significant additional infrastructure will be required to enable development.
  - The fact that the study area is located on the floor of a basin that was originally wetland has resulted in a high water table being present over large portions of the area.
  - The social history of the area has placed residential land uses close to the busiest port in Africa and within a matrix of manufacturing, chemical processing industries and a network of strategic infrastructure. This has resulted in numerous areas where residential areas are impacted directly by industrial risk, heavy traffic, ground / ground water pollution, noise and air pollution. Implications for further port and industry related uses include;
    - There is potential for exacerbation and entrenchment of existing impacts on residential areas.
    - Major development or restructuring of the area could meet with opposition from local people.
  - The landform surrounding the study area is a natural basin. Valley lines enter the basin from the north connecting with other industrial areas. Particularly during winter months when winds are relatively light, this landform traps emissions from local industry as well as emissions that flow down valley lines from other areas. This combination of weather patterns and topography make the area prone to air quality impacts.

To aid integration into the planning process, the review of all study issues was organized into National, Provincial, Metropolitan and Planning area context. The environmental issues are arranged in this format below. A detailed assessment of each issue is included in Appendix I.

NATIONAL CONTEXT
Environmental issues of national importance and beyond relate to biodiversity. The degraded coastal grasslands and wetlands in the vicinity of the airport site provide habitats for several rare and endangered species. Should the airport be developed as a port, the continued existence of these species will be under significant pressure.

The importance of these species and the need to ensure their continuation will mean that it is likely that mitigation in the form of;
- maintaining all remaining areas of potential habitat, and
- provision of significant areas of new compensatory reserve.

PROVINCIAL CONTEXT
Environmental issues of Provincial importance also relate to biodiversity. The possible threat to remnant habitat areas including degraded grasslands and wetlands from the proposed Umhlatuzana Link Road, Bayhead Port extension, and associated Back of Port development will place pressure on rare and endangered species although not to the same extent as the proposed development of the airport site.

The importance of these species and the need to ensure their continuation will mean that it is likely that mitigation in the form of;
- maintaining all remaining areas of potential habitat, and
- the provision of significant areas of new compensatory reserve.

METROPOLITAN AND SOUTH DURBAN CONTEXT
Environmental issues of metropolitan and south Durban importance include;
- Water quality problems associated with intermittent sewage and industrial effluent spills. These problems generally emanate from outside the study area. There is also potential for Back of Port development to further exacerbate the current situation. If water courses are likely to be used for recreational / social purposes it will be necessary for water quality to be improved to acceptable levels. In order to achieve this, the issue will have to be addressed on a catchment basis which is likely to mean that work outside the Back of Port area is necessary.
- Air quality problems relating to dust and vehicle emissions particularly associated with the development of the Bayhead and airport site areas. It is possible that an increase in trucks passing through and parking in the area could exacerbate existing levels of dust and vehicle emissions. The streamlining of traffic flows and parking of truck and container parking areas could help to mitigate this potential problem.
- Air quality problems relating to SO2 emissions is associated with industry around the airport site. The berthing of ships in close proximity to other existing SO2 emitters could exacerbate SO2 levels in the area. It is important that additional potential emitters of SO2 are not introduced into the area.
- Relatively high industrial risk areas associated with residential areas of ferreent West and Clairwood. Levels of risk are not unacceptably high however they must not be exacerbated by further industrial development and a reduction would be beneficial. Planning must address this issue.
- The low lying nature of much of the South Basin means that the area is affected by a high water table and is prone to flooding. This has been addressed by a series of drainage canals throughout the area. Areas remain, particularly around the airport site where flooding and a high water table remain as potential problems for development.

PLANNING AREA CONTEXT
Environmental issues that are only relevant to the Planning Area include;
- Water quality issues associated with the existence of many old fuel tanks many of which are below ground and close to the harbour and water courses. It is important that these are monitored and replaced as necessary. It will also be important for the Municipality to be vigilant over approvals for new tank installations that are likely to occur with an increase of transport operations in the area.
- Water quality issues associated with maintenance and washing of trucks in the Back of Port area. Of particular concern is the washing of material through stormwater drains directly into water courses and the harbour. There is a major need for proper washing and maintenance facilities and for enforcement to curtail this problem.
- Water quality issues associated with bulk goods handling operations. Breakages in handling often result in chemicals and organic materials being washed into the surface water drainage system.
- Existing industrial risk that could limit development opportunities on and around the airport site. This will generally affect possible port areas and will limit uses on the eastern side of the new harbour to low intensity uses. These operations need to be monitored and drainage systems need to be upgraded in order to address this issue. In terms of new Back of Port development, the need to safeguard drains and water courses from these operations should be made clear in development / use conditions.
- There are likely to be limited but numerous areas of ground contamination due to the large area of small and relatively unregulated industrial operations. It will be important to undertake a detailed land audit prior to resolving and approving development plans.

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BEST PRACTICE

The Best Practice Report researched the methods that have been employed to address similar issues in other port developments around the world. Appendix II details the best practice case studies used as well as their relevance to Durban.

Research indicated that legal requirements for development in a port environment are likely to be stringent. This is due to the fact that these are generally areas with significant social and natural environmental pressures in addition to being important areas of economic activity. The case studies have indicated that development approvals can take long periods of time and are likely to require commitment to extensive mitigation.

Particular concerns including air quality, noise, and protection of natural assets will need to be addressed in moving forward planning for Durban’s Back of Port.

Research into existing ports provides a clear indication that due to development pressures, port and port related development around the world is becoming more integrated with both social and natural environments as it can no longer afford to exist within historic boundaries. Whilst management detail may differ there are major areas of common approach to the environmental challenges that arise from development pressures. These include:

• There is a realisation of the importance of natural elements within port areas and the fact that management of areas needs to be linked. In the case of San Diego (USA) the port authority undertake work outside their designated boundary in order to ensure that key natural areas not only survive but flourish alongside port operations. Numerous port authorities undertake monitoring of key assets in order that the impacts of their operations can be understood and if necessary adjusted.

• The Port of Bristol (UK) appears to have gone further than most other ports in that it has actively developed natural corridors, created habitats and reintroduced endangered species into the port area.

• Pressure for development is another common feature. This has been addressed by both extension as well as by relocation of facilities. Where relocation has been the approach such as in Sydney (AUS), the reclaiming and reuse of waterside property has had major benefits for the city.

• Where extension has been the strategy, the need to compensate for loss of habitat areas due to port related development is a common concept. In many areas this has tied port authorities to long term management commitments and safeguarded extensive areas from future development.

• The need for transparency and in some areas encouraging positive public interaction with the port environment has been a common approach in many major ports. Strategies range from encouraging public access for recreation and education to undertaking regular consultation over key issues and circulation of newsletters. In addition to making use of an important public asset, this approach appears to help to avoid misunderstanding and in the some cases enables minor modifications to operations to be made in order to provide major improvement in conditions for neighbours.

• Another common feature seems to be port authorities working with Municipalities and other key stakeholders to address development related impacts. This has been done Kaohsiung (Taiwan) to retro-fit a public waterfront area to the port, there are also numerous examples of traffic congestion and noise issues being addressed in this manner.

• Port authorities are proactive in helping operators and tenants achieve desired environmental standards and objectives. This is achieved through specific advice as well as issuing publications to address specific issues.

• Minimising and creating efficiencies in use of resources also appears to be a common theme amongst major port operations. A variety of methods are being used including the generation of power through wind turbines, offsetting through carbon credits, encouraging efficiencies through publications and extensive recycling.

RESPONSE TO ISSUES

AIR QUALITY

AIR POLLUTION FROM INDUSTRY

Research has indicated that air pollutant levels, particularly SO$_2$, generated by industry in South Durban have reduced significantly over the last ten years. This can be attributed to pressure exerted by local communities and management initiatives by both local industries and the Municipality. Whilst there may be occasional short term exceedences, research indicates that annual averages are consistently below National Guideline Levels.

BoP planning proposals see industrial activity reducing over time to be replaced by logistics operations. It is therefore likely that the number of coal and oil fired boilers that emit SO$_2$ will reduce. It is also not envisaged that BoP operations will attract additional heavy industry to the area. It is therefore likely that BoP development will not exacerbate industrial air pollution.

It is likely that the development of the Old Airport site as a port extension will introduce an additional SO$_2$ source in the form of ships boilers. Ships boilers are in constant operation to produce steam to run generators and engines. Bunker fuel is also high in sulfur content. This new source may be significant given its proximity to industry. It will need to be monitored and managed in conjunction with other sources.

AIR POLLUTION FROM VEHICULAR TRAFFIC

Levels of Particulates, Lead, Benzene and NO$_2$ have remained relatively constant in South Durban since 2004 with annual average levels either close to or exceeding National Guideline Levels.

BoP activities particularly the growth in logistics operations which will increase heavy vehicular traffic in the area is likely to result in an increase in emissions.

BoP development could therefore exacerbate an already difficult situation. The problem relates to both a likely increase in levels of traffic and an increase in levels of traffic congestion; slow moving and idling vehicles tend to create significantly greater levels of pollution than fast moving vehicles. Pollution levels from vehicle emissions tends to be concentrated beside roads and at intersections.

Best Practice focuses on getting port related traffic into and out of the port as rapidly as possible. Measures include the construction of dedicated, high capacity routes to ensure that heavy vehicles can access the National Road network as quickly as possible.

Best Practice also sees separation of local and port related traffic to minimize heavier vehicles accessing residential and commercial areas. This not only requires development of suitable alternative infrastructure but also needs strict enforcement to be effective.

Relevant BoP planning proposals include:

• Ensuring that logistics related companies which will include container handling operations are located close to and within easy access to both port areas. This will help to rationalize container movements through the area.

• Developing high capacity links that are dedicated to port related traffic between the two port areas, between port areas and the N2 / N3 and between the port areas and logistics operators.

These proposals will help to reduce the impact of vehicular emissions within the BoP area. Ongoing monitoring will be necessary to ensure that emissions levels remain within acceptable limits particularly close to and within residential areas. Should emissions levels prove excessive particularly within sensitive residential areas, a level of enforcement is likely to be necessary.
INDUSTRIAL RISK
The Risk Assessment found that only in the immediate vicinity (100 – 200m) of most of the Major Hazardous Installations that development restrictions of any kind would apply (Note this excludes the large MHI’s). In general these restrictions would advise against the development of housing, high density commercial institutions, vulnerable facilities and there may be restrictions regarding population / development density.

The current situation sees small areas of residential use within these risk areas particularly at the northern end of the Bluff, to the west of Bayhead and to the east of Prospecton.

The situation near the two large refineries is different in that restrictions would likely be in place for 0.5 – 1.0 km. The risk assessment indicates that there is significant number of residential properties within these risk areas.

BoP development is unlikely to have any impact on the larger areas of risk associated with the two refineries.

The change in zoning and the encouragement of logistics uses particularly within the Mobeni area is likely to result in a general reduction in heavy industry which should also result in a removal of areas of industrial risk which could improve the situation for residents.

BoP proposals are therefore likely to help to reduce areas of industrial risk in South Durban.

If the City wishes to address this issue it might also consider the rezoning of properties with hazardous operations that have been shown by the risk assessment to have potential impact on residential areas. This may not be possible in all cases as it includes major hazardous liquid storage on the southern side of the port, established industries in Prospecton as well as the refineries.

WATER QUALITY
BoP activities could have an impact on and could be influenced by water quality within the area.

IMPACTS FROM BoP OPERATIONS
Current BoP uses are having a negative impact or are a threat to water quality within the Port. These include;

- The storage of potentially polluting materials including agricultural chemicals within storage areas that drain directly into Durban Bay. Occasional container breakages and associated spillages are likely to be washed directly into Durban Bay.
- The location of old below ground fuel tanks in close proximity to water courses, drains and the harbor wall. The ongoing use of these tanks pose a risk to water quality from leakages.
- The uncontrolled fuelling and maintenance of heavy vehicles in close proximity to drains and water courses. Ongoing hydrocarbon spillages from these operations are washed directly into Durban Bay.
- The practice of cleaning / washing the beds of trucks into road drains. Much of the material is organic in nature (including grain) which, as it breaks down, adds to nitrogen levels within the water.

Without the construction / provision of appropriate facilities for fuel storage, vehicle maintenance and cleaning and without auditing of trucking operations, the extension of logistics operations in the BoP area is likely to exacerbate these problems.

As trucking related operations develop it will therefore be necessary to ensure that;

- Sufficient truck parking areas are developed to ensure that maintenance and cleaning operations do not take place on roads.
- Appropriate covered maintenance areas are developed and that oil and grease traps are constructed and maintained to prevent spill fuel, oil, grease and cleaning agents from entering the drainage system.
- Appropriate truck cleaning bays are constructed, maintained and used. Run off from cleaning bays may have to be routed via oil and grease separators as well as a settlement area / screen to ensure that organic solids are removed from wash water before it is allowed to flow into the drainage system.
- Fuel is stored in accordance with current best practice and on-going monitoring is undertaken in order that fuel leaks are detected and addressed before they cause significant pollution.
- It is also important that exiting sources of pollution are addressed. This will require;
  - Monitoring of existing operations and enforcement to prevent current informal track parking, cleaning and maintenance operations from causing ongoing pollution.
  - Auditing of existing fuel tanks, closure and rehabilitation as necessary to clean up exiting contamination and minimize risk of future fuel leakage.

POTENTIAL IMPACTS ON BoP OPERATIONS
BoP planning proposes the upgrade and development of business and recreational areas around water frontages that could be provided by existing water courses that flow through the BoP area.

The water quality within these water courses has been shown to fluctuate due to occasional / regular industrial and sewage spills. Should water frontages be developed even if water contact is not possible, it will be important to ensure that a suitable water quality is maintained. Currently this would be difficult as pollution generally enters streams and rivers outside the study area and most industrial sources of pollution do not appear to have been identified.

It will be necessary to undertake focused management on a catchment basis in order to ensure that appropriate water quality is maintained. Appropriate management plans must be prepared to accompany development planning.

FLOODING
The 1:100 year floodplain information that is published by the Municipality indicates that large areas of the BoP study area are subject to flooding. These areas include;

- Clairwood and areas between the Umhlathuzana River, Umbilo River and Bayhead.
- The old airport and areas around Mondi and SAPREF.
- Southern areas of Prospecton.

The only area of proposals that is likely to be affected is the Clairwood area. Over the years informal development particularly of transport related activities has impacted on this residential neighborhood. Proposals see protection of the core area of residential use that remains with rezoning of the periphery for logistics uses. As redevelopment occurs it will be important to ensure that the area is protected from future flooding. Development conditions should reflect these requirements.
BIODIVERSITY

THE EXTENT OF THE PROBLEM

The Metropolitan Open Space System (October 2008) within the Study Area is approximately 399Ha in extent.

In addition there are approximately 253Ha of additional wetlands / wet grasslands that provide an important habitat resource.

The majority of this additional area is within ACSA land close to and within the old airport site.

Of the approximate total 652Ha of existing habitat area, a coarse assessment indicates that approximately 303Ha will be displaced either directly by planned port expansion or by proposed BoP development. The majority of these areas will be comprised of wetland / wet grassland and estuarine habitat. This assessment does not include the Clairwood Racecourse, should this area be developed then the loss of habitat area would increase by approximately 64Ha.

The area of displaced habitat is largely comprised of wetland and wet grassland particularly on and adjacent to the old airport site.

Small areas of estuarine and aquatic habitat will also be lost. These are largely comprised of the channels and canals that currently help to drain the area.

This potential biodiversity loss has not been addressed by current planning which has largely focused on development requirements.

Proposed Port expansion will result in the majority of the impact with relatively small areas of habitat impacted by proposed BoP reorganization as envisaged by the study. It also seems inevitable that port expansion will result in increased pressure on natural resources both within the Port and BoP areas. If appropriate measures are not taken to address this issue it is possible that the impact could be larger than anticipated.

The affected areas are indicated on Figure 6.

POSSIBLE SOLUTIONS

The scale of this impact is potentially larger than any previous development within the Durban area.

The majority of the impact is likely to result from port expansion, this will exert pressure on the natural resources remaining both within the Port and BoP areas.

It is beyond the scope of the current study to provide detailed mitigation proposals as these need to be assessed in detail, discussed amongst key stakeholders and negotiated with land owners and developers. In addition to highlighting the extent and nature of the issue, it is intended that this report outlines possible approaches to mitigation for consideration by the parties concerned.

Whilst considering these measures it is important to understand that it is highly unlikely to be possible to replace a comparable area / type of habitat within close proximity to the area that will be lost.

When considering compensation for loss of habitat, the norm is to for a larger offset than the area lost to be required by the authorities. If this is the case then it will be necessary for offset areas outside the BoP to be considered.

There are two methods of addressing this issue within the BoP, including:

• Retention of existing habitat / open space areas
• Enhancement of existing habitat / open space areas

Retention of existing habitat / open space areas

The BoP planning team have ensured that habitat areas outside the proposed port expansion areas are largely unaffected by BoP proposals.

Other than the dune forest margins on the seaward side of the proposed port expansion, there are limited cohesive habitat areas that will remain within the BoP after the Port expansion has taken place. The main areas include:

• Mangrove and wetland fringes around the Isipingo Estuary
• Drainage channels that run through the area that are at least part estuarine.
• Remnant wetlands to the north of the Umlas Canal that form part of a tenuous open space link between the Canal and Clairwood Racecourse.
• Overgrown margins and remnant spaces fringing infrastructure such as roads, rail links and canals.
• Underused active open spaces.
• Areas with large canopy trees that provide a continuous aerial link.
• The large private open space within and around Clairwood Racecourse.

If these areas are to be retained it is likely that a degree of formal protection will have to be provided. This may mean that these areas will have to be included within the Metropolitan Open Space System.

Given that there is likely to be extreme pressure on undeveloped land for BoP development particularly for container and logistics operations, the long term protection of these spaces may prove difficult.

The Clairwood Racecourse is one area where this pressure is likely to be felt.

The Racecourse is one of a small number of areas within the back of Port where a large development may occur without consolidation of sites and demolition of existing buildings. The land is also privately owned. This is likely to mean that the race course will come under increasing pressure for development.

In addition to port generated development, the Racecourse has been highlighted by the Social Specialist inputting to this study as a possible area for the development of active recreational facilities. This is due to the fact that the Racecourse is the only major area of open space in close proximity to residential areas and so is an obvious choice of area for the provision of much needed recreational facilities.

There are therefore likely to be various demands on this open space for other uses. Because of this, it seems likely that compromises will have to be made. Appendix III provides background that was presented to the BoP Planning Team during the preparation of the BoP Plan. It presents a possible approach to the development of the Racecourse that could result in the majority of the existing open space retained with a balance between conservation and active recreational uses.

Enhancement of existing habitat / open space areas

If maximum biodiversity benefit is to be obtained from exiting habitat / open space area, in addition to formal protection, a degree of enhancement is likely to be necessary. This could include the following:

• Physical protection - because links through the area are relatively tenuous, the narrower links and more marginal areas of habitat may need physical protection that could be provided by the construction and maintenance of fencing.
• Habitat creation / restoration may be used to increase the biodiversity value of open space areas. These include larger spaces such as the Clairwood Racecourse as well as smaller un-utilised public open spaces and margins of land remaining from infrastructure development. Habitat creation / restoration might include on-going weed removal as well as grassland / wetland creation.

The objective should be to replace as large an area of lost habitat as possible and because this is likely to be limited, to increase the effectiveness of potential corridors between core habitat areas.

The lost habitat type is likely to be largely comprised of wetland and wet grassland.

The main areas of potential for replacement are probably around the existing water courses and canal systems that run through the area. These provide limited opportunity for wetland rehabilitation / creation as well as the possibility of creating corridors between larger open spaces such as the Racecourse and Durban Bay.
Appendix III provides background that was presented to the BoP Planning Team during the preparation of the BoP Plan. It presents a possible approach to the enhancement of the Manzimyama Canal that might be applied to other canalized systems in the area. Based on this input the planning team have proposed open space margins beside each canalized water course.

ENVIRONMENTAL PROJECTS

In order to address the issues that are likely to arise, a range of environmental projects will have to be coordinated with the proposed development program. A list of these projects including required actions and approximate timing is included as Appendix IV.
ENVIRONMENTAL PLANNING SYNOPSIS REPORT

Client: ETHEKWINI MUNICIPALITY

Notes: Data Source: Thembelihle Municipality Map for discussion.

Revisions:

DURBAN BACK OF PORT EXTENT OF DISPLACED HABITAT figure 6
## ENVIRONMENTAL ISSUES IDENTIFIED

### NATIONAL CONTEXT

<table>
<thead>
<tr>
<th>PROBLEMS</th>
<th>POSSIBILITIES</th>
<th>STRATEGIC ISSUES FOR BoP PROJECT</th>
</tr>
</thead>
</table>
| The dig out port at the airport site could create greatest pressure on biodiversity due to the need to develop on green field sites close to the airport. This will result in significant loss of habitat area for species included on the red data lists | • The use of existing industrial areas for Back of Port development could help to mitigate this issue.  
• It may be necessary to plan compensatory reserve areas for airport site and associated Back of Port development | • A significant area will be displaced, compensation may require remaining areas of coastal grassland such as the racecourse in addition to significant areas outside the area.  
• The loss of habitat associated with port development may not be replaceable in the location. It may be necessary to conserve other areas within the Municipal Area. |

### PROVINCIAL CONTEXT

<table>
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</thead>
</table>
| The dig out port at Bayhead and associated Back of Port will largely make use of Brownfield Sites. There are however, key remnant habitats that maybe displaced or threatened. | • The use of existing industrial areas for Back of Port development could help to mitigate this issue.  
• It may be necessary to plan compensatory reserve areas for airport site and associated Back of Port development | • A significant area will be displaced, compensation may require remaining areas of coastal grassland such as the racecourse in addition to significant areas outside the area.  
• The loss of habitat associated with port development may not be replaceable in the location. It may be necessary to conserve other areas within the Municipal Area. |

### METROPOLITAN CONTEXT

<table>
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</tr>
</thead>
</table>
| Intermittent sewage spills are affecting most water courses are causing water quality problems that possibly extend into Durban Bay and out to sea. Intensification of development due to port expansion could exacerbate this issue. | • Greater monitoring and enforcement  
• Provision of adequate warning of poor water quality.  
• If water courses are to be included within local upgrading projects, it will be necessary to review all sources of pollution and put in place an action plan to address it prior to development occurring | • Downstream uses are affected. It seems that whilst treated effluent is pumped into water courses then there is a risk. A monitoring and warning system such as is employed on local beaches might be employed.  
• It is possible that part of the problem is emanating from illegal sewer connections (to surface water drains) This is known to be problematic throughout the Municipal Area. The Municipality are addressing this issue.  
• Poor water quality can create health hazards for people who come into contact with it.  
• Poor water quality can have adverse biodiversity impacts |
### PROBLEMS

<table>
<thead>
<tr>
<th>South Durban Basin Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intermittent industrial spills are likely to be affecting some water courses and causing water quality problems that possibly extend into Durban Bay and out to sea. Intensification of development due to port expansion could exacerbate this issue.</td>
</tr>
<tr>
<td>Development of Bayhead area is likely to increase PM$_{10}$ and NO$_2$ concentrations to the extent that they will exceed SA limit values. This is particularly the case during winter months. Considering the increased traffic congestion and background dust in the area, it is possible that levels already exceed the limit values.</td>
</tr>
<tr>
<td>Port development at the airport site could exacerbate SO$<em>2$ concentrations in the area. Isipingo is a particular problem area. The increase in heavy traffic in adjacent industrial areas could also exacerbate PM$</em>{10}$ and NO$_2$ concentrations.</td>
</tr>
<tr>
<td>MHI type risks in the residential areas of Merewest and Clairwood are not unacceptably high but are also not at low as would be ideal for residential areas.</td>
</tr>
<tr>
<td>Due to high water table, additional drainage, special foundation design, special drainage design and increased filling may be required for development around and associated with the airport port option and Clairwood.</td>
</tr>
</tbody>
</table>

### POSSIBILITIES

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>• Greater monitoring and enforcement</td>
</tr>
<tr>
<td>• Provision of adequate warning of poor water quality.</td>
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<tr>
<td>• If water courses are to be included within local upgrading projects, it will be necessary to review all sources of pollution and put in place an action plan to address it prior to development occurring</td>
</tr>
<tr>
<td>• Undertake monitoring and enforcement.</td>
</tr>
<tr>
<td>• Improve traffic flow.</td>
</tr>
<tr>
<td>• Ensure that truck and container parking areas are paved.</td>
</tr>
<tr>
<td>• Undertake monitoring and enforcement.</td>
</tr>
<tr>
<td>• Ensure that transport sources of pollution are included in strategic air quality modeling.</td>
</tr>
<tr>
<td>• Ensure that truck and container parking areas are paved.</td>
</tr>
<tr>
<td>• Remove the industrial risk.</td>
</tr>
<tr>
<td>• Ensure that appropriate budgets are allowed for construction.</td>
</tr>
<tr>
<td>• Try to keep development to existing developed areas</td>
</tr>
</tbody>
</table>

### STRATEGIC ISSUES FOR BoP PROJECT

<table>
<thead>
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<tr>
<td>• It is possible that part of the problem is emanating from illegal disposal (to surface water drains). This is known to be problematic throughout the Municipal Area. The Municipality are addressing this issue.</td>
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<tr>
<td>• Poor water quality can create health hazards for people who come into contact with it.</td>
</tr>
<tr>
<td>• Poor water quality can have adverse biodiversity impacts</td>
</tr>
<tr>
<td>• It is possible that poor air quality could be creating health problems for local residents and workers.</td>
</tr>
<tr>
<td>• It is possible that poor air quality could be creating health problems for local residents and workers.</td>
</tr>
<tr>
<td>• Consider industrial risk in planning the Back of Port area to ensure that new uses do not exacerbate this problem.</td>
</tr>
<tr>
<td>• Additional cost of development.</td>
</tr>
<tr>
<td>• Additional risk of pollution</td>
</tr>
</tbody>
</table>
### Environmental Planning Synopsis Report

#### Problems

The washing/cleaning of haulage trucks into road drains is likely to exacerbate water quality problems within the area. This is likely to be particularly problematic with organic materials such as grains. Sludge from these operations accumulates on roadsides in the area. An increase in port operations could exacerbate this problem.

- Greater monitoring and enforcement ensuring that trucking companies provide appropriate facilities.
- Provision of adequate warning of poor water quality.
- Provision of appropriately located and engineered truck washing bays.

Many old underground fuel storage tanks exist in the back of port area, some of these are known to be located in close proximity to the harbor and water courses running into the harbor. These are possibly causing water quality problems that possibly extend into Durban Bay and out to sea. Intensification of development due to port expansion could exacerbate this issue.

- Greater monitoring and enforcement ensuring that trucking companies provide appropriate facilities.
- Provision of adequate warning of poor water quality.
- Currently there is no monitoring of these tanks. Seepage tends to be slow so it probably does not pick up as a significant source in the Municipality’s current water quality testing program. The best way of addressing this is possibly through inspection. Vigilance is also needed for new installations.

Surface water drainage from bulk goods handling operations associated with the Port extends directly into local water courses. Breakages and spillage of goods that can includes bulk chemicals such as fertilizers is washed directly through the drainage system and into water courses. This is possibly causing water quality problems that possibly extend into Durban Bay and out to sea. Intensification of development due to port expansion could exacerbate this issue.

- Greater monitoring and enforcement ensuring that trucking companies provide appropriate facilities.
- Provision of adequate warning of poor water quality.

The risks over the entire study area are suitably low to allow for industrial type developments that would typically be associated with back of port activities. There may however be some restrictions on the population density at these facilities if they are located within 0.1 – 0.2 km of small MHIs (e.g., Valspar, Durban Fresh Produce Market etc) and 0.5 – 1 km of large MHIs (e.g., SAPREF, ISEGEM). In this regard the area of the current airport would require the most attention to ensure minimization of risks to possible future activities.

- Low intensity industrial use such as container handling is probably appropriate.

There are likely to be numerous areas of contamination within the study area.

- Undertake environmental audit as part of detailed planning exercise.

#### Possibilities

- Undertake environmental audit as part of detailed planning exercise.

#### Strategic Issues for BoP Project

- Poor water quality can create health hazards for people who come into contact with it.
- Poor water quality can have adverse biodiversity impacts.

- Poor water quality can create health hazards for people who come into contact with it.
- Poor water quality can have adverse biodiversity impacts.

- Poor water quality can create health hazards for people who come into contact with it.
- Poor water quality can have adverse biodiversity impacts.

- There is a need to ensure that existing industrial risk is considered in planning.

- Additional cost of development.
- Health risks for workers/residents.
- Additional risk of pollution.
APPENDIX II
BEST PRACTICE CASE STUDIES

1 RESEARCH METHOD
Port Operations and Port Cities have been investigated via the internet.

Investigations indicate that most ports have a similar range of issues as Durban. Whilst there may be greater similarities of scale and emphasis with certain cases, approaches taken to address environmental issues at dissimilar ports are just as revealing as often they indicate differences in detail and extent of action but there is reasonable consistency in approach.

Where possible the views of a range of stakeholder groups have been sought for each case in order that there is a degree of verification.

2 FINDINGS
The following table lists actions that have been taken in various port cities to address problems that are common with Durban.

<table>
<thead>
<tr>
<th>PORT</th>
<th>SITUATION</th>
<th>RELEVANCE</th>
<th>APPLICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auckland</td>
<td>The Ports of Auckland require bunding around all potentially polluting activities in the harbour area.</td>
<td>Polluting activities occur in the Durban Back of Port area and contamination washes directly into the harbour via surface water drains.</td>
<td>Enforce a similar requirement in the Durban Back of Port area.</td>
</tr>
<tr>
<td>Auckland</td>
<td>Ports of Auckland are undertaking positive remediation of approximately 17ha of back of port areas known to be subject to contamination. They are negotiation with tenants / petrochemical companies for early release of the land in order that remediation works can proceed and the land upgraded for other uses.</td>
<td>It is likely that areas of contamination occur in the Durban Back of Port area. The overall extent of this problem is not known although isolated areas of contamination have been exposed.</td>
<td>In the Auckland case the affected land was leased to companies by the Port Authority. It is possible that contamination does occur on Transnet Land however it is also likely that contamination occurs outside of this. The extent and location of contamination needs to be established and then subject to findings, the relevant authority should address the problem in a similarly proactive manner.</td>
</tr>
<tr>
<td>Kaohsuing</td>
<td>Pollution from petrochemical and other heavy industry has been allowed to occur over decades with little or no enforcement. The Municipality are making efforts to clean up ground contamination but are having difficulty as the extent of contamination is generally unknown and they are experiencing resistance from landowners / operators. Whilst no direct evidence of pollution extending into water bodies or the harbour it is possible that it was exacerabating poor water quality.</td>
<td>Pollution has been allowed to occur with little or no enforcement. Whilst the extent of heavy industry is relatively small when compared with Kaohsuing the problem of soil and ground water contamination has occurred and the extent is unknown. Contamination has occurred due to heavy industry as well as numerous light industrial operations throughout the back of port area. It is possible that pollution could be affecting local water courses and surface water drainage systems that drain the area into the harbour.</td>
<td>Allowing ground pollution to occur over a long period of time will created a significant problem that will risk pollution of adjacent water course and the harbour. This pollution will become increasingly difficult to trace. Enforcement and cleaning up the pollution will also become increasingly difficult to address.</td>
</tr>
<tr>
<td>PORT</td>
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<td>RELEVANCE</td>
<td>APPLICATION</td>
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</tr>
<tr>
<td>San Diego</td>
<td>The Port of San Diego recognise that a large proportion of pollution within the port emanates from stormwater drains. They have prepared and circulated leaflets to businesses and residents within the catchment highlighting the problem and indicating how it can be managed.</td>
<td>A large proportion of the pollution in Durban Harbour is washed through the stormwater system. The majority of this comes from sewer breakages and from the small businesses and industries that surround the harbour.</td>
<td>A similar information / educational approach might be adopted.</td>
</tr>
<tr>
<td>Sydney</td>
<td>The New South Wales Government Department of Planning have required ongoing environmental auditing during the operational phase of &quot;significant and designated development&quot; under section 80 (4) and (5) of the Environmental Planning and Assessment Act 1979. This is part of ongoing environmental management requirements. The reason for the imposition of conditions is to: a) minimise any adverse environmental impacts associated with the construction of the development; b) minimise any adverse environmental impacts associated with the on-going operation of the development; c) provide a staged framework for strategic planning of port development in line with demand for port facilities and further investigations into alternative port development options.</td>
<td>It is possible that environmental auditing for new industrial / port related development may be required as a condition of development either in response to an Environmental Impact Assessment to Provincial Government or a development application to the Municipality. Auditing is generally only required by the authorities for the construction phase.</td>
<td>If environmental auditing could be extended to the operational phase of processes that have the potential to create pollution this could be used to prevent further pollution occurring.</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>Los Angeles like all major ports is experiencing major growth. Associated with this is increased emissions. The International Association of Ports and Harbours (Los Angeles is a member) have prepared a clean air “tool box” in order to assist their members address this issue.</td>
<td></td>
<td>The tool box approach is useful not only for air quality but for all key issues. It provides simple information to address potential problems.</td>
</tr>
<tr>
<td>Auckland</td>
<td>The Ports of Auckland are integrated into the Hauraki Gulf Marine Park (HGMP). The HGMP has been established by an Act of Parliament. It brings all stakeholders together into a management forum with the object of ensuring that all interests within the gulf including biodiversity are represented within the management structure</td>
<td>Port and Back of Port activities in Durban have impacts on broader interests including Biodiversity. These interests are largely managed geographically by the various interest groups and authorities in the area with little discussion or agreement between them. Consideration of broader interests generally occurs through reference to legislation and legal processes. This means that day to day management is not inclusive or proactive.</td>
<td>The use of a forum to assist in the management of issues relating to broader interests and associated with port and back of port operations, if approached in a positive manner could ensure that biodiversity is managed in a more integrated and proactive manner.</td>
</tr>
<tr>
<td>PORT</td>
<td>SITUATION</td>
<td>RELEVANCE</td>
<td>APPLICATION</td>
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<tr>
<td>Barcelona</td>
<td>The Port Authority undertakes regular monitoring of biodiversity within the Port in order that they can keep track of possible improvements associated with operational control measures.</td>
<td>Durban harbour is an estuary that is critical as a nursery area for fish stocks on the East Coast. It also contains locally important biotic communities. Port and back of port operations and development could threaten these. Spills have been known to cause significant ecological damage. There is no sense of improvement rather a sense of increasing pressure on natural elements.</td>
<td>Regular monitoring of biodiversity in Durban Harbour would provide greater understanding of the state of the environment, links between management changes and incidents and impacts as well as the capacity of the environment for change.</td>
</tr>
<tr>
<td>Belfast</td>
<td>The Belfast City Council’s stated planning strategies include: the protection of the open space network that links into the harbour, protection of sites of local conservation importance and providing them with formal conservation status.</td>
<td>Durban harbour has areas of local and regional environmental importance both within and adjacent to the harbour that have no legal conservation status.</td>
<td>Seek official status for key areas of environmental importance and open space links.</td>
</tr>
<tr>
<td>Bristol</td>
<td>Bristol’s Royal Portbury Dock is the only port designed to integrate wildlife corridors within its operational areas. The first masterplan was drawn up in 1991 to safeguard rich wildlife habitats without compromising the ability of the port to grow commercially. Since 1991, the plan has been updated regularly to reflect changes in the port and in the diversity and health of the wildlife corridors, which are regularly monitored to ensure that ecological objectives are met. The Port now manages 96ha of open space corridors.</td>
<td>Important natural areas within the Port of Durban are not managed or monitored. The Bristol plan includes the management of drainage lines (rhymes) that extend inland from the dock. Durban has a similar network of drainage lines. Bristol’s plan is proactive and seeks to ensure that natural assets of the area not only survive but flourish in association with the Port.</td>
<td>Integrate open space planning with the port. Undertake proactive management of natural assets</td>
</tr>
<tr>
<td>Bristol</td>
<td>The Port of Bristol operates in the Severn Estuary which has the world’s largest tidal range. The associated mud and sand flats support internationally important migratory bird populations. This area is protected under National, European and International Law. The Port employ scientists to monitor this environment to ensure that their operations do not have an adverse impact.</td>
<td>Little or no monitoring of the impacts of the port on the biotic environment is undertaken.</td>
<td>Undertake monitoring.</td>
</tr>
<tr>
<td>Darwin</td>
<td>Information posted by the Australian National Programme for the Protection of the Marine Environment indicates that an integrated approach for monitoring the waters of Darwin Harbour was under consideration by an Ecosystem Monitoring Group in 2006.</td>
<td>Little or no monitoring of the impacts of the port on the biotic environment is undertaken.</td>
<td>Undertake monitoring.</td>
</tr>
</tbody>
</table>
### Darwin
The Northern Territory Government’s Plan of Management for Darwin Harbour (2004) recommended that mangrove communities that fringe the harbour were provided with formal protection. This has since occurred meaning that approval for removal of sections of mangrove will require National Government approval and that people or organisations who remove, damage or destroy mangroves can be prosecuted.

Mangroves fringe the lower reaches of Durban Harbour. This community is remnant from the more extensive mangrove system that originally fringed the harbour. In addition to the mangroves, there are other natural assets within and close to the harbour that are both critical to local biodiversity and under threat from harbour operations and potential expansion.

### Rotterdam, Antwerp, Le Havre, Hamburg
Port expansion plans have been realised in areas of significant ecological sensitivity through applying compensation for ecological loss. Extensive rehabilitation is required by the port authorities in each case by way of compensation for development. In Rotterdam the following is required:

- The creation of a 25,000 hectare sea bed protection area in the Voordelta. This coastal ecosystem located to the southwest of the Maasvlakte II site, will compensate for losses to the North Sea seabed caused by the development. The surface area of the planned sea bed protection area is ten times larger than that of the projected land recovery (Port of Rotterdam and Maasvlakte 2 Project Organization, 2007)
- The extension of dunes to the north of Maasvlakte II, near Delfland (35 hectares). The new port/industrial area is expected to impact upon air streaming across the sand dunes of Voorne, a designated nature reserve. The new dune landscape will be situated on the coast between the towns of Hoek van Holland and Ter Heijde.
- The creation of a foredune (acting as a sea defence, 23 hectares). The dunes at Delfland will be located adjacent to an extra row of dunes which are being created (foredune) to reinforce the coastline (known as the ‘Weak Links’ project).

Possible port expansion in Durban is likely to impact on sensitive ecological areas. It is possible that compensation may be required which could extend into Back of Port areas.

Ensure that appropriate areas are identified and retained within Back of Port development.

### Sydney
As part of the approval for the expansion of port facilities in Botany Bay in October 2005, the Sydney Ports Authority have to prepare, implement and monitor an “enhancement plan” for the Penrhyn Estuary. This is an important area of saltmarsh and shorebird habitat.

Durban harbour has areas of local and regional environmental importance both within and adjacent to the harbour.

Work with Transnet to help protect important habitats in Durban Bay.
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</tr>
</thead>
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<tr>
<td>Auckland</td>
<td>Non peak hour container traffic is encouraged through 24 hour access to the port and establishment of an inland port.</td>
<td>Access roads into the Port of Durban have limited capacity and are often very congested.</td>
<td>Holding areas and management of containers within the Port might be used to reduce road congestion in Durban.</td>
</tr>
</tbody>
</table>
| Liverpool | Peel Ports are constructing a major new container terminal in Liverpool for post-panamax vessels specifically for trade from India and China. The port is relatively congested.  
In order to manage the increase in traffic, Peel Ports are proposing development of an Intermodal Freeport Terminal to provide warehousing and storage. The terminal will be linked to the port by rail and barge. | Container traffic is a major problem for communities and businesses surrounding the Port of Durban. As ships arrive to collect containers, container traffic builds up and blocks roads into the Port. | The use of alternative methods (other than road) of transporting goods to and from the port is probably critical to any capacity increase. |
| San Diego | The Port of San Diego provides preferred parking spaces for people who car pool in order to help reduce the number of vehicles on local roads.                                                                   |                                                                                                                                                                                                        | This is a relevant strategy that might be employed by many local businesses and organisations.                                                              |
| Kaohsiung | The Kaohsiung City Transport Bureau enforce a scheme that prohibits large trucks from accessing local residential roads. Truck traffic most of which is bound for the port have designated routes that they have to follow.  
The City Transport Bureau also have management plans in place for traffic hotspots that ensure the rapid deployment of mitigation measures when necessary. | Heavy truck traffic is problematic for residents within and close to the back of port area in Durban. Many heavy vehicles use local residential roads as short cuts particularly when major routes are congested. | Possible use of a similar traffic management scheme.                                                                                                      |
| Kaohsiung | Because of severe congestion at access points to the Port, the Port Authority are proposing construction of new link roads, mainly in the form of sections of elevated road that will link the Port directly with major arterial routes. | Congestion along access roads leading to the Port of Durban is a major problem.                                                                                                                                 | If other measures are unsuccessful, investigate the need for new access routes.                                                                           |
| Rotterdam | The Port of Rotterdam has launched a major traffic management initiative bringing together all major traffic authorities in order to address traffic problems associated with the port. Possible topics for the traffic enterprise are dynamic traffic management, collective corporate transport, ways of avoiding rush hour, 24-hour logistics, incident management and cooperation between various highways depart |                                                                                                                                                                                                        |                                                                                                                                                               |

**NOISE**

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<tr>
<td>Auckland</td>
<td>The Auckland and Onehunga ports have been the regions hub of international and coastal trade for over a century. Communities were established close to the ports and in recent years residential development has intensified. The Port authority has been working with developers and the City Municipality to ensure that appropriate acoustic insulation and ventilation are used in construction.</td>
<td>Durban is in much the same situation. With residential developments expanding around the port in recent years.</td>
<td>It may be advisable for the City to ensure that new development particularly close to noisy port operations such as at the Point include appropriate acoustic insulation.</td>
</tr>
</tbody>
</table>
# PORT SITUATION

The County Environmental Protection Bureau are responsible for enforcing noise legislation in Kaohsiung. They have threatened compensatory fines for major offenders in and around the port, although action has not been taken. Noise problems have arisen due to lack of planning and residential areas being allowed to develop close to noisy / industrial land uses. Noise could potentially be problematic for existing residents in the back of port area subject to adjacent land use. Noise may be problematic for some current residential areas in the back of port area due to poor planning.

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<th>COMMUNITY</th>
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The Ports of Auckland are proactive in maintaining communications with local communities. They do this through news letters and a web site. They also undertake regular surveys and consultation programmes, encourage use of the port for schools education and provide free boat tours around the port for the public. Many of the social issues affecting communities around the Port of Durban relate to Port activities. The Municipality do circulate a newspaper. However, focused consultation between the authorities and communities might enable minor operational adjustments to be made that could help reduce social impacts.

<table>
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<tr>
<th>Dublin</th>
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The Dublin Bay Study commissioned by Dublin City Council proposes the relocation of the Port of Dublin for development of a new city quarter on port lands. From consultation it appears that the majority of stakeholders favour the plan. The relocation of parts of the harbour have been discussed in recent years. Options include the construction of a new dig out port for container handling or the rationalisation of operations with Richards Bay. The Dublin Bay Study considers the implications that moving the port would have for the city. Work undertaken so far in Durban is preliminary but appears to focus on Port operations only.

<table>
<thead>
<tr>
<th>Barcelona</th>
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</table>

Barcelona’s Port Environmental Service provide all environmental information relating to the Port to anyone that requests it. They also assist companies within the port with environmental management. There is little information readily available on the Durban Port environment or how operators might affect it. Monitor key indicators and make information available.

<table>
<thead>
<tr>
<th>San Diego</th>
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</table>

The San Diego Port Authority provide guideline documents for key port users. There is little information readily available on the Durban Port environment or how operators might affect it. Monitor key indicators and make information available.

<table>
<thead>
<tr>
<th>Sydney</th>
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</table>

The Sydney Ports Authority publish their environmental monitoring information for public review. There is little information readily available on the Durban Port environment or how operators might affect it. Monitor key indicators and make information available.

<table>
<thead>
<tr>
<th>Kaohsiung</th>
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</table>

The County Environmental Protection Bureau undertake regular monitoring of air quality and water quality and make their findings available to the public via their web site.

<table>
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<tr>
<th>USE OF RESOURCES</th>
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The Port of Belfast has been accredited as a Carbon Neutral company meaning that it has a net zero carbon footprint. A baseline study indicated that the Port Authority generated over 3200 tonnes of carbon per annum. The source was identified as electricity used to power items such as cranes and waste bound for landfill. The carbon neutral status has been achieved by largely offsetting by supporting new environmental projects. Recycling and the use of renewable energy sources has also been improved. The objective of minimising the carbon footprint of development and using energy efficiently should be a focus for all development areas. Ensure that measures are in place to make recycling easy within the Back of Port area. Promote energy efficiency both in design and operations.
<table>
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<tbody>
<tr>
<td>Bristol</td>
<td>Since August 2007, most of the electricity required by the port has been provided by 3 &quot;Ecotricity&quot; wind turbines in Avonmouth Dock. Each wind turbine is capable of generating 2 megawatts of electricity, and together they meet 75% of the port’s needs which is the equivalent of around 4,700 homes. By choosing renewable energy rather than conventionally generated power, the Bristol Port Company will save over 15,000 tonnes of carbon emissions every year. There are plans for development of additional wind turbines.</td>
<td>Irrespective of the carbon footprint, limitations in local electricity supply are likely to be a major constraint on development and industry into the future.</td>
<td>The use of renewable energy sources would help to safeguard electricity supply both within the Port and Back of Port areas.</td>
</tr>
<tr>
<td>Bristol</td>
<td>The Port of Bristol has strict policies for use of resources. They ensure that: • Energy is used with the optimum efficiency, for example, by fitting low energy lighting in all offices and controlling warehouse and area lighting with photocells. • Utilities, such as electricity and water, are continuously monitored using smart meters to allow identification and elimination of waste. • Re-develop of brown-field sites ahead of green field sites. • Materials from demolition works are re-used in new building and maintenance activities, particularly recycled aggregate. • Existing infrastructure is maintained in a sustainable manner, for example only timber from renewable source will be used • Turbines now generate 75% of the port’s energy requirements and will provide more in the future. • Sustainable Drainage Systems (SUDS) are installed in the port, which reduce flooding, protect water quality and provide wildlife habitat. • Port employees make an important contribution to recycling a wide range of office and operational waste, from paper and print cartridges to car batteries and used motor oil/hydraulic fluid. • Over 70% of waste landed by EU ships in the port is recycled.</td>
<td>Whilst individual Back of Port operations are relatively resource efficient, this is not universal. Development of undeveloped land can be easier than previously developed sites.</td>
<td>Encourage efficient use of resources. Minimise development of previously undeveloped sites.</td>
</tr>
<tr>
<td>Kaohsiung</td>
<td>The Port Authority have established a recycling procedures for all port users.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sydney</td>
<td>The Sydney Ports Corporation have prepared a guideline document for employees, tenants and businesses within and adjacent to the Port. This document provides detailed information on how to minimise resource use.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ENVIRONMENTAL PLANNING SYNOPSIS REPORT

APPENDIX III
CONCEPTUAL ENVIRONMENTAL PLANNING ADVICE PROVIDED TO THE PLANNING TEAM
( Clairwood Racecourse, Manzimyama Canal & Umhlathuzana Link Road )

ETHEKWINI BACK OF PORT PLANNING PROJECT
ENVIRONMENTAL ANALYSIS AND CONCEPT PLANNING FOR CLAIRWOOD RACE COURSE AND THE MANZIMYAMA CANAL.

INTRODUCTION
This paper has been prepared in response to planning proposals for the use of Clairwood Racecourse and proposed aesthetic improvements to the Manzimyama River Canal that are intended to make the area surrounding the Canal attractive for office and commercial uses.

It is intention to highlight environmental opportunities and constraints and to develop a concept that might be adapted in the planning process.

TOPOGRAPHY AND DRAINAGE
Prior to development of the South Durban, the area to the south of the harbour and west of the Bluff formed part of an extensive floodplain and wetland system associated with the Mlizi and Mhlatuzana rivers.

The site now forms part of a relatively flat low lying area that has been reclaimed by drainage and infilling for general industrial and residential development.

A preliminary geotechnical investigation undertaken for a previously proposed casino development which was to be located within the racecourse boundary and to the west of the existing grandstand, revealed a shallow groundwater table located at a depth of between 0.55 and 1.55 m below the existing ground level (Drennan Maud and Partners, July 1998).

This indicates that large sections of the Race Course site historically were probably comprised of wetland.

Drainage systems flow towards a small dam and wetland area which is located at the northern edge of the site from where surface water drains into the Manzimyama River.

The Manzimyama River is now canalised between the northern edge of Clairwood Racetrack and the Harbour.

The open grassland within the race course track forms the head of the catchment of the canalised river. Whilst a drainage line has been laid across the grassland at the centre of the track to the small dam which speeds up the flow of water, it is likely that the grassland acts as a retention feature slowing up the flow of surface water into the small dam and canal.

The Manzimyama River Canal is trapezoidal in section and is maintained free of vegetation. It has been engineered in a manner that accelerates the drainage of surface water from surrounding areas.

It is likely that the surface water retention function of the grassland at the racecourse and capacity of the canal are important aspects that help to minimise risk of flooding in surrounding low lying areas. Change that negatively impact on the efficiency of these functions could have significant hydraulic implications for the area.

GEOLOGY AND SOILS
Preliminary Geotechnical Investigations were undertaken on the site by Drennan, Maud and Partners for the previously proposed Palace of the Kings Casino development. The proposed casino site only occupied a small proportion of the total racecourse site and was located in the south western corner of the site and immediately to the west of the group of existing buildings and grandstands.

These preliminary investigations do provide an important indication of geotechnical conditions. The report also highlighted the following adverse geotechnical conditions that would require accommodation in terms of design and layout;

- The site is underlain by deep alluvial and estuarine sediments overlying weathered bedrock of the Natal Group. The sediments vary in composition and consistency and extend to depths of between 25m and 28m below existing ground level.
- The site is also characterised by a shallow water table of between 0.5 and 1.5m below existing ground level.

In order to accommodate these conditions it is likely heavily loaded structures will need to be piled to bed rock. This is likely to have financial implications for development of larger buildings.

ECOLOGY
Vegetation
Between the inner and outer racing tracks, situated towards the north of the site is a mosaic of coastal grassland and moist grassland colonised by hygrophytous grass species, within which temporary wetlands are formed during wet periods. Wet areas and small wetlands are also located in the inner track (Mander & Quinn 1996). These grasslands, although modified by human activity, represent remnants of the original habitat of the region. It is significant that these remnant grassland patches provided a habitat in which a specimen of the now extinct, Kniphofia pauciflora (a species of red hot poker) was found in May 1985. The population was subsequently removed for protection and propagation at the University of Durban-Westville. A number of plants were successfully reintroduced, only to be removed again when they were threatened during the construction of the inner track at the racecourse. Investigations undertaken by the Municipality (2002 / 2003) indicate that Kniphofia pauciflora was present within the grassland to the eastern side of the racecourse.

The remainder of the race course site is of lesser importance, comprising primarily of exotic trees and shrubs.

A ring of established trees consisting of Eucalyptus, Casuarinas and Camphor trees enclose the site and these provide screening, protecting the site from wind and affording pleasant views onto and outwards from the site.

The Manzimyama River Canal is concrete lined and is generally maintained free of vegetation. It functions as an efficient drainage channel rapidly decanting surface water from surrounding areas into Durban Bay but has little ecological value in itself.

The Manzimyama River Canal is generally flanked by vegetation that has developed over time in the space between property boundaries and the top of the canal wall. Over the majority of the length of the canal this is limited to a narrow band ranging from 5m to 20m wide on either side of the canal. The vegetation associated with this area is generally alien and invasive in nature. In numerous places, this does broaden out into either wider areas of derelict land, open land associated with crossing infrastructure such as roads, railway and port and areas of open space. Vegetation associated with these spaces is generally comprised of alien vegetation but also includes areas of mown grass.

Fauna
A preliminary assessment of the racecourse site for avifauna was undertaken for the previously proposed casino development proposal by David Allen, the Curator of Birds at the Durban Natural Science Museum (Mander & Quinn, 1998). The assessment indicated that the stands of trees, gardens and planted pastures, due to their highly artificial nature, could not be viewed as important bird habitats. However, the areas of open water situated towards the north of the site were found to support breeding populations of birds, and were found to be of conservation significance. Birds occurring on the site were listed in the assessment. Birds of importance listed included the Lanner Falcon (near threatened) and the Crowned Crane (vulnerable). The racecourse was not considered an important habitat for the Lanner Falcon as the species is widespread in the greater Durban area.
The presence of the Crowned Cranes, which were observed in the central grassed areas of the racecourse, were however considered significant. This bird species typically only occurs in wetlands and moist grasslands in the Midland of KwaZulu-Natal and is only rarely seen along the coast of greater Durban. The presence of the Cranes and the utilisation of the open water areas as breeding sites was largely attributed to the undisturbed nature of the site. It was anticipated that any development of the site would increase the levels of human disturbance, irrespective of whether the bird habitats were modified or not. This would be to the detriment of the birds, which would probably vacate the site. The assessment concluded that the loss of the birds from the site was not considered of sufficient conservation importance to preclude development. It was recommended that any development should however be used as an opportunity to enhance other nearby bird breeding sites as compensation for the destruction of sites at Clairwood (Mander & Quinn 1998).

Although no detailed survey work has been undertaken, the Manzimyama River Canal appears to have little value as an aquatic habitat. Even during periods of light rainfall, the Canal has been designed to be fast flowing which severely limits its habitat value. During site visits the most obvious signs of life within the Canal have included occasional wading birds and insect life.

Undeveloped land either side of the Manzimyama River Canal provides a corridor and refuge area for small mammals and reptiles linking the wetland / grassland at the heart of the Clairwood Racecourse to Durban Bay.

**DISCUSSION OF PLANNING IMPLICATIONS**

**The Manzimyama River Canal**

The Canal fulfils an important drainage function for the surrounding area. This function is likely to severely limit possibilities for greening / rehabilitating within the existing Canal Channel. Any such proposals are likely to reduce the capacity of the channel and / or reduce the speed of water flowing through the channel. Given the low lying nature of surrounding land and changing weather patterns that are likely to lead to an increase in periods of intense rainfall, reducing the capacity of this strategic drain is probably not advisable. Possible greening / rehabilitation works within the Canal are therefore likely to be limited and might focus on edge treatments.

Edge treatments might include:

- The softening of the upper sections of the canal wall through the introduction of a reinforced grass / herbaceous edge. This could take the form of grass block construction. In the event of a flood, grasses and herbaceous species will be pushed flat by the force of the water. The edge would have to be maintained to ensure that the woody plants do not develop that could create greater resistance to the flow of water.

- Extending the height of the canal wall and planting the extended area. This would maintain the current capacity of the channel while allowing denser woody vegetation to extend along the upper bank. The benefit of this treatment would be that it would require less space than planting a natural edge on flat ground and it would provide greater flood protection for surrounding development.

- Extending the apparent width of the channel through the development of wetlands / water bodies and natural vegetation into adjoining areas. This would have the benefit of adding to habitat value along the canal as well as creating an improved outlook for development areas.

The extent and detail of any of these edge treatments would have to be developed with engineering (Hydraulic and Civil) assistance and with approval from relevant Municipal Departments to ensure that;

- Planting areas will not reduce the capacity of the canal,
- Plant species will not lead to damage to the wall of the canal,
- Maintenance requirements are understood and accepted.

Figure 1 shows how the concepts outlined above might be applied. It indicates:

- Development of wetlands / water bodies outside the canal. These might be developed as a focal point for development and / or for habitat creation.
- Softening of the canal’s upper wall possibly through the use of a concrete grass block and planting / maintenance of grass / herbaceous vegetation. If acceptable from an engineering perspective this might be used over the majority of the length of the canal.
- The planting and maintenance of a woody edge outside the canal channel. This might be for habitat creation and /or as a formal trafficked edge. It is likely that space for this treatment will be limited.
There is or will be pressure on open areas for development of port related business. The race course is one of a small number of areas within the back of Port where a large development may occur without consolidation of sites and demolition of existing buildings. This will mean that the race course is likely to come under increasing pressure for development.

Whilst the race course is not classified as public open space, in reality it is the largest open space close to large areas of relatively dense residential areas within which there is a shortage of recreational areas. Because of this it has been suggested that the area is developed at least in part for active recreational use.

It is also known that the Municipality are keen to develop an east – west road link across the site from the M4 in the east to Grimsby Road in the west.

One of the secondary functions of the race course is that it provides a visual buffer within a densely developed and industrialised landscape. The retention of open space close to boundaries particularly on the southern and eastern sides will help to maintain this function.

Given the environmental significance of the site and the fact that some stakeholders may wish to see retention of environmental attributes, the Race Course seems to be expected to fulfil a range of functions some of which may be mutually exclusive. A balanced approach to development of the site is likely to be important if development is to run smoothly.

Any significant development of the current undeveloped area which is largely within the track is likely to impact on both the ecological and hydraulic values of the site;

The ecological importance includes the use of the site by avifauna and the existence a plant species that is thought to be extinct in the wild. It has been established by previous work that;

• The development of the site would result in the loss of sensitive bird species from the site because of which the use of a suitable offset such as the enhancement of other nearby bird breeding sites as compensation might be appropriate.

• The natural population of Kniphofia pauciflora was originally removed from the racecourse and was then subsequently reintroduced. From work undertaken by the Municipality it is understood that this plant exists / existed in a small area inside the track.

If it is adjudged that these attributes are too important to loose from the site, then it may only be possible to redevelop the area of existing buildings and stands on the western side of the site. However, if acceptable offsets can be agreed with the relevant authorities, then it may be possible to develop at least a portion of the grassland within the track area. This will however be dependent on the extent of the area that may be required for hydraulic purposes as well as the extent that may be required for social purposes.

In order to resolve all of the above issues it will be necessary to work them through with the relevant stakeholders. In the mean time the following assumptions have been made;

• It will be possible to agree suitable offsets for the reduction in value of the site for bird life.

• It will be necessary to maintain the population of Kniphofia pauciflora and to manage the habitat in a way that encourages its expansion.

• It will be necessary to maintain 50% of the area of wet grassland for hyrological reasons.
Figure 2 indicates a possible concept plan which incorporates the following layout principles:

• Opens pace is focused on the southern and eastern sides adjacent to residential areas and the M4 Southern Freeway.
• The southern section of open space which is adjacent to residential areas and incorporates areas that have been disturbed including paddocks, a car park and the access road might be utilised for active recreation.
• The northern area of open space which incorporates the head of the Manzimyama River Canal and the Kniphofia communities will largely be used for conservation and passive recreational purposes.
• The existing developed area will be redeveloped and extended into the track area. This will be set back from residential uses and the M4 Freeway.

The areas indicated are conceptual only and are intended to highlight a possible juxtaposition of uses that might achieve a balanced approach. Whether this is acceptable to all stakeholders including the land owner and the authorities is subject to further investigation.
ENVIRONMENTAL PLANNING SYNOPSIS REPORT

ETHEKWINI BACK OF PORT PLANNING PROJECT
UMHLATHUZANA LINK ROAD - POSSIBLE OFFSET AREA

DURBAN BACK OF PORT
UMHLATHUZANA
CONCEPTUAL ENVIRONMENTAL PROJECT

Legend

Notes:
- EThekwini Municipality
- Environmental Planning and Design
- Ezemvelo KZN Wildlife
- Map for discussion.
## NECESSARY ENVIRONMENTAL PROJECTS

### INSTITUTIONAL

<table>
<thead>
<tr>
<th>PROJECTS</th>
<th>NECESSARY ACTIONS</th>
<th>TIMING</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
</table>
| Form an environmental management forum with Transnet. | Environmental management will have to cross institutional boundaries in order to be effective. It is important therefore that actions are coordinated between the relevant bodies.  
- Discuss and agree cross boundary environmental management actions. | Now | EM Transnet |

### BIODIVERSITY

<table>
<thead>
<tr>
<th>PROJECTS</th>
<th>NECESSARY ACTIONS</th>
<th>TIMING</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
</table>
| Recognition protection and upgrading of existing biodiversity assets. | In order to ensure protection occurs it is important to ensure that all existing assets within the area are recognised within MOSS. Once this has been achieved it is likely to be necessary to upgrade habitat areas in order to ensure that the greatest functional benefit is gained.  
- Survey of all assets indicating the extent, threats, existing value as well as potential value.  
- Inclusion of all relevant assets within MOSS.  
- Decision as to degree of protection that is required  
- Implementation of rehabilitation / improvement projects | Now | eThekwini Municipality (EM) |

| Study of Manzimyama canal Clairwood Racecourse and Umhlathuzana Link to determine extent of development / rehabilitation possible. | The three areas listed are probably at greatest risk of being lost due to development but they also provide the greatest potential for provision of environmental services. It is therefore important that the extent of open space is agreed with landowners and other stakeholders early in the development program.  
- Formulation of detailed development strategies.  
- Revise MOSS to include all areas of retained open space.  
- Undertake habitat creation / rehabilitation. | In conjunction with development planning | EM |

| Establishment and management of permanent reserve areas for rare and endangered species within the area. | The area in question is home to a number of rare and threatened species. From an ethical perspective as well as legal requirement it is important to ensure that the species in question are as far as possible maintained in the area. This will assist with the establishment of development offsets. Because Transnet will be the main beneficiary this process should maybe led by them, however eThekwini probably have the greatest capacity and reserves are likely to have to be within the Municipal Area so it may be more realistic for them to lead the process.  
It is important for this to occur even if port development is not seen as happening in the near future as development / use pressure is likely to lead to habitat loss in the short term.  
- Identify existing habitat areas, population densities and reserve opportunities.  
- Interact with all relevant stakeholders to agree reserve areas, necessary actions and responsibilities.  
- Provide necessary protection, establish and manage reserves | Before establishment of offsets | EM Transnet |
<table>
<thead>
<tr>
<th>PROJECTS</th>
<th>NECESSARY ACTIONS</th>
<th>TIMING</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishments of offsets required for loss of habitat due to development (Clairwood Racecourse, Airport and surrounding areas, Mondi Wetlands, Umhlathuzana Truck Route).</td>
<td>This process should probably be led by Transnet as the proposed port extensions are likely to result in the greatest loss of biodiversity however, BoP development will add to this and it is likely that offsets will have to be within the Municipal Area. The Municipality therefore is a major stakeholder and in the interest of ensuring that development occurs as quickly as possible has an interest in promoting this process.</td>
<td>Before commencement of EIA</td>
<td>Transnet</td>
</tr>
<tr>
<td>Development of open spaces for joint use (active, passive and conservation)</td>
<td>There are currently numerous active / passive open spaces that are underutilized. Because there is likely to be extreme pressure on open space for active, passive and conservation uses it is likely to be important to ensure that open spaces fulfill all three functions. As development pressure increases, this will help to provide / maintain a degree of linkage between habitat areas. In the interim it may help to increase biodiversity value within the area. Small changes in management operation could create habitat areas and linkages particularly for smaller species.</td>
<td>Now</td>
<td>EM</td>
</tr>
<tr>
<td>Rehabilitation of river corridors and drainage canals.</td>
<td>It is likely that the land will be made available only when restructuring within the port and surround occurs. It is also likely that this can only be effectively undertaken in conjunction with Transnet otherwise rehabilitation will have to stop short of Durban Bay.</td>
<td>In conjunction with port expansion and restructuring of uses within the BoP.</td>
<td>Transnet</td>
</tr>
</tbody>
</table>

**SOCIAL**

<table>
<thead>
<tr>
<th>Projects</th>
<th>Necessary Actions</th>
<th>Timings</th>
<th>Responsible Party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape development of buffer areas surrounding residential areas</td>
<td>Planning proposals include buffer uses surrounding residential areas including open spaces, business and light industry. Upgrading of landscape within street areas and open spaces will also help create separation and will make upgrade residential areas.</td>
<td>As areas become available.</td>
<td>EM</td>
</tr>
</tbody>
</table>
## WATER QUALITY

<table>
<thead>
<tr>
<th>PROJECTS</th>
<th>NECESSARY ACTIONS</th>
<th>TIMING</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft development requirements for Logistics / Transport related development</td>
<td>In order to ensure that appropriate truck maintenance and cleaning facilities are included in future development, requirements must be written into development conditions.</td>
<td>Now</td>
<td>EM</td>
</tr>
<tr>
<td>Monitoring of Logistics / Transport Operators</td>
<td>Ongoing monitoring of operators is necessary to ensure that risks to water quality are minimised. These risks arise from cleaning, maintenance and fuel storage and use.</td>
<td>Now</td>
<td>EM Transnet</td>
</tr>
<tr>
<td>Establishment of contaminated land register</td>
<td>There are likely to be contaminated sites within the BoP development area. In order to facilitate development a clear picture of the extent of the problem and areas of remedial action is necessary.</td>
<td>Now</td>
<td>EM Transnet</td>
</tr>
<tr>
<td>Focused catchment management program</td>
<td>This will be required to ensure that water quality within development areas is suitable for proposed uses. It is most critical where waterfront development and recreational areas are proposed.</td>
<td>In conjunction with development planning</td>
<td>EM Transnet</td>
</tr>
</tbody>
</table>

## AIR QUALITY

<table>
<thead>
<tr>
<th>PROJECTS</th>
<th>NECESSARY ACTIONS</th>
<th>TIMING</th>
<th>RESPONSIBLE PARTY</th>
</tr>
</thead>
</table>
| Model / Monitor SO$_2$ emissions from port extensions                   | • Model SO$_2$ emissions from the port in order to ascertain whether they are likely to be critical in terms of overall emissions in South Durban.  
  • Undertake monitoring as necessary                                                                                                                                                                                                                                                                                                                      | During EIA | Transnet          |
| Monitor emissions from vehicles at key road junctions                   | Monitor emissions as traffic levels rise in order to decide on program for development of infrastructure and on levels of enforcement necessary.                                                                                                                                                                                                                                                                                   | Now        | EM                |
REAL ESTATE OPPORTUNITY ANALYSIS

1. Introduction
This report has two aims:
1) To detail the real-estate opportunities that exist in the Back of Port planning area; and secondly, assess the leases that make up the Transnet owned land in Bayhead (between Edwin Swales VC Drive, South Coast Road and Bayhead Road).

2) To look at land uses by category, employment level, GDP contribution and rand per square metre. This gives a detailed understanding of where various activities are located in the Back of Port area, how valuable their sites are and the value they add to the local economy in both employment and GDP contributions. This section previously was included in the economic status quo analysis and therefore all the data was compiled between June 2008 and March 2009.

A third section relates to the Transnet leases in the Bayhead area. The lease data was directly sourced from Transnet Freight Rail and Transnet Properties the two land custodians in Bayhead in late 2010. The lease analysis looks at the company that holds the lease with Transnet, their activity and where they fall into the Transnet land classification between one and four (one being quayside port activities, two being quayside support activities, three being logistics and warehousing activities and four being non-port and non-logistic related activities.)

2. Real estate opportunity analysis
2.1. Methodology
This report analyses the real estate opportunities and property trends in the study area, examining each geographical sub-area within the defined study area in terms of employment, upstream gross domestic product (GDP), land prices and land value. Furthermore, land use categories that correspond to specific economic activities have also been analysed.

The challenge in this analysis has been to bring together three fairly disparate data sets in a robust manner. These data sets are:
- Land use data (supplied by eThekwini Municipality)
- The eThekwini Municipality Rates Valuation Roll (supplied by eThekwini Municipality)
- Braby’s employment figures by business operating in the study area

For each geographical sub-area (Congella, Rossburgh, Clairwood, Jacobs, Moberi) the land uses and land values have been mapped; in addition, employment, the amount of upstream GDP generated annually, the area (hectares) of economically productive land, viz. the economic footprint, and land value (both the value of real estate and land prices in rands per square metre) have been calculated according to the land use categories seen on the land use maps. In addition, maps showing distribution of both employment and upstream GDP have been generated.

2.1.1. Land use categories
The overarching requirement in bringing together the data sets was the development of a set of standardised land use / sector categories that relate spatially as well as economically. For this reason several ‘traditional’ land use categories have been modified or even discarded, i.e. this has been applied where land uses are not implicit economic activities that can be aligned with and assigned to specific Braby’s sector industry codes (SIC) and link codes. For instance, the land use ‘mixed use’ was allocated to either retail or residential, where appropriate. The open space and road / rail reserve categories have been purposefully omitted as they are not implicit generators of employment. This refinement of the land use categories has consequently given a purely economic slant to the land use analysis as used for the purposes of this research.

Note that specific land use data was only available for the study area and hence certain adjacent areas such as Maydon Wharf, Bayhead and Prospecton are only included in the employment and upstream GDP calculations.

The adjusted business land use categories are summarised below in Table 2.1.

<table>
<thead>
<tr>
<th>Table 2.1</th>
<th>Land use categories and corresponding activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refined land use categories</td>
<td>Business activities included in land use categories (summarised*)</td>
</tr>
<tr>
<td>Building products</td>
<td>Includes glass products, cement, concrete products, cable and wire products, other articles of wood, cork, straw &amp; plaiting materials, kitchen unit manufacturing, burglar guards and gates</td>
</tr>
<tr>
<td>Chemicals</td>
<td>Includes fertilisers &amp; pesticides, synthetic resin &amp; plastics, paints, varnish &amp; lacquers, chemicals, miscellaneous oil products, lubricants, perfumes, cosmetics, gas and gaseous fuels, printing ink, printing &amp; publishing</td>
</tr>
<tr>
<td>Chemicals - rubber</td>
<td>Includes tyres &amp; tubes, rubber products, elastic products, flexible hosing and tubing</td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>Includes manufacturing of clothing, footwear, tailoring, blinds</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>Includes health facilities, hospitals, schools, old-aged homes, religious activities, civic organisations</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>Includes iron &amp; steel based industry, non-ferrous metal, precious metal, aluminium, fabricated engineering</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>Includes food manufacturing, slaughtering/preparing &amp; preserving meat, dairy products, canning fruit &amp; vegetables, grain mill</td>
</tr>
<tr>
<td>Government services</td>
<td>Includes judicial services, protective functions, postal service &amp; Telkom, correctional institutions, SA defence base, local &amp; provincial authorities</td>
</tr>
<tr>
<td>High tech industries</td>
<td>Includes professional &amp; scientific manufacturing, photographic &amp; optical manufacturing, jewellery manufacturing, musical instrument manufacturing, sporting equipment</td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>Includes ship &amp; boat building, railroad equipment, motor cycles &amp; bicycles, aircraft manufacture &amp; repair</td>
</tr>
<tr>
<td>Motor industries</td>
<td>Includes auto manufacturers (includes Toyota), caravans, trailers &amp; motor bodies</td>
</tr>
</tbody>
</table>
## REAL ESTATE OPPORTUNITY ANALYSIS

<table>
<thead>
<tr>
<th>Refined land use categories</th>
<th>Business activities Included In land use categories (summarised*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor service industries</td>
<td>Includes auto body repairs, brake &amp; clutch, exhaust systems, filters, radiators, specialised auto engineering, motor vehicle spares, windscreen fitting &amp; repairs</td>
</tr>
<tr>
<td>Other</td>
<td>Includes agriculture, forestry, vacant buildings of any sort / vacant floor area, under construction, under demolition, abandoned, undeveloped vacant land</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>Including bag sack manufacturers, cable manufacturers, cardboard box &amp; carton manufacturers, coat hanger manufacturers, crockery &amp; cutlery manufacturers, envelopes, furniture manufacturers &amp; distributors, garden equipment, grave &amp; memorial stones, paint manufacturers, paper products, plastic goods, refrigerators &amp; freezer parts &amp; accessories, sewing &amp; knitting machines, sign manufacturers, umbrella manufacturers &amp; dealers, wendy houses, wooden box &amp; crate manufacturers</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>Includes auto valet, breakdown equipment &amp; services, burglar alarms, catering services, cellular phone repairs, dry-cleaners, electrical equipment repairs, fashion designers, footwear repairs, furniture removals, funeral directors &amp; parlours, hairdressers, laundry services, pest &amp; weed control, plumbers, public transport services, shop fitters, slimming &amp; beauty salons, taxi services</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>Includes medical &amp; pharmaceutical, soap cleaning cosmetics, pharmacies, chemists, medical research council, medical &amp; veterinary agencies, surveyors, town &amp; regional planners</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>Includes contractors, agents, professional, consultants (e.g. engineers), banking services, financial services, real estate agencies, surveyors, town &amp; regional planners</td>
</tr>
<tr>
<td>Residential</td>
<td>Includes residential accommodation, housing, hotels, brothels, hostels</td>
</tr>
<tr>
<td>Retail</td>
<td>Includes all conventional retailing outlets, automotive sales &amp; showrooms, dealers, restaurants, pubs, coffee shops, florists</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>Includes newspaper, telephone, radio, television, and other communication</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Refined land use categories</th>
<th>Business activities Included In land use categories (summarised*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warehousing, storage, freight &amp; transportation services</td>
<td>Includes cargo handling &amp; container services, cartage contractors, commercial &amp; industrial refrigeration, container &amp; cargo repairs, courier services, customs cleaning &amp; forwarding agents, distribution services, export &amp; import services, freight &amp; transport containers, freight services &amp; warehousing, logistics services, packing &amp; filling contractors, ship chandlers, transportation services &amp; arrangement, warehousing &amp; storage services, other forms of storage, warehousing &amp; distribution</td>
</tr>
<tr>
<td>Waste industries</td>
<td>Includes plastic recyclers, scrap metal dealers, wastepaper dealers, portable toilets, refuse removal</td>
</tr>
<tr>
<td>Wholesale</td>
<td>Includes all regular wholesale trading, hiring services, forklifts, building plant, equipment hire, crane</td>
</tr>
</tbody>
</table>

### 2.1.1. Property values and area (in hectares)

Land use maps were created by eThekwini Municipality and this data was made available to the project team for use in this project. The land use categories were then re-defined (as discussed above) the land uses aggregated to match this. GIS software was used to calculate minimum area, maximum area, average area, sum of areas, standard deviation and variance related to each land use category. This data was converted to a MS Excel spreadsheet for further analysis.

The land value data is an extract from the 2008 / 209 valuation role. To generate the land use related land value statistics, the land use data polygons were used to create polygon centroids, i.e. creating a point GIS layer with a point created at the geometric centre of each land parcel. A spatial join was done by joining the databases of the land value layer with the land use centroid layer so that the land use database records were transferred to the matching land value database records.

Manual checking was then carried out across each land parcel to make sure that each land parcel’s land use matched the original land use data. The database was converted to a MS Excel spreadsheet for further analysis.

There were gaps in the property data across the land use categories, i.e. properties with several fields of data, such as owners, area (m²), but no value. The gaps were filled by averaging the R/m² for the sites with data and multiplying those values against the actual site sizes (the without data) to get estimated property values for the gaps. This approach is extremely robust as it takes into account the average values of all of the other related land uses (those in the same land use category) in each area.
REAL ESTATE OPPORTUNITY ANALYSIS

2.1.2. Employment

Employment statistics were sourced from the Braby’s business directory database, where approximately half (46.7%) of the companies in the South Durban Basin area have listed employment numbers. The data has encompassed areas outside of the specific study area boundary, giving an employment number for the entire South Durban Basin:

Study area
• Congella, Rossburgh, Clairwood, Jacobs & Mobeni
• Transnet land
• Maydon Wharf & Bayhead
Other industrial areas
• Prospecton, Southgate Industrial Park & Umbogintwini
Residential areas
• Austerville, Merewent, Wentworth, Reunion, Isipingo Rail / Isipingo Hills / Isipingo Beach

The average employment by sector was determined, giving an average number of employees per typical company within each sector over entire South Durban Basin. These employment averages were then applied to the companies that didn’t have any employment numbers (the gaps). The data as supplied by Braby’s gives surveyed employment at 44,776, but with the gaps filled as per the methodology discussed above, puts employment at the far higher figure of 87,745 jobs.

2.1.1. Upstream GDP

Here upstream GDP for each sector was estimated using the 2005 sectoral multiplier table for South Africa. For a R1 million change in final demand we can estimate upstream GDP and employment, i.e. with employment the change in final demand and upstream GDP can be calculated. Upstream GDP calculations have taken into account CPIX inflation between 2005 and December 2008, and used the following formula:

\[
\text{estimated employment} \times \frac{1,000,000}{\text{employment multiplier}} \times \text{CPIX inflation} = \text{estimated final output/sales}
\]

\[
\text{estimated final output/sales} \times \text{value added} \times \text{GDP multiplier} = \text{Value added GDP}
\]

2.2. South Durban Basin-wide analysis (employment and upstream GDP only)

Table 2.2, overleaf, shows employment, upstream GDP and upstream GDP per sector across the entire South Durban basin (SDB). Total employment across the SDB amounts to 87,745. Examining at each sector distinctly the top employers are:

• Miscellaneous (non-major) manufacturing with 12,548 jobs (14.3%);
• Transport, freight, shipping services, warehousing and storage with 11,723 jobs (13.4%); and
• Motor industries with 10,505 jobs (12%).

Several other sectors, notably clothing and textiles, waste industries, wholesale, chemicals and retail are significant employers in the area.

The total upstream annual GDP created by activities in the SDB amount to an impressive R47.3 billion. Unsurprisingly the multiple actors and players within the logistics industry contribute to its very high level of R 10.4 billion in upstream GDP (a proportion of 22.1%) every year. Only motor industries (which includes Toyota) contributes anywhere near that, at R 7.5 billion (16% of the total upstream GDP).

All of the employment in the area is significant yet there are some activities that employ higher numbers of people. The mid-range employers in the SDB are the chemical sector (5149 jobs), clothing and textiles (7824 jobs), professional and business services (6028 jobs), retail (5004 jobs), waste industries (6493 jobs) and wholesale (6018 jobs).

The upstream GDP per employee is an indicator of the productivity of that particular sector. With the average across the SDB being approximately R 538,551 per employee, the following sectors are significantly above average:

• Petrol refineries (R 961,019 per employee)
• Transport, freight, shipping services, warehousing and storage (R 891,136 per employee)
• Motor industries and motor service industries (amazingly both R 717,952 per employee)
• Chemicals (R 662,012 per employee)
**REAL ESTATE OPPORTUNITY ANALYSIS**

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Estimated employment</th>
<th>% of estimated employment</th>
<th>Upstream GDP contribution</th>
<th>% of upstream GDP</th>
<th>Upstream GDP per employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building products</td>
<td>595</td>
<td>0.7%</td>
<td>284,607,602</td>
<td>0.6%</td>
<td>478,332</td>
</tr>
<tr>
<td>Chemicals</td>
<td>5149</td>
<td>5.9%</td>
<td>3,408,673,716</td>
<td>7.2%</td>
<td>662,007</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>135</td>
<td>0.2%</td>
<td>50,720,242</td>
<td>0.1%</td>
<td>375,705</td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>7824</td>
<td>8.9%</td>
<td>1,953,252,623</td>
<td>4.1%</td>
<td>249,649</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>863</td>
<td>1.0%</td>
<td>304,317,464</td>
<td>0.6%</td>
<td>352,627</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>2587</td>
<td>2.9%</td>
<td>1,359,550,928</td>
<td>2.9%</td>
<td>525,532</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>1571</td>
<td>1.8%</td>
<td>422,007,909</td>
<td>0.9%</td>
<td>268,624</td>
</tr>
<tr>
<td>Government services</td>
<td>119</td>
<td>0.1%</td>
<td>44,289,809</td>
<td>0.1%</td>
<td>376,721</td>
</tr>
<tr>
<td>High tech industries</td>
<td>626</td>
<td>0.7%</td>
<td>281,674,849</td>
<td>0.6%</td>
<td>449,960</td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>263</td>
<td>0.3%</td>
<td>131,951,347</td>
<td>0.3%</td>
<td>501,716</td>
</tr>
<tr>
<td>Miscellaneous manufacturing</td>
<td>12548</td>
<td>14.3%</td>
<td>4,997,933,567</td>
<td>10.6%</td>
<td>398,305</td>
</tr>
<tr>
<td>Motor industries</td>
<td>10505</td>
<td>12.0%</td>
<td>7,541,874,679</td>
<td>16.0%</td>
<td>717,932</td>
</tr>
<tr>
<td>Motor service industries</td>
<td>2500</td>
<td>2.8%</td>
<td>1,794,863,370</td>
<td>3.8%</td>
<td>717,945</td>
</tr>
<tr>
<td>Non-related land uses</td>
<td>35</td>
<td>0.0%</td>
<td>18,847,399</td>
<td>0.4%</td>
<td>538,497</td>
</tr>
<tr>
<td>Other</td>
<td>788</td>
<td>0.9%</td>
<td>313,660,304</td>
<td>0.7%</td>
<td>398,046</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>3400</td>
<td>3.9%</td>
<td>1,830,890,235</td>
<td>3.9%</td>
<td>538,497</td>
</tr>
<tr>
<td>Petrol refineries</td>
<td>2615</td>
<td>3.0%</td>
<td>2,513,064,315</td>
<td>5.3%</td>
<td>961,019</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>302</td>
<td>0.3%</td>
<td>199,903,761</td>
<td>0.4%</td>
<td>662,231</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>6028</td>
<td>6.9%</td>
<td>2,541,401,194</td>
<td>5.4%</td>
<td>421,599</td>
</tr>
<tr>
<td>Residential</td>
<td>28</td>
<td>0.0%</td>
<td>6,955,099</td>
<td>0.0%</td>
<td>248,396</td>
</tr>
<tr>
<td>Retail</td>
<td>5004</td>
<td>5.7%</td>
<td>1,969,760,302</td>
<td>4.0%</td>
<td>381,647</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>25</td>
<td>0.0%</td>
<td>14,048,869</td>
<td>0.0%</td>
<td>561,876</td>
</tr>
<tr>
<td>Transport, freight, shipping, warehousing &amp;</td>
<td>11723</td>
<td>13.4%</td>
<td>10,446,954,805</td>
<td>22.1%</td>
<td>891,150</td>
</tr>
<tr>
<td>storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste industries</td>
<td>6493</td>
<td>7.4%</td>
<td>2,586,298,940</td>
<td>5.5%</td>
<td>398,321</td>
</tr>
<tr>
<td>Wholesale</td>
<td>8018</td>
<td>6.9%</td>
<td>2,296,929,968</td>
<td>4.9%</td>
<td>381,676</td>
</tr>
<tr>
<td>TOTAL</td>
<td>87744</td>
<td>100%</td>
<td>47,255,060,327</td>
<td>100%</td>
<td>538,556</td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates and, Braby’s Database

Petrol refineries and the broad logistics industries each contribute almost R1 million in upstream GDP per employee (R 961,019 and R 981,136) respectively. This is followed by motor industries and motor service industries (remarkably contributing the exact figure of R 717,592 of upstream GDP apiece). Some of the sectors contributing far smaller amounts to the economy, with less than R 300,000 of upstream GDP per employee are clothing and textiles, food and food processing and residential (in itself not in fact a true economic sector).

Table 2-3 on the overleaf depicts the estimated employment, amounts of upstream GDP and upstream GDP per employee, but has aggregated all of the manufacturing sectors barring miscellaneous manufacturing. The ‘major manufacturing’ category includes building products, chemicals, chemicals (rubber), clothing and textiles, ferrous and non-ferrous industries, food and food processing, high tech industries, manufacture of transport equipment and motor industries.

While no single manufacturing sub-sector (aside from the collected industries comprising miscellaneous manufacturing) produces comparably high levels of employment or upstream GDP, when combined the major manufacturing sectors are responsible for an impressive 33.3% of the jobs and 32.7% of the upstream GDP in the SDB. A total manufacturing figure can be arrived at by adding the major manufacturing sectors to miscellaneous manufacturing. This gives total employment of 41,803 jobs (47.6% of the total) and upstream GDP of about R20.4 billion (43.2%).

The main areas of concentrated economic activity in the study area are Congella, Rosburgh, Clairwood, Jacobs and Mobeni (examined in detail further on). However the main economically productive areas in the SDB that are found outside the study area are Bayhead, Maydon Wharf and Prospecton. Map 2-1, overleaf depicts the estimated employment and upstream GDP for these areas. Most notable here are the dominant activities that emerge in each area: logistics activities in Bayhead and Maydon Wharf with R 2.7 billion and R 1.3 billion in upstream GDP respectively; and motor industries in Prospecton – a massive R 6.4 billion in upstream GDP, generated almost entirely by Toyota. In addition to the dominant sectors, the overall upstream GDP in each area tells a story: Prospecton generates a massive R 10.8 billion, followed by Bayhead with R4.3 billion and lastly (with almost 10% of Prospecton’s output), Maydon Wharf with R 1.9 billion.
Table 2-3
Estimated Employment, Upstream GDP and upstream GDP per employee – entire South Durban Basin (aggregated manufacturing sectors)

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Estimated employment</th>
<th>% of estimated employment</th>
<th>Upstream GDP contribution</th>
<th>% of upstream GDP</th>
<th>Upstream GDP per employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major manufacturing sectors</td>
<td>29255</td>
<td>33.3%</td>
<td>15,434,313,895</td>
<td>32.7%</td>
<td>527,579</td>
</tr>
<tr>
<td>Miscellaneous manufacturing</td>
<td>12548</td>
<td>14.3%</td>
<td>4,997,933,567</td>
<td>10.6%</td>
<td>398,305</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>863</td>
<td>1.0%</td>
<td>304,317,464</td>
<td>0.6%</td>
<td>352,627</td>
</tr>
<tr>
<td>Government services</td>
<td>119</td>
<td>0.1%</td>
<td>44,829,809</td>
<td>0.1%</td>
<td>376,721</td>
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</tr>
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<td>0.0%</td>
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</tr>
<tr>
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<td>3.0%</td>
<td>2,513,045,194</td>
<td>5.3%</td>
<td>961,019</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>302</td>
<td>0.3%</td>
<td>199,963,761</td>
<td>0.4%</td>
<td>662,231</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
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<td>2,541,401,194</td>
<td>5.4%</td>
<td>421,599</td>
</tr>
<tr>
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<td>6,955,099</td>
<td>0.0%</td>
<td>249,396</td>
</tr>
<tr>
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<td>5.7%</td>
<td>1,909,760,302</td>
<td>4.0%</td>
<td>381,647</td>
</tr>
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<td>Telecommunications</td>
<td>25</td>
<td>0.0%</td>
<td>14,048,669</td>
<td>0.0%</td>
<td>561,876</td>
</tr>
<tr>
<td>Transport, freight, shipping, warehousing &amp; storage</td>
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<td>13.4%</td>
<td>10,446,954,805</td>
<td>22.1%</td>
<td>891,150</td>
</tr>
<tr>
<td>Waste industries</td>
<td>6493</td>
<td>7.4%</td>
<td>2,596,298,940</td>
<td>5.5%</td>
<td>398,321</td>
</tr>
<tr>
<td>Wholesale</td>
<td>6018</td>
<td>6.9%</td>
<td>2,296,928,669</td>
<td>4.9%</td>
<td>381,676</td>
</tr>
<tr>
<td>TOTAL</td>
<td>87744</td>
<td>100.0%</td>
<td>47,255,060,327</td>
<td>100.0%</td>
<td>8,756,134</td>
</tr>
</tbody>
</table>

Source: Graham Muller Associate and, Braby’s Database
Study area-wide analysis (specifically Congella, Rossburgh, Clairwood, Jacobs, Mobeni)

Map 2-1 Economic analysis – sub-areas

REAL ESTATE OPPORTUNITY ANALYSIS
### Table 2-4: Estimated employment and upstream GDP for key areas outside of the study area

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Bayhead</th>
<th>Maydon Wharf</th>
<th>Prospecton</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimated employment</td>
<td>Upstream GDP contribution</td>
<td>Estimated employment</td>
</tr>
<tr>
<td>Building products</td>
<td>34</td>
<td>16,419,669</td>
<td>34</td>
</tr>
<tr>
<td>Chemicals</td>
<td>134</td>
<td>88,921,923</td>
<td>269</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>19</td>
<td>6,800,390</td>
<td>5</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>196</td>
<td>102,996,282</td>
<td>39</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>62</td>
<td>16,549,330</td>
<td>154</td>
</tr>
<tr>
<td>Government services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High tech industries</td>
<td>21</td>
<td>9,389,162</td>
<td>10</td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>57</td>
<td>28,685,075</td>
<td></td>
</tr>
<tr>
<td>Motor industries</td>
<td>8979</td>
<td>6,446,566,482</td>
<td></td>
</tr>
<tr>
<td>Motor service industries</td>
<td>21</td>
<td>15,406,553</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>63</td>
<td>25,092,824</td>
<td></td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>372</td>
<td>148,086,921</td>
<td>93</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>88</td>
<td>36,617,805</td>
<td>51</td>
</tr>
<tr>
<td>Petrol refineries</td>
<td>872</td>
<td>837,668,105</td>
<td></td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>626</td>
<td>264,134,394</td>
<td>254</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>13</td>
<td>5,095,677</td>
<td>93</td>
</tr>
<tr>
<td>Telecommunications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport, freight, warehousing &amp; storage</td>
<td>3000</td>
<td>2,673,294,832</td>
<td>1460</td>
</tr>
<tr>
<td>Waste industries</td>
<td>224</td>
<td>89,162,722</td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>133</td>
<td>50,760,861</td>
<td>100</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5628</td>
<td>4,300,816,979</td>
<td>2763</td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

Map 2-1 depicts the study area for which focused economic analysis has been possible according to availability of data. This section of the report (1.3) looks initially at the study area as a whole in terms of:
- Land use;
- Land value;
- Extent (total areas in hectares);
- Employment;
- Amounts of upstream GDP;
- Spatial distribution of employment;
- Spatial distribution of upstream GDP.

Many of the most pertinent arguments are made and conclusions drawn whilst making comparisons and observations at a study area-wide level. However, section 1.4 examines each sub-area in detail in terms of all of the above aspects, thereby providing another layer of detail.
2.2.1. Study area-wide land use

Map 2-2 Study area-wide land use

Source: eThekwini Municipality and Graham Muller Associates project team
The land use map above shows the spread of economic activities in the study area. At this scale there are some striking features in the study area:

The large extent of warehousing, storage, freight and transportation services (logistics) in the area, shown in the bright pink (15.9% of the economically productive land). This is unsurprising given the proximity of the area to the Port of Durban;

Large pockets of Government services in Mobeni, shown in dashed orange. There include the military premises and Telkom warehouses;

Large undeveloped open space in Mobeni (Clairwood racecourse) as well and the large residential complex in the west;

Certain areas exhibit dense clustering of varied economic activities on small sites (parts of Jacobs, Clairwood and Congella) relative to the larger industrial sites of Mobeni.
2.2.2. Study area-wide land value

Map 2.3 Study area-wide land value

Source: eThekwini Municipality
REAL ESTATE OPPORTUNITY ANALYSIS

Land with the highest value is depicted in shades of blue and the lowest value in reds and oranges (yellow is in the middle range of prices). The study area-wide land value map above shows that clusters of the most valuable land in are found in Jacobs, certain parts of Moberi, the western portion of Clairwood, parts of Rossburgh, and in Congella. The more valuable sites range in value from R 1,501 per m² to more than R 3,500 per m².

The least valuable land (frequently less than R 500 per m² and at times less than R 200 per m²) is found amongst the residential portion of in Clairwood and several of the particularly large sites (e.g. Clairwood Racecourse, playing fields in Clairwood and the Tongaat-Hulett refinery).

2.2.3. Economic overview of study area

Table 2-5: Study area-wide – Upstream GDP, employment, land value and land area per land use category

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Estimated value of real estate</th>
<th>Total area (ha)</th>
<th>Estimated R/ sq.metre</th>
<th>Estimated employment</th>
<th>Upstream GDP contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building products</td>
<td>64,093,719</td>
<td>9.83</td>
<td>652.02</td>
<td>389</td>
<td>186,089,556</td>
</tr>
<tr>
<td>Chemicals</td>
<td>580,450,830</td>
<td>38.56</td>
<td>1,505.32</td>
<td>2608</td>
<td>1,778,438,461</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>178,681,280</td>
<td>16.98</td>
<td>1,052.30</td>
<td>106</td>
<td>38,851,619</td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>719,238,979</td>
<td>34.84</td>
<td>2,081.54</td>
<td>7041</td>
<td>1,757,927,361</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>147,179,588</td>
<td>21.03</td>
<td>699.88</td>
<td>275</td>
<td>98,905,561</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>283,376,388</td>
<td>20.75</td>
<td>1,365.67</td>
<td>1529</td>
<td>803,371,003</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>373,587,071</td>
<td>46.76</td>
<td>798.95</td>
<td>1017</td>
<td>273,063,941</td>
</tr>
<tr>
<td>Government services</td>
<td>234,247,372</td>
<td>26.69</td>
<td>877.86</td>
<td>20</td>
<td>7,477,635</td>
</tr>
<tr>
<td>High tech industries</td>
<td>5,760,716</td>
<td>0.35</td>
<td>1,645.92</td>
<td>439</td>
<td>197,172,394</td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>22,827,846</td>
<td>3.09</td>
<td>738.77</td>
<td>206</td>
<td>103,266,272</td>
</tr>
<tr>
<td>Motor industries</td>
<td>115,479,731</td>
<td>9.65</td>
<td>1,196.68</td>
<td>1335</td>
<td>958,394,672</td>
</tr>
<tr>
<td>Motor service industries</td>
<td>546,402,738</td>
<td>41.65</td>
<td>1,311.89</td>
<td>1803</td>
<td>1,294,150,413</td>
</tr>
<tr>
<td>Other</td>
<td>554,761,668</td>
<td>90.90</td>
<td>810.30</td>
<td>56</td>
<td>94,733,887</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>826,805,255</td>
<td>56.83</td>
<td>1,454.87</td>
<td>8830</td>
<td>3,517,064,362</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>37,385,280</td>
<td>3.02</td>
<td>1,237.92</td>
<td>1972</td>
<td>1,061,916,336</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>75,081,930</td>
<td>4.61</td>
<td>1,628.68</td>
<td>143</td>
<td>94,733,887</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>351,213,555</td>
<td>21.67</td>
<td>1,620.74</td>
<td>3116</td>
<td>1,313,533,201</td>
</tr>
<tr>
<td>Residential</td>
<td>353,791,211</td>
<td>53.17</td>
<td>665.40</td>
<td>14</td>
<td>3,477,549</td>
</tr>
<tr>
<td>Retail</td>
<td>893,042,000</td>
<td>55.53</td>
<td>1,608.22</td>
<td>2668</td>
<td>1,018,201,116</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>4,816,605</td>
<td>0.38</td>
<td>1,267.53</td>
<td>25</td>
<td>14,046,896</td>
</tr>
<tr>
<td>Warehousing, freight &amp; transportation services</td>
<td>1,169,164,801</td>
<td>111.80</td>
<td>1,045.76</td>
<td>5763</td>
<td>5,135,540,072</td>
</tr>
<tr>
<td>Waste industries</td>
<td>19,488,498</td>
<td>1.58</td>
<td>1,233.45</td>
<td>4030</td>
<td>1,605,288,997</td>
</tr>
<tr>
<td>Wholesale</td>
<td>512,991,799</td>
<td>33.40</td>
<td>1,535.90</td>
<td>4123</td>
<td>1,573,586,697</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8,068,868,860</td>
<td>703.07</td>
<td>1,267.53</td>
<td>25</td>
<td>22,833,492,034</td>
</tr>
</tbody>
</table>

The table above depicts the spatial and economic activity related to the land use categories as per the land use map (Map 2.2). Depicted is the collective value of real estate (according to the 2008 municipal valuation roll); the total area of economically productive land (i.e. excluding land uses such as open space and road / rail reserve); the value of the land (Rands per m²); the employment per economic activity / land use; and the corresponding upstream GDP.

Most importantly one sees the significant total upstream GDP for the industrial townships in the study area of R 22.8 billion per year. The chief contributuors to that total are:

- Warehouse, storage, freight and transportation services with RR 5.1 billion (22.4% of the total). Note that if upstream GDP figures for Bayhead and Maydon Wharf are taken into account then the amount generated by the broader logistics activities in the entire north-western-part of the SDB totals R9.1 billion.
- Other / miscellaneous manufacturing with R 3.5 billion (15.4% of the total)

Sizable but less substantial contributions are yet made by the chemical sector, clothing and textiles, motor service industries, professional and business services, waste industries and wholesale.

Total employment within the study area is sizable 47,529 jobs. The employment levels are mirrored fairly closely the upstream GDP amounts, although top employers emerge as:

- Other / miscellaneous manufacturing with 8,830 jobs (18.6% of the total)
- Clothing and textiles with 7,041 jobs (14.8% of the total)
- Warehousing, storage, freight and transportation services with 5,763 jobs (12.1% of the total). Note that if employment figures for Bayhead and Maydon Wharf are taken into account then the employment generated by the broader logistics activities in the entire north-western-part of the SDB totals 10,223 jobs.
- Wholesale with 4,123 jobs (8.7% of the total)
- Waste services with 4,030 jobs (8.5% of the total)

The data confirms the significance of historically dominating sectors such as clothing and textiles but shows that the array of general (non-major) manufacturers eclipses any one manufacturing sector in terms of employment and annual upstream GDP. The logistics activities that are closely associated with the port also emerge as a major employer and add enormous value to the local economy. However the ratio of upstream GDP to employment is particularly high for the logistics sector, reflecting the multiple players involved in the supply chain and the national significance of this economic sector. Consequently an increases in the scale of logistics in the study area and in Durban as a whole would be of enormous benefit to the local economy; in fact of more benefit than increases in other activities such as manufacturing.

The high value of real estate used for logistics purposes (R 1.2 billion) is unsurprising given that those activities occupy 111.8 ha of land, the largest footprint of any sector. However the price per square metre (R1,045.76/m²) is quite modest compared to other activities. Most of the activities range in price from R 1,000/m² to R 1,600/m², with clothing and textiles the most expensive real estate at approximately R 2,061.54/m². The lowest land prices are generally found in activities that generate little or no economic return (residential, government, community, social and cultural activities, and ‘other’, which is predominantly undeveloped or vacant land) although several non-intense manufacturing activities occupying large plots also have low land prices (food and food processing, manufacture of transport equipment).
Table 2.6 below depicts the amounts of space (in hectares) occupied by each sector / land use category across the five sub-areas. It shows the comparative sizes of each sub-area’s economically productive land (not including open spaces and the road / rail reserve), Mobeni has the largest amount of economically productive land (approximately 214 ha) with Rosburgh having the least (about 39 ha).

Table 2.6 Proportions of economically productive land (hectares) across the study area

<table>
<thead>
<tr>
<th>Sectors</th>
<th>AREA OF ECONOMICALLY PRODUCTIVE LAND (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Congella</td>
</tr>
<tr>
<td>Building products</td>
<td>0.17</td>
</tr>
<tr>
<td>Chemicals</td>
<td>1.78</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>10.66</td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>3.41</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>7.34</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>4.37</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>8.29</td>
</tr>
<tr>
<td>Government services</td>
<td>3.10</td>
</tr>
<tr>
<td>High tech industries</td>
<td>0.35</td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>0.48</td>
</tr>
<tr>
<td>Motor industries</td>
<td>0.21</td>
</tr>
<tr>
<td>Motor service industries</td>
<td>9.33</td>
</tr>
<tr>
<td>Other</td>
<td>9.06</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>6.38</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>0.97</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>0.02</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>6.84</td>
</tr>
<tr>
<td>Residential</td>
<td>1.84</td>
</tr>
<tr>
<td>Retail</td>
<td>14.10</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>0.29</td>
</tr>
<tr>
<td>Warehousing, storage, freight &amp; transportation services</td>
<td>30.49</td>
</tr>
<tr>
<td>Waste industries</td>
<td>0.39</td>
</tr>
<tr>
<td>Wholesale</td>
<td>8.01</td>
</tr>
<tr>
<td>TOTAL</td>
<td>126.09</td>
</tr>
<tr>
<td>Percentage of total area</td>
<td>17.9%</td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality

There are some distinctive features to the spatial spread of land and activities in the study area:
- Congella – high proportion of logistics already (amidst a host of recent warehouse conversions)
- Rosburgh – the 15.6 ha Tongaat-Hulett’s sugar refinery is the dominant activity in the area
- Clairwood – high proportions of community facilities (churches and a school), residential and retail activities, as well as undeveloped land, shown in the ‘other’ category
- Jacobs – the dominant land uses are other (non-major) manufacturing and logistics, combined occupying 38.5 ha
- Mobeni – has the largest extents of several activities (chemicals, clothing and textiles, government, warehousing etc.).
- Overall – the activities that occupy the most space are warehousing, storage, freight and transportation services (logistics), ‘other’ being undeveloped or vacant land, other (non-major) manufacturing, food and food processing, and chemicals.

2.2.4. Sub-area totals within the study area

This section examines the areas (here called sub-areas, parts of the broader study area) as opposed to the economic sectors analysis which was performed in the previous section of the report. Table 2.7 below shows the total upstream GDP and the estimated employment per sub-area. It also depicts the value and extent of economically productive land (i.e. not the total value of all land, this excludes non-productive uses such as open space, the road / rail reserve etc. – it could be also be expressed as the value and extent of land used for economic activities). Comparisons need to be made bearing in mind the relative sizes of the economically productive portion of the different areas. Mobeni is the largest with 215 ha, Clairwood next with 192 ha, Jacobs with 131 ha, Congella with 126 ha and lastly Rosburgh, considerably smaller with 39 ha. The sizes explain to a good degree the values of the land (e.g. Mobeni having the most valuable real estate at R 2.3 billion), with the exception of Jacobs which has extremely valuable real estate (R 2 billion) relative to, for instance, Clairwood.

Table 2.7 Economic totals per sub-area

<table>
<thead>
<tr>
<th>SUB AREA</th>
<th>Total upstream GDP</th>
<th>%</th>
<th>Estimated employment</th>
<th>%</th>
<th>Estimated value of real estate of economically productive land</th>
<th>%</th>
<th>Total area of economically productive land (ha)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congella</td>
<td>3,410,400,495</td>
<td>14.9%</td>
<td>7,261</td>
<td>15.3%</td>
<td>1,849,533,351</td>
<td>22.9%</td>
<td>126.09</td>
<td>17.9%</td>
</tr>
<tr>
<td>Rosburgh</td>
<td>3,434,750,551</td>
<td>15.0%</td>
<td>6,672</td>
<td>14.8%</td>
<td>482,981,447</td>
<td>6.0%</td>
<td>38.51</td>
<td>5.5%</td>
</tr>
<tr>
<td>Clairwood</td>
<td>4,708,452,390</td>
<td>20.6%</td>
<td>10,353</td>
<td>21.8%</td>
<td>1,391,193,373</td>
<td>17.2%</td>
<td>192.48</td>
<td>27.4%</td>
</tr>
<tr>
<td>Jacobs</td>
<td>9,213,445,030</td>
<td>40.3%</td>
<td>19,240</td>
<td>40.4%</td>
<td>2,016,413,733</td>
<td>25.0%</td>
<td>131.10</td>
<td>18.6%</td>
</tr>
<tr>
<td>Mobeni</td>
<td>2,085,290,965</td>
<td>9.3%</td>
<td>4,039</td>
<td>8.5%</td>
<td>2,328,746,959</td>
<td>28.9%</td>
<td>703.05</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database
REAL ESTATE OPPORTUNITY ANALYSIS

In light of the sizes and value of real estate across the sub-areas the levels of employment and upstream GDP are quite astonishing. Jacobs is clearly the dominant centre of economic activity with R 9.2 billion in upstream GDP and almost 20,000 jobs (about 40% of each proportionally). Equally astonishing is the relatively small upstream GDP and employment accounted for my Mobeni (R 2.1 billion and 4,139 jobs) despite having the most economically productive land.

The high upstream GDP and employment in Jacobs are accounted for mostly by the non-major manufacturing (e.g. furniture, garden equipment, umbrellas, valves, bag sacks, cabling etc.) who run smaller operations. This has resulted in a concentration of activity and smaller sites, often flatted factories; this is occurring in Jacobs at a very large scale. The R 9.2 billion is a vital part of the eThekwini economy. Conversely Mobeni has larger sites, houses predominantly major manufacturers and is far less concentrated in employment and upstream GDP.

The productivity of Clairwood is also unexpectedly high despite having a significant residential component. This is explained in part by the concentration of service industry and non-major manufacturing in its established industrial and commercial mixed use portions, like Jacobs, and by a high number of residential-to-business conversions in recent years. The substantial output of Rossburgh relative to its size (almost equal upstream GDP to Congella despite having one-third of its economically productive land) is reflective of a large presence of clothing and textile manufacturers as well as logistics, both good employers.

Table 2-8  Upstream GDP per hectare, employees per hectare and average land value per square metre, per sub-area within the study area

<table>
<thead>
<tr>
<th>SUB-AREA</th>
<th>Upstream GDP per hectare</th>
<th>Employees per hectare</th>
<th>Average land value (R/sq.metre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Congella</td>
<td>2,707,839</td>
<td>58</td>
<td>1,467</td>
</tr>
<tr>
<td>Rossburgh</td>
<td>89,185,027</td>
<td>173</td>
<td>1,254</td>
</tr>
<tr>
<td>Clairwood</td>
<td>24,461,662</td>
<td>54</td>
<td>723</td>
</tr>
<tr>
<td>Jacobs</td>
<td>70,278,797</td>
<td>147</td>
<td>1,538</td>
</tr>
<tr>
<td>Mobeni</td>
<td>9,704,814</td>
<td>19</td>
<td>1,084</td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

Table 2 8 above succinctly shows the economic performance of each sub-area:

- Congella – moderate level of upstream GDP per hectare and density of employment relative to the other sub-areas; the second highest average land prices (R 1,467/m²).
- Rossburgh – extremely high levels of productivity relative to its size; land prices probably lower due to the large and less valuable Tongaat-Hulett site
- Clairwood – shows levels of productivity comparable to Congella despite having a large residential component, although the presence of residential activities is reflected in very low average land prices
- Jacobs – extremely high upstream GDP per hectare and density of employment (very high for an area of 131 ha) and relatively high land prices, as would be expected
- Mobeni – lowest productivity in terms of upstream GDP per hectare and density of employment; land prices are lower than areas with more concentrated economic activity (Jacobs) but higher than Clairwood with its residential component

2.2.5.  Study area-wide spatial distribution of employment and upstream GDP

This section of the analysis maps the spatial distribution of employment and upstream GDP, i.e. it shows where various levels employment and GDP lie in the area, per site (roughly speaking, per business). Maps have been generated for the study area as a whole as well as for each sub-area. The data is based entirely on the land use data viewed in Map 2 above. Levels of employment and upstream GDP have been calculated according to the land use occupying the sites.

There are four types of maps across the employment and GDP, they depict:

1. Average employment per site
These maps depict the average employment per land use, i.e. the average employment per land use category has been mapped – they do not show each site’s individual employment but rather a view of the area in terms of average (as opposed to explicit) employment levels. However the maps could be misleading in certain instances. Consider a one hectare site occupying a single company whose average employment is, say, 20 employees. The site could be a blue colour. Another one hectare area could house 10 smaller companies on 10 smaller sites, each employing 20 people, also depicted in blue. Visually each area would be the same overall colour. However the 10 small sites would actually house 200 employees as opposed to the 20 on the larger site. For that reason maps showing the density of employment have been generated (see below) – they depict the contrasting employment from site to site more realistically.

2. Density of employment: employees per hectare
The density of employment maps use the same data as above. They have used land use-specific figures of employees per hectare (the total level of employment divided by the extent of the combined sites). As such it is a truer reflection of contrasting levels of employment and is the best map for comparative purposes.

3. Average upstream GDP per site
The average upstream GDP maps use an identical methodology to the average employment (above). Each land use’s average level of upstream GDP has been plotted spatially in the site occupied by that land use. In the same way as with average employment per site, the mapping could be misleading where there are concentrations of sites with similar numbers. For that reason maps depicting the upstream GDP per hectare have been generated.

4. Density of upstream GDP: upstream GDP per hectare
For each land use the total amount of annual upstream GDP was divided by the combined extent (in hectares) of that land use, giving the upstream GDP per hectare, per land use (and per site). These have been mapped to show the comparative distributions of upstream GDP across the study area.
2.2.5.i Study area-wide spatial distribution of employment

Map 2-4 Average employment per site – study area

Source: Graham Muller Associates’ analysis, eThekwini Municipality, Braby’s database
The Map 2-4 shows the distribution of the average levels of employment per land use.

A large proportion of the sites are occupied by land uses that have on average about 31-45 employees, quite a significant number. Areas exhibiting land uses with the lowest numbers of employees (the cream colour, yellow and light green) are: parts of Mobeni (the large government owned sites in yellow) and Clairwood (particularly the residential component in the middle which also houses residential sites with little or no employment generation).

Note that large sites in Mobeni employing an average of 31-45 people (medium green) are far larger sites than those with the same colour situated in Jacobs (the sites in Jacobs are also much more numerous). The implication then is that the density of employment is higher in Jacobs than in Mobeni (refer to Map 2-5 below).

Map 2-5 shows the density of employment across the study area according to land uses (refer to Map 2-2).

The map clearly shows the very wide range of employment densities across the whole study area. Dark purples into blues indicate the highest densities, found predominantly in Jacobs as well as parts of some of the other areas, notably Congella, Mobeni, Rossburgh and the part of Clairwood south of the Amanzimtyana Canal (e.g. the Defy factory).

The large sites with low density of employment dotted throughout the area stand out. They indicate where the lowest opportunity costs lie in terms of displacement.
Map 2-5

Density of employment: employees per hectare – study area

Source: Graham Muller Associates' analysis, eThekwini Municipality, Braby's Database
2.2.5.ii Study area-wide spatial distribution of upstream GDP
Map 2-6 Average upstream GDP per company – study area

Source: Graham Muller Associates’ analysis, eThekwini Municipality, Braby’s Database
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The Map 2-6 depicts the spatial distribution of upstream GDP, per site (i.e. per company).

The levels of GDP relate quite closely to the average levels of employment in Map 2.4 above. There are pockets of significant upstream GDP dotted all over the study area, most notable in Jacobs, parts of Mobeni and lower Congella.

Perhaps the most noticeable aspects of the map are the large unproductive sites in Mobeni and parts of Clairwood. Furthermore, the residential component of Clairwood is completely unproductive from an economic perspective.

As with the average employment per site, the fact that certain sites of similar colours are far smaller than others (sites in Jacobs smaller than in Mobeni) indicated that the densities of upstream GDP might be different (refer to Map 2-7 below).
Map 2.7 Density of upstream GDP – study area

Source: Graham Muller Associates’ analysis, eThekwini Municipality, Braby’s Database
Map 2-7 depicts the upstream GDP per hectare as determined by the activities per site according to the land use analysis. The key detail to be drawn from this map is as follows:

- The high density of economic activity in Jacobs (particularly), as well as pockets of Mobeni, the southern portion of Clairwood and pockets of Congella (oranges and reds).
- The several areas with relatively lower density of upstream GDP, particularly several large sites in Clairwood, several government-owned sites in Mobeni, and the residential core of Clairwood.
- The map shows in general terms where the valuable economic activity is concentrated, viz. Jacobs and parts of Mobeni.

2.3. Economic profiles of sub-areas within the study area

This section of the study shows the land use and land value maps as well as economic data for each of the sub-areas within the study area, namely Congella, Rossburgh, Clairwood, Jacobs and Mobeni.

2.3.1. Congella

Map 2-8 Congella land use

[Map showing land use in Congella]

The land use map shows areas of concentrated logistics activity (shown in pink), particularly in the south and western portion of the area. Logistics occupies approximately 30.5 ha within Congella (see table below). The other dominant main use is the large chemicals–rubber site (Dunlop). There are also common instances of retail, other manufacturing, motor service industry and professional business services (offices for professionals) in the area.

Sites in the northern part of Congella along Gale Street and Umbilo Road tend to be smaller and less sprawling, with a high intensity of activity occurring relative to the size of the sites, i.e. building with several stories, multiple tenants etc. This increases the productivity and hence the value reflects in the land as shown in the land value map below use map below.

Map 2-9 Congella land value

[Map showing land value in Congella]

Land in Congella is among the most expensive in the study area. Prices are almost entirely more than R 500/m² and frequently in the higher brackets of more than R 2,000/m². The pockets of land with the highest value (the dark blue colours) tend to be small sites on which a high level of productivity can be extracted from the property (e.g. flatted factories, two to three storey commercial buildings etc). Many of the moderately large sites that could hypothetically be redeveloped for logistics activities are priced between R 1,001/m² and R 1,500/m² (pale green), which could certainly be a prohibitive factor to that redevelopment.
REAL ESTATE OPPORTUNITY ANALYSIS

Table 2-9 Congella – Upstream GDP, employment, land value and land area per land use category

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Congella</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimated value of real estate</td>
</tr>
<tr>
<td>Building products</td>
<td>2,481,746</td>
</tr>
<tr>
<td>Chemicals</td>
<td>29,809,139</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>89,671,897</td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>73,009,123</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>71,822,004</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>64,190,293</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>89,601,802</td>
</tr>
<tr>
<td>Government services</td>
<td>25,170,358</td>
</tr>
<tr>
<td>High tech industries</td>
<td>5,760,716</td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>4,491,568</td>
</tr>
<tr>
<td>Motor industries</td>
<td>2,345,679</td>
</tr>
<tr>
<td>Motor service industries</td>
<td>172,763,217</td>
</tr>
<tr>
<td>Other</td>
<td>104,591,733</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>85,952,881</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>17,383,533</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>2,540,000</td>
</tr>
<tr>
<td>Residential</td>
<td>153,876,478</td>
</tr>
<tr>
<td>Retail</td>
<td>23,887,826</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>3,295,515</td>
</tr>
<tr>
<td>Transport, freight, warehousing &amp; storage</td>
<td>345,077,595</td>
</tr>
<tr>
<td>Waste industries</td>
<td>10,222,822</td>
</tr>
<tr>
<td>Wholesale</td>
<td>152,127,572</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1,849,533,350</strong></td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

The employment and upstream GDP figures for Congella indicate a high level of productivity: the R 3.4 billion in upstream GDP on 126.1 ha of economically productive land gives a production level of approximately R 27,047,351 million in upstream GDP per hectare. Disproportional to the total area for each category, the highest employers in Congella are ‘other manufacturing’ and ‘clothing and textiles’ with more than 1000 jobs apiece. Following that are categories with between 500 and 900 jobs, notably warehousing (logistics), retail, personal small-scale service businesses, wholesale and chemicals.

The spike in land price for pharmaceuticals is due to the existence of a single valuable site and is an anomaly. Aside from this a large number of the land use categories command prices in excess of R 2,000/m² (clothing and textiles, professional and business services, retail and waste industries).

Congella contains activities that are fairly high employers, on average. The dominant range of employment is between 31-65 people per site. Note that the Dunlop factory (large yellow site) would in reality certainly employ considerably more than the average shown for its land use category (chemicals-rubber). The generally high levels of employment are attributed to the large proportions of professional offices, small-scale businesses and service industry in the area.

Clearly the opportunity cost of displacing businesses in this area is high. To compare the average employment levels with other sub-areas refer to Map 2.4 below.
Map 2-11  Congella – Density of employment: employees per hectare

Map 2-12  Congella – Average upstream GDP per site

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

The density of employment map above (Map 2 11) gives a clearer comparative picture of the sites in Congella. It shows that at least most of the sites employ more than 46 people per hectare with pockets of sites employing more than 80 people per hectare. The spatial distribution confirms that Congella as a sub-area almost universally has a high density of employment.

Congella is linked tenuously to the port and is cut off to a large degree by the railway line and the M4 southern freeway, implying that the development of large-scale logistics operations in the future is impractical, regardless of the high opportunity cost of displaced businesses.

To compare the density of employment levels with other sub-areas refer to Map 2-5 above.

Levels of upstream GDP are generally quite closely related to employment, however, certain industries add more to GDP per employee (refer to Table 2 2 and Table 2 3 above). For that reason, on average, the logistics activities in the south west of Congella add particularly high amounts of upstream GDP. However, it’s fair to say that the average amounts upstream GDP of most of land uses in the area are high, mostly in excess of about R 8 million per year.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2 4 above.
REAL ESTATE OPPORTUNITY ANALYSIS

Map 2-13 Congella – Density of upstream GDP: upstream GDP per hectare

The final map for Congella displays the upstream GDP per hectare, viz. the density of upstream GDP. Greens depict relatively low levels, yellows the relatively medium levels and reds the relatively high levels.

This density map shows how the smaller companies in the north of Congella tend to be more productive relative to their size. Of the larger sites the logistics sites in the south are on average higher generators of upstream GDP than those involved in manufacturing. However any opportunities to develop concentrated logistics activities in the area in the future are compromised whilst the barriers of the railway line and the M4 freeway remain.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2-7 above.

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby's Database

Map 2-14 Rossburgh land use

Rossburgh is an odd strip of land, almost an extension of the northern portion of Clairwood, and links through into Congella. It is far smaller than the other suburbs, or sub-areas, within the study area defined for this project. The land use map shows an array of uses in the area, particularly retail and wholesale, logistics activities (warehousing etc.) clothing and textiles, motor service industries and the large sugar refinery (categorised as food and food processing).

The area is serviced by the portion of South Coast Road that links with the commercial and mixed use portion of Clairwood immediately to the south. Many of the retail land uses along that strip of road are in fact mixed use residential / commercial buildings that have been allocated to retail for the purposes of economic analysis.

Source: eThekwini Municipality and Graham Muller Associates project team
Land in Rossburgh tends to be fairly valuable with many of the sites (green going into shades of blues) priced at more than R 1,500/m². Again this is attributed to small high intensity sites (often housing multi story buildings) that extract high value from relatively small parcels of land. Many of the sites are well serviced by South Coast Road and Edwin Swales VC Drive which has added to their productivity and value. The primary instance of the opposite occurrence, namely a single activity on a single large site, results in less intense land use and a far lower value (the sugar refinery is priced between R 101/m² and R 200/m²).

Rossburgh land value

Table 2-10 Rosshburgh – Upstream GDP, employment, land value and land area per land use

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Estimated value of real estate</th>
<th>Total area (ha)</th>
<th>Estimated R/sq.m</th>
<th>Estimated employment</th>
<th>Upstream GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building products</td>
<td>2,147,120</td>
<td>0.10</td>
<td>2,211</td>
<td>69</td>
<td>32,839,339</td>
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<tr>
<td>Chemicals</td>
<td>2,680,585</td>
<td>0.36</td>
<td>737</td>
<td>313</td>
<td>207,484,487</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>25,763,231</td>
<td>0.75</td>
<td>4,476</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>47,320,000</td>
<td>1.55</td>
<td>3,051</td>
<td>1,017</td>
<td>253,922,841</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>569,822</td>
<td>0.07</td>
<td>824</td>
<td>24</td>
<td>8,500,488</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>6,650,000</td>
<td>0.45</td>
<td>1,484</td>
<td>157</td>
<td>82,397,026</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>32,887,539</td>
<td>15.57</td>
<td>211</td>
<td>246</td>
<td>66,197,319</td>
</tr>
<tr>
<td>Government services</td>
<td>2,750,000</td>
<td>0.41</td>
<td>670</td>
<td>2</td>
<td>2,490,545</td>
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<tr>
<td>High tech industries</td>
<td></td>
<td></td>
<td></td>
<td>63</td>
<td>28,167,485</td>
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<tr>
<td>Manufacturing of transport equipment</td>
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<td></td>
<td></td>
<td>46</td>
<td>22,948,060</td>
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<tr>
<td>Motor industries</td>
<td>36,676,049</td>
<td>1.37</td>
<td>2,687</td>
<td>268</td>
<td>192,581,907</td>
</tr>
<tr>
<td>Motor service industries</td>
<td>80,984,847</td>
<td>3.43</td>
<td>2,364</td>
<td>268</td>
<td>192,581,907</td>
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<td>Other</td>
<td>5,837,994</td>
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<td></td>
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<tr>
<td>Other manufacturing</td>
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<td>2,829</td>
<td>790</td>
<td>314,884,706</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>960,000</td>
<td>0.10</td>
<td>566</td>
<td>340</td>
<td>183,089,023</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td></td>
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<td>16</td>
<td>10,525,987</td>
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<td>Professional &amp; business services</td>
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<td>622</td>
<td>356</td>
<td>149,914,115</td>
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<tr>
<td>Residential</td>
<td>95,000</td>
<td>0.02</td>
<td>464</td>
<td>4</td>
<td>869,387</td>
</tr>
<tr>
<td>Retail</td>
<td>40,136,767</td>
<td>1.56</td>
<td>2,579</td>
<td>485</td>
<td>177,288,702</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>10</td>
<td></td>
<td></td>
<td>5,618,760</td>
<td></td>
</tr>
<tr>
<td>Transport, freight, warehousing &amp; storage</td>
<td>75,834,119</td>
<td>3.61</td>
<td>2,099</td>
<td>1,460</td>
<td>1,301,472,484</td>
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<tr>
<td>Waste industries</td>
<td>224</td>
<td></td>
<td></td>
<td>89,182,722</td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>36,347,088</td>
<td>2.53</td>
<td>1,439</td>
<td>798</td>
<td>304,565,167</td>
</tr>
<tr>
<td>TOTAL</td>
<td>482,981,446</td>
<td>38.53</td>
<td>6,673</td>
<td>3,434,790,550</td>
<td></td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

Rossburgh is extremely productive relative to its size. The R 3.4 billion in upstream GDP (achieved in part through the remuneration of 6,672 employees) is somehow extracted from a mere 38.5 ha. This gives an approximate productivity level at a very high R 89,214,300 per ha. The dominant economic activities in the area in terms of generation of employment are clearly logistics (warehousing etc.), manufacturing of clothing and textiles, other manufacturing and wholesale. Of these, logistics adds the most value (in total and relative to employment) at R 1.3 billion in upstream GDP.

The land value profile discussed above can be seen here according to specific land use categories:
- Many of the land uses affect very high prices, frequently above R 2,000/m²
- There are very few mid-range land prices
- Note the price of R 211/m² for the sole food and food processing activity (the sugar refinery)
Using the employment averages per land use, one can see that a large proportion of the sites in Rossburgh are occupied by activities that employ in excess of 31 people. Certain land uses are less intensive, employing on average less than 15 and less than 10 people respectively.

Overall, the activities in Rossburgh are fairly employment intensive. To compare Rossburgh’s average employment levels with other sub-areas refer to Map 2-4 above.

Map 2-17 above has taken the extent of the land uses into account and maps sites according to their density of employment (employees per hectare). There is a significantly dense amount of employment in Rossburgh for its size. Several of the sites employ between 80 and 200 employees per hectare of space. As would be expected the large site exhibits a lower density of employment than some of the smaller sites.

To compare the density of employment levels with other sub-areas refer to Map 2-5 above.
Map 2-18 Rossburgh – Average upstream GDP per site

The map above shows the average upstream GDP per site. The average amounts tend to fall into a medium range between about R 7 million and R 20 million annual upstream GDP per site. Overall there are few sites that have particularly low average levels of upstream GDP, which entrenches the view that Rossburgh performs well economically despite its size. However for a different view see the map below for the density of upstream GDP.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2-4 above.

Map 2-19 Rossburgh – Density of upstream GDP: upstream GDP per hectare

The above map shows the upstream GDP per hectare of each land use in Rossburgh. Not surprisingly the larger sites yield a lower relative density of upstream GDP than on the previous map showing the average upstream GDP. Here the smaller sites generally have a higher relative level of productivity and are extracting more economic value, per hectare, or per metre, than the larger sites.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2-7 above.
2.3.2. Clairwood

Map 2-20 Clairwood land use

Clairwood is an extremely fragmented area characterised by a number of hard barriers or edges and comprises, in fact, five fairly distinct sections:

- The commercial / mixed use portion west of South Coast Road (this portion is very much akin to Rosburgh in the immediate north);
- The large school immediately south of the commercial / mixed use strip;
- The industrial portion south of the Amanzimyana Canal (but for the presence of the railway line this portion of Clairwood should logically have been incorporated into Jacobs to the immediate west);
- The commercial strip that runs along Edwin Swales VC Drive;
- The central residential / business portion characterised by high numbers of invasions.

The strange array of land uses across Clairwood makes more sense when understood in the context of these different sections. Notwithstanding, there is no obvious logic to the delineation of the area – Rosburgh has a very strong functional and spatial link to Clairwood and could supposedly have been incorporated, and the southern industrial portion could easily form an eastern portion of Jacobs.

The area is dominated by business and residential land uses, notably logistics (warehousing etc.), retail (including the fresh produce market) and residential, although there are large tracts of land used for open space, community, social and cultural activities, and other manufacturing.

Map 2-21 Clairwood land value

Source: eThekwini Municipality

The area of concentrated activity, the western portion accessed by South Coast Road, records extremely high property values; again this is a consequence of a high density of commercial activity. Large sites in the area are typically relatively far cheaper (yellow and orange). The residential bubble in the centre is mostly priced at less than R 500/m², reflective of the lack of economic productivity. As would be expected parcels that have been invaded by businesses reflect the economic productivity by a correspondingly high land value. Clearly from a purely price perspective the larger low price parcels as well as the low priced residential parcels present the most attractive redevelopment possibilities.
### Table 2-11: Clairwood – Upstream GDP, employment, land value and land area per land use category

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Estimated value of real estate (R)</th>
<th>Total area (ha)</th>
<th>Estimated R/sq.m</th>
<th>Estimated employment</th>
<th>Upstream GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building products</td>
<td>4,038,654</td>
<td>1.40</td>
<td>288</td>
<td>103</td>
<td>49,259,008</td>
</tr>
<tr>
<td>Chemicals</td>
<td>41,721,228</td>
<td>4.55</td>
<td>917</td>
<td>179</td>
<td>118,562,564</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>6,180,000</td>
<td>0.34</td>
<td>2,446</td>
<td>10</td>
<td>3,622,874</td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>79,552,904</td>
<td>3.11</td>
<td>2,562</td>
<td>2,660</td>
<td>664,105,892</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>68,737,763</td>
<td>12.84</td>
<td>528</td>
<td>68</td>
<td>23,801,366</td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>7,127,228</td>
<td>0.71</td>
<td>1,005</td>
<td>78</td>
<td>41,198,513</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>25,369,827</td>
<td>1.56</td>
<td>1,626</td>
<td>246</td>
<td>66,197,319</td>
</tr>
<tr>
<td>Government services</td>
<td>14,871,807</td>
<td>3.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High tech industries</td>
<td></td>
<td></td>
<td>94</td>
<td></td>
<td>42,251,227</td>
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<tr>
<td>Manufacturing of transport equipment</td>
<td>4,292,162</td>
<td>1.76</td>
<td>241</td>
<td>11</td>
<td>5,737,015</td>
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<td>Motor industries</td>
<td>12,984,201</td>
<td>1.11</td>
<td>1,174</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor service industries</td>
<td>131,602,249</td>
<td>15.77</td>
<td>835</td>
<td>579</td>
<td>415,976,918</td>
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<tr>
<td>Non-related Land Uses</td>
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<td>18</td>
<td></td>
<td>9,423,700</td>
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<td>Other</td>
<td>216,693,959</td>
<td>55.08</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>96,888,865</td>
<td>9.99</td>
<td>970</td>
<td>1,580</td>
<td>629,369,412</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>2,876,109</td>
<td>0.71</td>
<td>403</td>
<td>408</td>
<td>219,706,828</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td>31,577,962</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>5,600,000</td>
<td>0.90</td>
<td>619</td>
<td>474</td>
<td>199,885,487</td>
</tr>
<tr>
<td>Residential</td>
<td>116,270,605</td>
<td>27.40</td>
<td>424</td>
<td>7</td>
<td>1,738,775</td>
</tr>
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<td>Retail</td>
<td>388,919,236</td>
<td>29.58</td>
<td>1,308</td>
<td>903</td>
<td>344,466,049</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>1,517,090</td>
<td>0.09</td>
<td>1,763</td>
<td>5</td>
<td>2,809,380</td>
</tr>
<tr>
<td>Transport, freight, warehousing &amp; storage</td>
<td>122,057,384</td>
<td>15.89</td>
<td>768</td>
<td>1,421</td>
<td>1,266,297,552</td>
</tr>
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<td>Waste industries</td>
<td>2,530,732</td>
<td>0.76</td>
<td>334</td>
<td>896</td>
<td>356,730,888</td>
</tr>
<tr>
<td>Wholesale</td>
<td>45,401,435</td>
<td>5.71</td>
<td>795</td>
<td>565</td>
<td>215,733,660</td>
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<tr>
<td>TOTAL</td>
<td>1,391,193,373</td>
<td>192.49</td>
<td>10,353</td>
<td></td>
<td>4,708,452,389</td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

Referring to Table 2 11 above: Clairwood generates R 4.7 billion in upstream GDP annually and about 10,353 jobs. The land uses with the largest physical footprint are ‘other’ (referring to the large tracts of undeveloped and vacant land), retail, residential, logistics (warehousing etc.) and community, social and cultural activities. This starkly contrasts the levels of employment which are generated primarily by clothing and textiles, other manufacturing (which are then followed by logistics, retail, waste industries and wholesale).

### Map 2-22: Clairwood – Average employment per site

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

While clothing and textiles is labour intensive, far higher proportions of upstream GDP are generated by activities such as logistics and other manufacturing (R 1.2 billion and R 0.63 billion in upstream GDP respectively. Another valuable activity in Clairwood are the motor service industries, contributing R 0.42 billion in upstream GDP. Note that almost none of the activities generating the highest amounts of extra value boast particularly high land prices; the most expensive space in the area costs more than R 1, 626/m² and are occupied by clothing and textiles (the exception), chemicals-rubber, telecommunications, and food and food processing.

Clairwood houses activities that are medium range employers, on average between 11 and 45 people per site, although many of those sites do employ between 31 and 45 people (i.e. more than 31). The large cream coloured site is a school and the sites dotted in the centre are residential homes (economic-managing insignificant employers). The flow Map 2 23 shows the density of employment which is more accurate for comparative purposes.

To compare the average employment levels with other sub-areas refer to Map 2 4 above.
The range of densities in Clairwood is unsurprising considering the variety of oddly matched land uses which include the TFR diesel depot in the east, intense manufacturing in the south (e.g. Defy), the last remnants of residential in the centre, a school, playing fields and the intensely busy mixed use area off South Coast Road in the western portion. Several of these areas exhibit extremely high densities of employment. Others, like the diesel depot and residential portion have very low densities. The range in Clairwood is extremely wide and varied.

To compare the density of employment levels with other sub-areas refer to Map 2-5 above.

The average upstream GDP is calculated according to the land uses shown in Map 2 20 above. Many of the sites in Clairwood have high average levels of upstream GDP, often in excess of R 7 million on and frequently as high as approximately R 13 million.

Due to the nature of the data, pockets of small sites each having relatively high levels of upstream GDP result in a concentration amongst those sites, whereas a single large site (occupying a similar amount of space as the combined smaller sites) would in fact have a far lower real concentration of activity. Consider Map 2-25 on overleaf for the density of upstream GDP.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2 4 above.
Clairwood displays overwhelmingly low densities of upstream GDP relative to the other sub-areas. Only portions of the mixed use area in the west, the manufacturing area in the south and the eastern portion bounded by Edwin Swales VC Drive contain any significant numbers of sites with more than R 30 million in upstream GDP per annum. Consequently from an economic perspective the area as a whole presents a relatively smaller opportunity cost in terms of displaced economic activity.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2-7 above.

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby's Database

As would be expected Jacobs has a very strong manufacturing and logistics base. Warehousing, storage, freight and transportation services (pink) feature strongly in the area, as do several other types of manufacturing, including ‘other manufacturing’, clothing and textiles, chemicals, ferrous and non-ferrous industries and food and food processing. A number of wholesale sites are also found in the area.

Generally the sites here are fairly small although there have been some consolidations of activity, creating some of the larger sites.

Source: eThekwini Municipality and Graham Muller Associates project team
REAL ESTATE OPPORTUNITY ANALYSIS

Table 2-12

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Jacobs – Upstream GDP, employment, land value and land area per land use category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Estimated value of real estate (R/m²)</td>
</tr>
<tr>
<td>Building products</td>
<td>2,082,407</td>
</tr>
<tr>
<td>Chemicals</td>
<td>139,260.185</td>
</tr>
<tr>
<td>Chemicals - Rubber</td>
<td>18,829,456</td>
</tr>
<tr>
<td>Clothing &amp; textiles</td>
<td>222,699,447</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td></td>
</tr>
<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>131,124,604</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>103,463,490</td>
</tr>
<tr>
<td>Government services</td>
<td>4,040,000</td>
</tr>
<tr>
<td>High tech industries</td>
<td></td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>14,084,087</td>
</tr>
<tr>
<td>Motor industries</td>
<td>2,756,560</td>
</tr>
<tr>
<td>Motor service industries</td>
<td>121,453,452</td>
</tr>
<tr>
<td>Other</td>
<td>62,928,623</td>
</tr>
<tr>
<td>Other manufacturing</td>
<td>386,513,103</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>7,386,594</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>28,758,044</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>171,657,077</td>
</tr>
<tr>
<td>Residential</td>
<td>29,890,000</td>
</tr>
<tr>
<td>Retail</td>
<td>66,464,578</td>
</tr>
<tr>
<td>Telecommunications</td>
<td></td>
</tr>
<tr>
<td>Transport, freight, warehousing &amp; storage</td>
<td>298,925,766</td>
</tr>
<tr>
<td>Waste industries</td>
<td>6,735,144</td>
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<tr>
<td>Wholesale</td>
<td>197,341,113</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,016,413,730</td>
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</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s database

The most immediate aspect of this economic view of Jacobs is the extremely high levels of employment and upstream GDP relative to the other sub-areas; there are approximately 19,240 jobs in the area with R 9.2 billion in upstream GDP. The real estate is two thirds the size of say Clairwood but is close to double the value (R 2 billion compared to Clairwood’s R 1.4 billion – refer to Table 2 11 above).

Jacobs is the only sub-area in which the upstream GDP for logistics is eclipsed by one other sector / land use – in this instance ‘other manufacturing’ which accounts for R 1.8 billion in upstream GDP per year, a staggering amount. The footprint for other manufacturing is of a very similar size to logistics (18.6 ha and 19.9 ha respectively), showing that the scale of activity is both large and similar. This is reflected in the high levels of employment as well as high upstream GDP for each of the land uses.

Land in Jacobs tends to be priced at a premium. Although some of the larger sites fall between R 500 and R 1000/m², many of the smaller sites dotted throughout are various shades of blue indicating prices in excess of R2 000/m² and some of more than R 3,500/m². As in other intensive parts of the study area, these steep prices are indicative of high levels of economic activity.

From the high prices one can infer that redevelopment of the area would be challenging and costly. Details of the scale and types of economic activity as well as prices and values are shown below in Table 2-12.

Source: eThekwini Municipality

Map 2-27

Jacobs land value

Property Value (Rand per m²) 1501 - 2000

Source: eThekwini Municipality

Note: The map shows the distribution of land use categories in Jacobs. The property value ranges from R 1501 to R 2000 per m².
In Jacobs the average employment per site is predominantly between 31-45 employees (the olive green colour). Several sites (land uses) also employ between 61 and 80 employees, on average. The sheer number of sites in the area with such high average levels of employment would imply that the overall density is fairly high (refer to the density of employment map below).

To compare the average employment levels with other sub-areas refer to Map 2-4 above.

Compared with the other sub-areas Jacobs exhibits an extremely high density of employment. This is in part due to the high levels of employment on the numerous relatively small sites. Here most of the sites employ more than 46 people per hectare, several of these having densities of greater than 61 employees per hectare.

The most pertinent observation here is that there is an serious opportunity cost of displacement relative to some of the other sub-areas.

To compare the density of employment levels with other sub-areas refer to Map 2-5 above.
As would be expected after such high densities of employment Jacobs also has high levels of average upstream GDP per site; all of the pink coloured sites produce more than R 9.2 million in upstream GDP per annum and the red sites only slightly less. There are also numerous sites responsible for more than R 30 million in upstream GDP per annum. Again, as many of the sites in Jacobs are small it is useful to use the density of upstream GDP map (see below) for site-by-site comparisons.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2-4 above.

The above map gives a very clear picture of the high density of upstream GDP for Jacobs. Sites predominantly add more than R 39 million per hectare with many sites adding upward of R 60 million. This sub-area is clearly occupied by land uses that add on average the densest land most concentrated levels of economic activity. The direct implication is that Jacobs has the highest opportunity cost to the displacement of existing businesses.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2-7 above.
2.3.2. Mobeni

The outstanding feature of Mobeni is the relatively larger sites. Established after areas such as Jacobs the street design and layout in Mobeni is more spacious and modern, providing the platform for large-scale activities to take place in the area.

Map 2-32 Mobeni land use

Concerning the land uses, there are several activities that dominate:

- Logistics activities;
- Open space (Clairwood racecourse and surrounds);
- Residential hostels in the South West;
- Government services (Military facilities and Telkom premises);
- Chemicals;
- Clothing and textiles;
- Other manufacturing.

Mobeni is mostly devoid of the smaller activities such as offices, personal small-scale businesses services and service industries that proliferate some of the other parts of the study area. Of importance is the nature of the street layout which allows for a very wide road reserve and large sites relative to all other parts of the study area.

Map 2-33 Mobeni land value

Source: eThekwini Municipality and Graham Muller Associates project team

Land in Mobeni is generally cheaper than the other busy industrial estates with very few plots exceeding R 3000/m² and small numbers even exceeding R 2000/m². This is due in part to the larger sites hosting less intense and dense industries, as well as developers originally having less pressure to maximize the yield of the land for lack of space.
### Table 2-13  Mobeni – Upstream GDP, employment, land value and land area per land use category

<table>
<thead>
<tr>
<th>Sectors</th>
<th>Estimated value of real estate</th>
<th>Total area (ha)</th>
<th>Estimated R/sq.m</th>
<th>Estimated employment</th>
<th>Upstream GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building products</td>
<td>53,343,761</td>
<td>7.95</td>
<td>671</td>
<td>23</td>
<td>10,946,446</td>
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<tr>
<td>Chemicals</td>
<td>366,959,692</td>
<td>22.32</td>
<td>1,644</td>
<td>403</td>
<td>266,755,769</td>
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<tr>
<td>Chemicals - Rubber</td>
<td>38,036,697</td>
<td>3.21</td>
<td>656</td>
<td>19</td>
<td>7,245,749</td>
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<tr>
<td>Clothing &amp; textiles</td>
<td>295,657,804</td>
<td>13.94</td>
<td>2,120</td>
<td>548</td>
<td>136,727,684</td>
</tr>
<tr>
<td>Community, social &amp; cultural activities</td>
<td>8,050,000</td>
<td>0.99</td>
<td>815</td>
<td>19</td>
<td>6,800,390</td>
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<tr>
<td>Ferrous &amp; non-ferrous industries</td>
<td>74,284,262</td>
<td>3.55</td>
<td>2,092</td>
<td>196</td>
<td>102,996,282</td>
</tr>
<tr>
<td>Food &amp; food processing</td>
<td>122,264,414</td>
<td>12.11</td>
<td>1,010</td>
<td>185</td>
<td>49,647,989</td>
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<tr>
<td>Government services</td>
<td>187,415,207</td>
<td>20.91</td>
<td>896</td>
<td>7</td>
<td>2,490,545</td>
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<tr>
<td>High tech industries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manufacturing of transport equipment</td>
<td>60,717,241</td>
<td>6.77</td>
<td>897</td>
<td>381</td>
<td>273,827,049</td>
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<td>Motor industries</td>
<td>39,598,973</td>
<td>2.50</td>
<td>1,582</td>
<td>118</td>
<td>84,736,039</td>
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<tr>
<td>Other</td>
<td>164,709,358</td>
<td>18.20</td>
<td>905</td>
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<td></td>
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<tr>
<td>Other manufacturing</td>
<td>174,399,121</td>
<td>18.90</td>
<td>923</td>
<td>790</td>
<td>314,684,706</td>
</tr>
<tr>
<td>Personal small-scale service businesses</td>
<td>9,179,044</td>
<td>0.63</td>
<td>1,455</td>
<td>85</td>
<td>45,772,256</td>
</tr>
<tr>
<td>Pharmaceuticals</td>
<td>43,783,886</td>
<td>3.34</td>
<td>1,311</td>
<td>32</td>
<td>21,051,975</td>
</tr>
<tr>
<td>Professional &amp; business services</td>
<td>17,390,000</td>
<td>2.22</td>
<td>784</td>
<td>152</td>
<td>64,248,907</td>
</tr>
<tr>
<td>Residential</td>
<td>183,647,780</td>
<td>20.16</td>
<td>911</td>
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<td></td>
</tr>
<tr>
<td>Retail</td>
<td>83,265,397</td>
<td>6.30</td>
<td>1,321</td>
<td>252</td>
<td>96,247,867</td>
</tr>
<tr>
<td>Telecommunications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport, freight, warehousing &amp;</td>
<td>324,269,733</td>
<td>41.94</td>
<td>773</td>
<td>553</td>
<td>492,449,048</td>
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<tr>
<td>storage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste industries</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>81,774,590</td>
<td>8.94</td>
<td>915</td>
<td>233</td>
<td>88,831,507</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,328,746,960</td>
<td>214.88</td>
<td>4,038</td>
<td>2,085,290,965</td>
<td></td>
</tr>
</tbody>
</table>

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

The most startling detail to emerge about the economic activity in Mobeni is the extremely low level of upstream GDP generated (R 2.1 billion) relative to the other industrial estates (e.g. Jacobs generates R 9.2 billion and Rossburgh, at approximately a fifth of Mobeni’s size, generates R 3.4 billion).

### Map 2-34  Mobeni – Average employment per site

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

The area is dominated in terms of employment by ‘other (or non-major) manufacturing’, and in terms of upstream GDP by logistics, other manufacturing, motor industries and chemicals. Logistics also takes up the largest amount of space (approximately 42 ha at about 20% of the total). The only land prices to exceed R 2000/m² are occupied by clothing and textiles, and ferrous and non-ferrous industries.

While large proportions of Mobeni employ an average between 31 and 45 people, the striking feature is the high instances of low employment on large site (coloured yellow). It should also be noted that the jobs in Mobeni are generally held on very much larger sites that in Jacobs, thereby inferring a lower density (see map below).

To compare the average employment levels with other sub-areas refer to Map 2 4 above.
The density of employment is quite varied in Mobeni, with several large sites having land use averages of less than 10 employees. To the contrary, though, a number of sites employ in excess of 31 people and many of these are over 46 people. Hence the opportunity cost of displacement will be low in certain areas and high in others.

To compare the density of employment levels with other sub-areas refer to Map2-5 above.

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

The map showing distribution of average upstream GDP also shows a marked range in amounts:

- There are several large sites averaging less than R 5 million per year;
- However a number of sites produce in excess of R 30 million per year.

Sites with extremely low levels of productivity tend to be government-owned. To compare the average levels of upstream GDP with other sub-areas refer to Map 24 above.

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database
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#### Map 2-37  Mobeni – Density of upstream GDP: upstream GDP per hectare

Source: Graham Muller Associates analysis, eThekwini Municipality, Braby’s Database

With the size of the sites take into account the map showing the density of upstream reveals a slightly different picture. The distinct belt of orange and red coloured sites is responsible for a far greater concentration and density of upstream GDP than the green coloured sites. There are significant numbers of green coloured sites, indicating relatively low density of upstream GDP and hence relatively low opportunity cost from an economic perspective.

To compare the average levels of upstream GDP with other sub-areas refer to Map 2-7 above.

#### 2.4. Key elements of economic analysis

2.4.1. Employment

The study area is an extremely important regional employment centre. Economic activity in the study area itself generates approximately 47,529 (just over half) of the 87,745 jobs in the broader SDB.

Jacobs has by far the highest concentration of employment with 19,240 jobs (40.45% of all jobs in the study area), followed by Clairwood (10,353 jobs), Congella (7,261 jobs), Rossburgh (6,672 jobs) and Mobeni (4,039 jobs).

The highest six employing activities / land uses are:

- Other (or non-major) manufacturing – 8,830 jobs
- Clothing and textiles – 7,041 jobs
- Warehousing, storage, freight & transportation services (logistics) – 5,763 jobs
- Waste industries – 4,030 jobs
- Wholesale – 4,123 jobs
- Professional and business services – 3,116 jobs

2.4.2. Addition to GDP

The SDB generates approximately R 47.3 billion per year in upstream GDP, of which R 22.8 billion is from within the study area (i.e. Congella, Rossburgh, Clairwood, Jacobs and Mobeni).

Within the study area Jacobs is responsible for by far the largest proportion of upstream GDP, with R 9.2 billion. Jacobs is followed by Clairwood with R 4.7 billion, Rossburgh and Congella with R 3.4 billion each, and Mobeni with R 2.1 billion.

The activities that generate the highest upstream GDP are:

- Warehousing, storage, freight & transportation services (logistics) – R 5.1 billion
- Other (non-major) manufacturing – R 3.5 billion
- Chemicals – R 1.78 billion
- Clothing and textiles – R 1.76 billion
- Waste industries – R 1.6 billion
- *Wholesale – R 1.57 billion

Aside from other manufacturing, logistics activities account for more than double the upstream GDP than next single largest contributor, the Chemicals sector.
2.4.3. Land value and availability

Land prices in many parts of the study area are very high, often in excess of R 2,000/m². This is certainly true of Jacobs, the mixed use section of Clairwood, parts of Congella, Rossburgh and parts of Mobeni.

The only properties that offer opportunities for redevelopment based on price are:

- The large government-owned properties such as the TFR diesel depot and fresh produce market, both in Clairwood and the military stores and Telkom warehouse in Mobeni.
- Selected large business sites with relatively low prices
- The residential component of Clairwood

Development in the non Transnet-owned part of the SDB, viz. the study area, is highly concentrated and very little land is available, at all. This scarcity has been one of the critical factors in pushing up land prices in the last few years.

Nonetheless both the high land values and extremely limited land availability pose considerable challenges to the development of a Back of Port area.

2.4.4. Opportunity costs and challenges

The study area is a highly contested space in which multiple actors are attempting to derive the maximum economic return. The economic analysis has revealed the several types of opportunity costs attached with the potential redevelopment of the area. The economic opportunity costs associated with displacing activities in Jacobs, certain parts of Clairwood, and Rossburgh are substantial in terms of both employment and upstream GDP. This refers partly to the economic value of the activities as well as the function that they play in the SDB and broader Metropolitan area. Activities in these areas (in most of the areas in the study area in fact) are valuable to the City and region.

Certain key challenges need to be overcome in the process of planning the area:

- The land that needs to be unlocked for development of logistics in the future is mostly highly productive at the point in time.
- Any displaced businesses should have suitable places in the City to relocate to;
- The intensity of development and scarcity of undeveloped or sub-optimally developed sites in the SDB have driven property prices up resulting in generally high premium throughout the area – this largely rules out the possibility of a development agency buying up large tracts of land for redevelopment (note that in several critical instances where this is not the case, certain opportunities exist, viz. large well-priced government-owned sites and certain severely blighted portion of the residential core of Clairwood could in fact be redeveloped through an agency).

3. Transnet lease analysis in the Bayhead area

The information analysed in this section has been supplied by Transnet Freight Rail, Transnet Rail Engineering and Transnet Properties and relates to their land ownership in the Bayhead Area. The Maydon Wharf area and other Transnet properties that are located along the quayside are controlled by Transnet National Ports Authorities and the lease information has not been provided for analysis. Thus all information relates to only the Bayhead area that falls between Edwin Swales VC Drive (M7) and Bayhead Road, as well as South Coast Road and the Bluff. Map 3.1 on below shows the area in question and displays the various land parcels 1 and 70 or A to Q. The land use or lease that occupies these parcels of land is described in Table 3.1 below.

Table 3.1 lists the land owner (Transnet Freight Rail, Transnet Properties or Transnet Rail Engineering), the site number in relation to Map 3.1, the name of the company leasing or utilising the site, the size of the site, the land usage and then the port zone of activity (zone 1 – quayside activities, zone 2 – quayside support activities, zone 3 – logistics activities and zone 4 – non-port related activities).

As can be seen in the table below the predominant land use is zone four and three activities (this is encouraging when you take into account that a significant portion of the zone 4 activities are office activities that take place at site 42 and that this building can only be used for office functions.) The other zone 4 activities in the Bayhead area need to be relocated in the medium term and replaced by only zone 2 and 3 activities that support the port or logistics activities related to the port.

There are 8 vacant sites (8.8%), 16 zone two sites (17.6%), 20 zone three sites (22%) and 47 zone four sites (51.6%) when the PX shed is considered as a single lease or site. When the size of each site is considered the proportions designated to each zone drastically changes: vacant sites account for only 1.6% of the total leaseable area; zone two activities account for 49.9% of total leaseable area (zone two includes the enormous marshalling yards that make up the vast proportion of the Bayhead site in the North), zone three activities account for 39.1% of the total leaseable area and zone four activities make up 9.7% of the total leaseable area in the Bayhead area. So while the majority of leases are zone four activities (not ideally located in the Bayhead area) they account for the smallest proportion of actual land. This is best explained by the majority of the zone four activities being offices that occupy various multi-storey office buildings located around the PX shed, no other activity would be suitable for these office buildings and therefore until the Bayhead dig out should not be relocated.
<table>
<thead>
<tr>
<th>Site No.</th>
<th>Name</th>
<th>m²</th>
<th>Usage</th>
<th>Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>TFR 2</td>
<td>Multi-Plant Hire Cc</td>
<td>3,943</td>
<td>Plant Hire</td>
<td>4</td>
</tr>
<tr>
<td>TFR 3</td>
<td>Transtel Radio Workshop</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>TFR 4</td>
<td>Vacant</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>TFR 5</td>
<td>Vacant</td>
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<td>4</td>
</tr>
<tr>
<td>TFR 6</td>
<td>Vacant</td>
<td></td>
<td></td>
<td>4</td>
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<tr>
<td>TFR 7</td>
<td>Vacant</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>TFR 8</td>
<td>Vacant</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>TFR 9</td>
<td>Transtel</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>TFR 10</td>
<td>Transnet Supply Chain Services</td>
<td></td>
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<tr>
<td>TFR 11</td>
<td>Transnet Supply Chain Services</td>
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<td>TFR 12</td>
<td>Transnet Projects</td>
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<td>4</td>
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<td>TFR 13</td>
<td>Transnet &amp; TFR (Loliwe House Employees)</td>
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<td>TFR 14</td>
<td>Transnet Rail Engineering - Electrical Training centre</td>
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<td>TFR 14b</td>
<td>Thermoplastic Concepts &amp; Equipment cc</td>
<td>969</td>
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<td>TFR 15</td>
<td>Transnet Capital Projects</td>
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<td>Spareinvest 94 C.C.</td>
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<td>TFR 16</td>
<td>Alpha-AUM Construction cc</td>
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<td>Naresh Ishwarchund Theeruth T/A Acorn Carriers - Room 603, PX Admin Bld</td>
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## REAL ESTATE OPPORTUNITY ANALYSIS

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Map 3-1 Bay Area by leasehold and land use
1 Introduction

1.1 Background

Arup Transport Planning were commissioned by the eThekwini Municipality to do an assessment of traffic flow within the Back of Port area and to evaluate future road network requirements to accommodate proposed land use changes and development within the Back of Port Area. The aim of the study is to undertake an appraisal a number of significant development proposals. These included:

- Development of the Port of Durban;
- Development of the former Durban International Airport (DIA) site at Reunion as a new seaport;
- Changes to the land uses within the Back of Port Area.

Prior to the Back of Port Study Arup Transport Planning has been jointly commissioned by the ETA and Transnet Ltd to update the South Durban Industrial Basin (SDIB) SATURN model to a level sufficiently refined to model the Port of Durban expansion proposals and hub Phase, as well as use the ETA’s EMME/3 model to evaluate the expansion implications on a regional level. This modelling formed the basis for the detailed modelling required by the Back of Port Study.

The objective of this report is to investigate and recommend a series of road network upgrades that will be required to accommodate the said developments and land use changes.

1.2 Road Network Upgrades

The methodology involved using the SDIB SATURN model which would provide output in terms of level of service for the Back of Port taking into account the following road network improvements:

- The Khangelala Bridge (under construction);
- The N2 / M7 Edwin Swales VC Drive Interchange Upgrade (under construction);
- The Link Road connecting Bayhead / Langeberg Road intersection across to Edwin Swales VC Drive;
- uMhlathuzana Arterial;
- The N2 / M1 Higgison Highway Interchange Upgrade (under construction);
- North / south capacity enhancement between the Port of Durban and the DIA.

1.3 Modelling Approach

This report provides the results of the investigation into the traffic assessment for the Back of Port area as well as the regional implications of the proposed expansion proposals. The investigation has undertaken:

- The forecasting of 2016, 2020 and 2036 AM peak hour trips based on the Transnet Target (TT) freight mode share as well as the Sensitivity Target (ST) freight mode shares (these freight mode share Phases are described in more detail in a subsequent section of this report);
- The inclusion of the other known main developments in the area including proposed developments at the Clairwood Racecourse and Arbour Town developments;
- The investigation of the overall traffic impact on the local road network using the SATURN model;
- Use of the regional EMME model to estimate the impact on the wider road network.

This report provides a detailed insight into the modelling results. The methodology used in the investigation is shown in the following flow chart.

1.4 Purpose and Structure of Report

This report provides a detailed technical account of the modelling work undertaken to assess the road network infrastructure required to accommodate the proposed expansion proposals at suitable levels of service. The investigation has not undertaken the updating of or the re-calibration of either the SDIB SATURN model or the ETA EMME/3 model. Hence the focus of the investigation was on:

- Forecasting;
- Model Analysis and Results; and
- Conclusions and Recommendations.

There are a few important issues that have been assumed in the investigation as follows:

- After discussions with Transnet, it has been indicated that the most likely strategy is the continued development and expansion of Durban;
- In addition to the overall port development strategy, the sensitivity of each phase has been tested against the freight mode choice built into the Transnet hub strategy (i.e. the Base Case mode share). The purpose being that a more conservative freight mode share to road will be assessed.
- Finally it is important to understand that the transport and traffic simulation for each of the hub phases will focus on the road freight element, not the rail element. Therefore it has been assumed that the rail freight plans developed to accommodate the assumptions are robust, practical and implementable within the indicated time frames. This assumption has been confirmed with Transnet.
2 Durban Port Expansion Plans

There are essentially three phases of expansion planned for the Port of Durban over the next forty years:

Phase 1 includes ‘committed’ Port expansion projects as follows. These are assumed to be completed and operational by 2016:

- Pier 1 (TEU capacity: 720,000 per annum)
- Salisbury Island (TEU capacity: 680,000 per annum)
- DCT Re-engineering (TEU capacity: 2,900,000 per annum)
- Maydon Wharf container facility (TEU capacity: 450,000 per annum);

Beyond 2016, Phases 2 and 3 describe additional expansion at the Port of Durban as well as at the former Durban International Airport (DIA), i.e.:

- The dig-out of the DIA.
- The Bay Head Expansion (BHE) project at the Port of Durban (considered in two sub-phases);

Phases 2 and 3 consider the construction and implementation order of these two projects.

2.1 Container Demand through the Port of Durban

The container demand and capacity for the Port of Durban is shown in Figure 1. This figure shows that the TEU demand is made up of essentially four components:

- The immediate hinterland containers. This is defined as the containers that have an origin / destination within 270 km of the port. Most of these containers are likely to be transported by road freight;
- Long-haul containers are those that have an origin / destination elsewhere in South Africa;
- Cross border containers are those containers with an origin / destination outside of South Africa, i.e. mostly to the north of the country;
- Transshipped containers are those transferred between vessels in the port. While these containers contribute to the overall demand for containers through the port, it has been assumed that they do not contribute to the demand for rail and road services outside of the port.

From Figure 1 it can be seen that:

- The Port of Durban capacity in 2016 will be approximately 4.3 m TEUs per annum without the Bayhead expansion (BHE) programme. However the total demand in 2016 is approximately 5.25 m TEUs per annum, reflecting the need for the Maydon Wharf programme to be in place. Maydon Wharf has a capacity of 0.6m TEUs per annum, which when added to the 4.3 m TEUs gives a total capacity of 4.9m TEUs per annum;
- The Port of Durban capacity in 2020 is approximately 4.9 m TEUs per annum. In 2025 TEU demand is estimated by Transnet (January 2011 forecast) to be approximately 5.8 m TEUs per annum reflecting the need for Phase 2 to be operational by that time. By 2025 it is estimated that 1.8 m TEUs of the Phase 2 new port development at Reunion is available, bring the total port capacity to 6.7 m TEUs per annum;
- The new port at the old Durban International Airport site at Reunion will eventually add new capacity of 7.2 m TEUs per annum when complete, providing a total capacity of 16.1 m TEUs at both ports.
- By 2036, the total TEU demand is expected to be approximately 18 m TEUs per annum, necessitating the building of additional container terminal capacity at Bayhead. Total port capacity at the two ports in Durban and with the completion of BHE Phases 1 and 2 will be 18.1 m TEUs per annum.

Figure 1: Port of Durban TEU Demand and Capacity Forecasts

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<th>Million TEUs</th>
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<th>2013/14</th>
<th>2015/16</th>
<th>2017/18</th>
<th>2019/20</th>
<th>2021/22</th>
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3 Forecasting of New Trips

3.1 Demand Forecasting

3.1.1 Port Expansion Phases

Future trip generation from the Port of Durban has been based upon port expansion proposals consisting of essentially three expansion phases for the three horizon year time frames, i.e. 2016, 2020 and 2036.

The three expansion phases for the Durban Port Strategy are as follows:

- **Phase 1 (2016)**: This phase reflects the growth of the Port of Durban for the committed TEU expansion projects as follows:
  - Pier 1 (TEU capacity: 720,000 per annum)
  - Salisbury Island (TEU capacity: 680,000 per annum)
  - DCT Re-engineering (TEU capacity: 2,900,000 per annum)
  - Maydon Wharf container facility (TEU capacity: 600,000 per annum);
  - Total TEU capacity before Bay Head Expansion: 4,900,000 per annum.
  - The assumption has been made that all the above projects will be complete and operational by 2016. For these committed projects, the maximum container capacity in 2016 has been “capped” at 4.75 million TEUs per annum (as actual container demand may be less than installed capacity in 2016);

- **Phase 2(a) (2020)**: By 2020, the initial phase of the Durban International Airport (DIA) dig-out programme will be completed. As described earlier, TEU capacity in 2020 has been estimated at 9.7 m TEUs with a total TEU demand is 6.8 m TEUs;

- **Phase 2(b) (2036)**: This phase allows for the continued expansion of the new port at Reunion and assumes that the Bayhead Expansion (BHE) initiative in the existing Port of Durban will also be completed and operational. The Port of Durban capacity at this stage will be 18.1 m TEUs per annum.

3.1.2 Freight Modal Split Assumptions

Under the original SDIB study the 2004 Port Master Plan assumed two freight mode share assumptions between road and rail:

- 80:20 – Road:Rail; and
- 50:50.

These splits were based on landside flows only and excluded transshipment, which by its nature generally stays within a terminal (with the exception of transfers between terminals).

However, Transnet have developed new freight mode share Phases that have superseded these original estimates. These are discussed in the following section.

3.2 Container Freight

Transnet have developed annual container rail freight mode share targets to the year 2036. These are shown in the figure below.

---

**Figure 2: Transnet Container Rail Mode Share Targets (2008 – 2036)**

Figure 2 shows the expected share per TEU category, i.e. Deep Sea, Domestic and Cross Border. In this context, the definitions of each category are as follows:

- **Domestic freight** is categorised as those TEUs having an origin / destination within 270 km of the Port of Durban (i.e. the equivalent of the Immediate Hinterland category described earlier);
- **Cross Border TEUs** are those destined for countries to the north of South Africa;
- **Deep Sea TEUs** are those destined for South African customers outside of the 270 km distance defined by the Domestic freight category, and is the equivalent of the Long Haul category defined earlier.

An average freight mode share has also been shown in Figure 2. The chart shows that, based on the average line:

- The 2008 (existing) average rail mode share is approximately 15%;
- This increases linearly to the year 2030 to an average share of 62%, and is then stabilises at this level;
- It should be emphasised that in the modelling process, the actual rail mode shares have been used, i.e. Deep Sea has been related to the Long Haul category in Figure 1, Cross Border to itself and Domestic to Immediate Hinterland in Figure 1;
- In addition to the targets shown in Figure 2, mode share sensitivity tests have also been performed based on the proportions in the following Figure 3: Container Rail Freight Mode Share Target and Sensitivity Levels.
3.3 Other Freight

- In addition to the container freight, the expected growth for four other types of freight have been taken into consideration. These are:
  - Bulk freight;
  - Break-bulk freight;
  - Car freight (i.e. new vehicle exports through the port);
  - Those petroleum (bulk) products that are transport by road / rail and not by pipeline.

- The 2007 total AM peak hour heavy vehicle trips associated with each of these modes is summarised in the following table. These trip totals have been extracted from the Illiso Consulting and Turner & Townsend traffic and planning reports for the port. The table also shows the assumed annual increase in these trips over the project forecast period.

Table 2: Weekday AM Peak Hour Heavy Vehicle Trips for Freight Categories

<table>
<thead>
<tr>
<th>Freight Category</th>
<th>2007 Trips</th>
<th>% Growth per annum 2007 - 2016</th>
<th>2016 Trips</th>
<th>% Growth per annum 2016 - 2036</th>
<th>2036 Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Containers</td>
<td>736</td>
<td>See Section 2</td>
<td>278</td>
<td>1.50%</td>
<td>375</td>
</tr>
<tr>
<td>Bulk</td>
<td>242</td>
<td>2%</td>
<td>133</td>
<td>1.50%</td>
<td>180</td>
</tr>
<tr>
<td>Break Bulk</td>
<td>116</td>
<td>2%</td>
<td>180</td>
<td>2%</td>
<td>22</td>
</tr>
<tr>
<td>New Cars</td>
<td>12</td>
<td>3%</td>
<td>22</td>
<td>2%</td>
<td>22</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>337</td>
<td>3%</td>
<td>415</td>
<td>2%</td>
<td>415</td>
</tr>
</tbody>
</table>

The trip directional splits (i.e. in and out of port) for all freight categories are applied as per the estimated 2007 proportions, i.e. 50% inbound and 50% outbound. It should be noted that all heavy vehicle trips are converted to equivalent passenger car units (PCU’s) in the model using a PCU factor of 3.

3.4 Other Development Trips

As per the Arup South Basin Model report (2007), there are several other new developments in the study area that have associated trip making characteristics. These developments with the type of development their expected completion dates are shown below:

- The Clairwood Racecourse site development;
- Arbour Town development;
- Clairwood re-development.
3.4.1 Background Traffic Growth Assumptions

The regional EMME2 model served as the basis for providing background growth for the SDIB model. This has been retained for forecasts for 2015 and 2020. Other developments and land use changes within the SDIB have been included to ensure a holistic approach to the assessment of future schemes is taken. The details of the trips generated by these developments is discussed in the following Section.

3.5 Port Trip Generation

3.5.1 Container Traffic

The conversion of annual TEUs to equivalent AM peak hour vehicle trips has been undertaken through a series of expansion and conversion factors derived empirically. The conversion factors were based on April 2007 TEU volumes and associated heavy truck volumes.

Because the objective was to simulate the busiest time of the year (i.e. October) for the Port of Durban and the observed data reflected April conditions, a seasonality correction factor has also been introduced. The process is shown in the figure below, and the factors are shown alongside each conversion stage.

Figure 5: Trip Generation Process – From TEUs Per annum to HGV AM Peak Hour

Light vehicle trips associated with the Port of Durban expansions have also been estimated on the same basis as for heavy vehicles. The 2007 observed light vehicle volumes into the Port of Durban area were 200 inbound and 100 outbound during the AM peak hour. These trips have been increased proportionally with TEU activity and are as follows for the AM peak hour:

- 2016 light vehicle trips (LV’s): Trip total: 583; (trips in 389; trips out 194);
- 2036 light vehicle trips (LV’s): Trip total: 1905; (trips in 1270; trips out 635).

These trips are assumed to not be affected by freight mode share issues and are not factored in any way. Based on the above process and the freight mode share proportion discussed earlier, the following heavy vehicle trip ends have been derived for the two Phases, i.e., 2016 and 2036. It is important to note that the table reflects the additional trips on the network, i.e. over and above the existing trips.

Table 3: Additional PCU Vehicle Trips in Durban Port (2016, 2020 & 2036 AM Peak Hour)

<table>
<thead>
<tr>
<th>Year</th>
<th>Mode Share</th>
<th>Additional Weekday AM Peak Hour Heavy Vehicle Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Trips</td>
</tr>
<tr>
<td>2016</td>
<td>Salisbury Island and Maydon Wharf</td>
<td>1,697</td>
</tr>
<tr>
<td>2020</td>
<td>DIA site at Reunion</td>
<td>2,934</td>
</tr>
<tr>
<td>2036</td>
<td>Bayhead Phase 1</td>
<td>3,587</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4,572</td>
</tr>
<tr>
<td>2036</td>
<td>Bayhead Phase 2</td>
<td>814</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1,270</td>
</tr>
</tbody>
</table>

The figures shown above are the equivalent passenger car units (PCU’s) input into the model. The PCU factor for heavy vehicles used is 3.0.

3.5.2 Bulk and Break Bulk Traffic

Based on the estimates growth in this class of freight, the following table summarises the additional heavy vehicle traffic resulting from this growth.
Table 4: Total AM Peak Hour Heavy Vehicle Trips for Various Freight Categories (2016, 2036)

<table>
<thead>
<tr>
<th>Freight Category</th>
<th>Total 2016 AM Peak Hour Trips</th>
<th>2016 Trips Inbound</th>
<th>2016 Trips Outbound</th>
<th>Total 2036 Trips</th>
<th>2036 Trips Inbound</th>
<th>2036 Trips Outbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk</td>
<td>276</td>
<td>139</td>
<td>139</td>
<td>376</td>
<td>188</td>
<td>188</td>
</tr>
<tr>
<td>Break Bulk</td>
<td>134</td>
<td>67</td>
<td>67</td>
<td>180</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>New Cars</td>
<td>16</td>
<td>8</td>
<td>8</td>
<td>22</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Petroleum Products</td>
<td>416</td>
<td>108</td>
<td>108</td>
<td>416</td>
<td>108</td>
<td>108</td>
</tr>
</tbody>
</table>

3.5.3 Other Developments
The vehicle trip rates associated with the other developments in the area have been adopted from the National Department of Transport Trip Generation manual (1996). Detail of these trips have not be included in the report but was included in the modelling of the different Phases as part of the background growth in traffic within the South Durban Basin area.

3.6 Trip Distribution
Trip distribution for the SDIB SATURN model was kept constant and not changed from that used in the original study in 2006. In addition, the trip distribution for the Port of Durban related trips from in the EMME/3 model were kept the same as those trips currently in the model.

3.7 Network Development
Khangela Bridge, Bayhead to Edwin Swales VC Drive Link Road and uMhlathuzana Arterial are all schemes that were tested under the original SDIB study and the assumptions noted within that study regarding alignment and connections has been maintained within this study.

The creation of a Do Minimum network has included the following committed projects:
- The Khangela Bridge;
- The N2 / M7 Edwin Swales VC Drive Interchange Upgrade.

The other improvements considered were:
- The Port of Durban link road connecting Bayhead Road across to Edwin Swales VC Drive VC Drive;
- uMhlathuzana Arterial;
- The N2 / M1 Higginson Highway Interchange Upgrade;
- The N2 / Inanda Interchange Improvements;
- North / South Port capacity enhancement.

4 2016 AM Peak Hour Forecasts
All the forecasts discussed in the following sections are based on the Sensitivity Target mode share estimates. Both the EMME/3 and SATURN 2016 modelling results on the Do Minimum network have revealed that focussing access into the Port of Durban via Edwin Swales VC Drive and the Bayhead Road / Khangela Bridge system only creates substantial congestion on the local road network around the port.

The following EMME/3 plots show for the Do Minimum Case:
- The 2016 AM peak hour link flows in the vicinity of the port;
- The 2016 AM peak hour link volume / capacity (V/C) ratios. Only where a V/C ratio is greater than 1.0 has the link been shown in red.

Figure 6: 2016 AM Peak Hour Do Minimum Network and Flows (PCU) in Vicinity of Durban Port
The previous two figures clearly show that:

- The traffic flow into and out of the Port of Durban is substantial, i.e. Bayhead Rd carries approximately 2,500 PCU's into the Port of Durban area and 1,200 out in the AM peak hour;
- Edwin Swales VC Drive north of the M4 carries over 3,000 PCU's per hour southbound;
- Importantly it can be seen that Bluff Road carries over 1,000 PCU's per hour. This road is being used as an alternative route out of the port;
- Bayhead Road, sections of Edwin Swales VC Drive and Bluff Road have V/C ratios in excess of 1.0.

The following figure from the SATURN model confirms that the intersections on Bayhead Road at the Khangelia Bridge and Edwin Swales VC Drive at the M4 interchange operate at very poor levels of service during the 2016 AM peak hour. The intersections have average delays greater than 80 seconds, making their associated levels of service F.

The main conclusion drawn from this analysis is that Edwin Swales VC Drive and Bayhead Road do not have sufficient capacity at key intersections to cater for the expected port traffic during the AM peak hour in 2016 under the Sensitivity Target freight mode share Phase.

This is an important conclusion, and it highlights the need for an additional port access road. An option that has been considered is the introduction of the Port of Durban Link Road and the uMhlathuzana Arterial.

The uMhlathuzana Arterial has been considered in two stages as follows:

- For 2016 the uMhlathuzana Arterial has been linked to the N2 freeway as shown in the following figure;
- For 2020 and 2036, the uMhlathuzana Arterial has been linked to the N3 freeway;

Very importantly, the Link Road and uMhlathuzana Arterial have been coded as port only traffic, i.e. the road only carries vehicle trips to and from the port. Other background traffic cannot use the link.
The uMhlathuzana Arterial and Link Road have been coded as 2 lane roads (i.e. 2 lanes per direction.) The one-way capacity is 3250 PCU's per hour.

The following plot shows the 2016 AM peak hour flows on the road network in the vicinity of the port.

Figure 9: Assumed Alignment of uMhlathuzana Arterial

Photograph Courtesy of Google Earth

Figure 10: 2016 EMME/3 Network with uMhlathuzana Arterial and Link Road (Link Capacities in PCU’s are shown)

The above plot shows that the uMhlathuzana Arterial carries approximately 1,700 PCU’s into the Port of Durban in the 2016 AM peak hour. There is very little traffic using the link to exit the Port of Durban as the alternative routes i.e. Bayhead and Edwin Swales VC Drive offer enough capacity.
The following plot shows the V/C ratios under this network Phase.

Figure 12: 2016 AM Peak Hour Link V/C Ratios in Vicinity of Port

The link V/C ratios improve significantly over the Do Minimum network Phase.

Figure 13: 2020 AM Peak Hour Flows (PCU) with uMhlathuzana Arterial to the N2

The plot shows that the uMhlathuzana Arterial carries significantly more traffic than in the 2016 AM peak hour, i.e. approximately 2,300 vehicles per hour into the port, with egressing volumes still relatively low in the AM peak hour.

5 2020 AM Peak Hour Forecasts

The 2020 forecasts have been done with two network Phases:

1. The first has the uMhlathuzana Arterial linked to the N2 as per the 2016 forecasts;
2. The second has the uMhlathuzana Arterial linked to the N3;

5.1 uMhlathuzana Arterial to the N2

The 2020 AM peak hour assignments show that the uMhlathuzana Arterial carries approximately 2,000 vehicles per hour into the Port of Durban as shown in the following EMME/3 figure.

Figure 13: 2020 AM Peak Hour Flows (PCU) with uMhlathuzana Arterial to the N2
The following plot shows the link V/C ratios.

Figure 14: 2020 AM Peak Hour V/C Ratios > 1.0 with uMhlathuzana Arterial to the N2

5.2 uMhlathuzana Arterial to the N3

The following figure shows the resulting traffic volumes with the uMhlathuzana Arterial linked to the N3 for the 2020 AM peak hour.

Figure 15: 2020 AM Peak Hour Flows (PCU) with uMhlathuzana Arterial to the N3

The above figure shows that approximately 1,200 PCU’s use the section of uMhlathuzana Arterial between the N2 and the N3 (southbound). The volumes on the section between the N2 and the Port of Durban increases to 2,400 (into the port).
The volumes egressing the Port of Durban during the 2020 AM peak hour is low with only approximately 400 PCU’s flowing northbound.
The following plot shows the link V/C ratios.

Figure 16: 2020 AM Peak Hour V/C Ratios > 1.0 with uMhlathuzana Arterial to the N3

6 2036 AM Peak Hour Forecasts

Due to the very long time horizon presented by the 2036 forecasts, there is greater risk associated with their accuracy as a number of internal and external parameters can affect them. Nevertheless, the following plots show the expected flows and V/C ratios on the road network.

Once again, the uMhlathuzana Arterial extension Phases have been considered, i.e.:
1. The first has the uMhlathuzana Arterial linked to the N2 as per the 2016 forecasts;
2. The second has the uMhlathuzana Arterial linked to the N3;

6.1 uMhlathuzana Arterial to the N2

Following figures show the traffic volumes and V/C ratios with the uMhlathuzana Arterial to the N2.

Figure 17: Estimated 2036 Network Flows AM Peak Hour (PCU’s) with uMhlathuzana Arterial to N2

The above plot shows that the uMhlathuzana Arterial and Link Road carry in the region of 3,500 PCU’s into the port, and approximately 800 vehicles out the port. The following plot shows the link V/C ratios.
6.2 With uMhlathuzana Arterial to the N3

The V/C plot shows that the uMhlathuzana Arterial and Link Road are still operating at a V/C less than 1, although Bayhead Road and Edwin Swales VC Drive are under pressure. The uMhlathuzana Arterial and Link Road V/C ratio is 0.85. Thus the uMhlathuzana Arterial and Link Road could be retained at 2 lanes per direction to 2036, although it is recommended that due to the relatively high V/C ratio, the number of lanes is increased to 3 per direction.

The following figures show the traffic volumes and V/C ratios with the with uMhlathuzana Arterial to the N3.

The above plot shows a significant increase in the uMhlathuzana Arterial flows, especially southbound (i.e. to the Port) where the volumes increase to approximately 2,000 PCU’s per hour between the N3 and N2, and 3,500 PCU’s per hour between the N2 and the Port. Once again the northbound figures are relatively low during the AM peak hour.

The following figure shows the V/C ratios for the uMhlathuzana Arterial to the N3 in 2036.
TRAFFIC ASSESSMENT FOR THE BoP STUDY

The above plot shows that the section of the uMhlathuzana Arterial between the N3 and N2 operates with a V/C less than 1.0, although the section to the Port of Durban between the N2 and the Port of Durban operates at a V/C greater than 1.0. Importantly Edwin Swales VC Drive and Bayhead Road links also operate with V/C greater than 1.0.

Figure 20: 2036 AM Peak Hour V/C Ratios > 1.0 for uMhlathuzana Arterial to N3

7 Detail Assessment Results per Precinct
7.1 Introduction
SATURN modelling was undertaken to assess and test various new roads and road upgrades based on the ultimate development potential of the Port of Durban as well as the dig-out of the new port at the Durban International Airport (DIA).

The adoption of the ultimate capacity as the SATURN modelling base allows the various road improvements to be tested against one another against this constant base, and hence allows:
- An ultimate road network to be planned and developed;
- The prioritisation of the various improvements to be assessed based on their performance in the network context.

7.2 Trip Generation
For this investigation, the ultimate development of the Port of Durban and of the old airport site at Reunion has been assumed. The TEU capacities of each of the terminals in the Port of Durban and Reunion are shown in the table below. The ultimate capacity is 18.1 m TEUs per annum, with approximately 60% of the capacity being at the Port of Durban and 40% at the new seaport at Reunion.

<table>
<thead>
<tr>
<th>Re-engineering / Expansion</th>
<th>Capacity Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCT</td>
<td>2.9 million</td>
</tr>
<tr>
<td>Pier 1</td>
<td>0.7 million</td>
</tr>
<tr>
<td>Salisbury Island</td>
<td>0.7 million</td>
</tr>
<tr>
<td>Maydon Wharf</td>
<td>0.6 million</td>
</tr>
<tr>
<td>Reunion Dig Out</td>
<td>7.2 million</td>
</tr>
<tr>
<td>Bayhead Dig Out</td>
<td>6.0 million</td>
</tr>
<tr>
<td>TOTAL</td>
<td>18.1 million</td>
</tr>
</tbody>
</table>

It is important to note that the TEU for the ultimate capacity of both ports is unlikely to be achieved before the year 2036. However for the purposes of the assessment of the ‘background’ traffic the year 2036 has been assumed at the ‘ultimate’ year.

The trip generation rates for port related light and heavy vehicles (i.e. LV’s and HV’s) as per previous studies have been adopted. The total number of port trips for LV’s and HV’s for the ultimate capacity is shown in the following table. Please note that the HV trips shown are in vehicles – these figures are factored by a Passenger Car Unit of 3 before being input into the model.

<table>
<thead>
<tr>
<th></th>
<th>Port of Durban</th>
<th>DIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>LV’s In</td>
<td>2,931</td>
<td>795</td>
</tr>
<tr>
<td>LV’s Out</td>
<td>631</td>
<td>171</td>
</tr>
<tr>
<td>Total LV’s</td>
<td>3,562</td>
<td>966</td>
</tr>
<tr>
<td>HV’s In</td>
<td>6,323</td>
<td>4,024</td>
</tr>
<tr>
<td>HV’s Out</td>
<td>3,245</td>
<td>2,012</td>
</tr>
<tr>
<td>Total HV’s</td>
<td>9,569</td>
<td>6,036</td>
</tr>
</tbody>
</table>

SPATIAL FRAMEWORK, PRECINCT PLANS AND ZONING FRAMEWORK – BACK OF PORT – MAY 2011
7.3 Network Improvements

The following network improvement tests have been carried out. They have been tested individually except for the uMhlathuzana Arterial which has been kept constant in all networks.

I. The Khanglea Bridge across the M4 Freeway towards Bayhead Road from Umbilo and Sydney Road. This link has been kept constant in all subsequent networks because it is already built and will be opened in the near future;

II. The uMhlathuzana Arterial to the N2 from the Port of Durban only (this link is a dedicated freight link), this link has been kept constant in all subsequent networks;

III. Link from uMhlathuzana Arterial to Sydney and Umbilo Roads,

IV. The Grimsby Road link;

V. The provision of an exclusive freight lane linking the DIA and Port of Durban along the alignment of the M4 and/or South Coast Road;

VI. The provision of a freight link between DIA and the Enref Refinery area;

VII. The provision of an additional access point from the DIA onto the N2;

VIII. The HGV closure of access links between the M4 and the Enref Refinery (Duranta Road) and Treasure Beach area (Quality Street);

IX. The development of a one way freight circulation system around Clairwood, linking with the uMhlathuzana Arterial.

7.4 Congella, Umbilo and Rosshburgh Area Assessment Results

The Congella, Umbilo and Rosshburgh area, shown in Figure 20, is mainly affected by the introduction of the Khanglea Bridge across the M4 freeway. The introduction of this link result in the diversion of port bound traffic away the already congested Edwin Swales VC Drive / South Coast Road intersection. This diversion however results in an increase in traffic flow along Umbilo and Sydney Roads.

Khangela Bridge and Link to uMhlathuzana Arterial (Phase 2 Improvement)

The Congella, Umbilo and Rosshburgh area is mainly affected by the introduction of the Khanglea Bridge across the M4 freeway and the link road between Sydney/Umbilo Road and the uMhlathuzana Arterial. The introduction of this link result in the diversion of port bound traffic away the already congested Edwin Swales VC Drive / South Coast Road intersection. This diversion results in an increase in traffic flow along Umbilo and Sydney Roads.

The SATURN assessment showed that traffic between the Umbilo Road inbound and Sydney Road outbound link between the new Khanglea bridge link road and the M7 has increased significantly. The road infrastructure on both Umbilo and Sydney Roads can however accommodate the growth in traffic that is expected in the future and hence no immediate road improvements will be required.

The reduction in traffic movements through the Edwin Swales VC Drive / South Coast Road intersection and decreased and more acceptable levels of service will be achieved. This in turn will alleviate traffic flow problems within the Congella, Umbilo and Rosshburgh area on the short term.

Long term growth within the Port of Durban (Bayhead Expansion) will require additional access roads to the Port of Durban to accommodate traffic growth and the Khanglea Bridge won’t be able to cope with the increase in traffic and especially HGV movements from the port. The uMhlathuzana Arterial road becomes vital in the distribution of port bound traffic away from the already congested road network in this area.

Edwin Swales VC Drive

The M7 (Edwin Swales VC Drive) will allow for direct access to the Claiwood area, Bluff and surrounding areas. There will however be no dedicated access from Edwin Swales VC Drive onto the proposed uMhlathuzana Arterial to gain access to DCT via the new Link Road. Edwin Swales VC Drive will allow for access the Maydon Wharf area as well as Bayhead Road. The uMhlathuzana Arterial will alleviate HGV traffic along Edwin Swales VC Drive and free up capacity for residential use from the Bluff area.

uMhlathuzana Arterial (Phase 1 Improvement)

The uMhlathuzana Arterial has been coded as a two lane / direction link between the Port of Durban and the N2. All movements have been allowed at the new N2 ‘interchange’ to allow vehicles from and to the south to access the port. The uMhlathuzana Arterial allows for a dedicated freight route to and from the Port. The new uMhlathuzana link will cross the M7 via a bridge towards Bayhead Road. The intersection between the Link Road and Bayhead Road will be in the form of a raised interchange to allow for direct access to the DCT area as well as access from areas around Pier 1 and Island View areas.

The ultimate uMhlathuzana Arterial flows are approximately 1,600 vehicles per hour inbound and 1,200 outbound during the AM peak period.
TRAFFIC ASSESSMENT FOR THE BoP STUDY

7.5 Clairwood Area Assessment Results

The Clairwood area, shown in Figure 21, is mainly affected by the introduction of the uMhlathuzana Arterial. The introduction of this link result in the diversion of port bound traffic away the already congested Edwin Swales VC Drive onto the uMhlathuzana Arterial.

Figure 21: Clairwood Area

uMhlathuzana Arterial (Phase 1 Improvement)

The Clairwood area is mainly affected by the introduction of the uMhlathuzana Arterial. The introduction of this link result in the diversion of port bound traffic along the already congested Edwin Swales VC Drive onto the uMhlathuzana Arterial.

The uMhlathuzana Arterial allows for a direct link between the Port of Durban and the N2 freeway. As mentioned earlier the uMhlathuzana Arterial has been coded as a two lane / direction link between the Port of Durban and the N2. All movements haven allowed at the new N2 ‘interchange’ to allow vehicles from and to the south to access the port. The uMhlathuzana Arterial allows for a dedicated freight route to and from the Port.

The uMhlathuzana Arterial will provide a dedicated link to Bayhead Road and direct access to DCT Container Terminal. This links will allow for vehicles to travel along uMhlathuzana Arterial and have direct access to DCT. Vehicles within the South Durban Basin not using this link will enter DCT as per the existing arrangement and will not have the benefit of easy direct access.

Access will also be provided to the Clairwood area via the uMhlathuzana Arterial and link later link with the dedicated North South Link to the future DIA dug-out Port.

7.6 Jacobs Area Assessment Results

The Jacobs area, shown in Figure 22, is affected by the introduction of the uMhlathuzana Arterial, the closure of Quality Street for HGV movement and the link from Grimsby Road to Balfour Road in Jacobs and the introduction of a north-south link along the M4 alignment.

Figure 22: Jacobs Area

The Jacobs area is affected by the introduction of the uMhlathuzana Arterial, the closure of Quality Street for HGV movement and the link from Grimsby Road to Balfour Road in Jacobs and the introduction of a north-south link along the M4 alignment.

Grimsby Road/Quality Street Extension to South Coast Road (Phase 2 Improvement)

The Grimsby Road link has been inserted into the network to essentially link the Mobeni Area and the Jacobs area. The link curves around the Clairwood Race Course to eventually link with Balfour Road. The link has been coded as a two lane / direction roadway and allows for all modes of transport.

The introduction of the Grimsby Road link towards Jacobs result in a reduction in traffic flow along the uMhlathuzana Arterial as well traffic along South Cost Road. The reason for this shift in traffic to the Grimsby Road link is because of the shorter travel distance and time and the fact that Mobeni is earmarked for future logistics area. The introduction of the Grimsby Road link further allows for an additional north – south link between the Port of Durban and the DIA site.

The extension of Quality Street in a westerly direction and to provision of a bridge structure over the railway line will allow for a direct link into the Mobeni area and allow for additional access to the existing Port of Durban. This route will be a two lane / direction road.

North – South Link (Phase 2 Improvement)

North – South Link between the Port of Durban and the DIA site has been coded as an exclusive freight roadway running on top of the M4, with 2 lanes per direction. This new link essentially creates the freight only T arrangement, i.e. with the DIA – Port of Durban link at the top of the T and the uMhlathuzana Link to the N2 at the stem of the T.

Importantly, for this assignment, freight vehicles have not been banned from the N2.

The modelling results showed that this freight link will carry approximately 2,500 PCU’s in the northbound direction and 2,100 PCU’s southbound. Importantly the uMhlathuzana Arterial volumes decrease to the N2, i.e. 920 southbound and 1,137 northbound. This is interesting, and shows that the assignment has attempted to achieve network equilibrium by splitting the freight vehicle flows between the dedicated freight link and the N2.
TRAFFIC ASSESSMENT FOR THE BoP STUDY

Quality Street Closure for HGVs (Phase 3 Improvement)
The Quality Street Closure for HGV movement has resulted in minimal changes to the existing flow patterns of traffic within Jacobs. Because of the relative low HGV volumes between Balfour Road and Tara Street along Quality Street not significant traffic flow improvement will be achieved.

The total closure of Quality street will however result in an increase in the amount of “rat running” with significant increases in adjacent roads should Quality Street be closed to all traffic. The closure of Quality Street should only be based on the impact of HGV movement through residential area and not the improvement in traffic flow. The North – South link and limited access to the Stanvac area via the DIA site will further reduce the need for HGV to travel along Tara Street towards Enref.

7.7  Mobeni Area Assessment Results
The Mobeni area, shown in Figure 23, is affected by the introduction of Grimsby Road link to the M4 Duranta Road interchange, the introduction of a north-south link along the M4 alignment, the closure of Duranta Road for HGV movements and the current upgrade of the N2 / Higginson Highway.

Figure 23: Mobeni Area

The Mobeni area, is affected by the introduction of Grimsby Road link to the M4 Duranta Road interchange, the introduction of a north-south link along the M4 alignment, the closure of Duranta Road for HGV movements and the current upgrade of the N2 / Higginson Highway.

Grimsby Road (Phase 3 Improvement)
The Grimsby Road link has been inserted into the network to essentially link South Coast Road and the M4 at the Duranta Road interchange. The link curves around the Clairwood Race Course and links to the M4. At the M4, movements onto the M4 to the west and east have been allowed. The link has been coded as a two lane/ direction roadway. This link is aimed at residential movement.

The AM peak hour flows on the Grimsby Road link are approximately 2,700 vehicles per hour eastbound and 1,500 westbound. The majority of vehicles that will be using the Grimsby Road link is currently travelling on South Coast Road and hence a reduction in the flow of traffic along South Coast Road. This link is also aimed at light vehicle movement between Merewent and the N2 via the N2 / Higginson Highway interchange.

The introduction of the North – South link will not have a direct impact on the flow of traffic within the Mobeni area. The north–south link will however have indirect impact on traffic on South Coast road as discussed earlier and hence flow within the Mobeni area will also be improved.

7.8  Merewent Area Assessment Results
The Merewent area, shown in Figure 24, is affected by the introduction of the dedicated freight route through the DIA site and the closure of Duranta Road for HGV movements.

Figure 24: Merewent Area

The Merewent area is affected by the introduction of the dedicated freight route through the DIA site and the closure of Duranta Road for HGV movements.

Link between Stanvac area and DIA (Phase 3 Improvement)
This network option allows for a freight only link between DIA and the Stanvac area. The modelling results have shown that the Stanvac link carries very little freight traffic. The V/C ratios are also low, however capacity problems along rest of the link from the DIA to the N2 do start becoming apparent when this new link is introduced because it carries traffic from the DIA, SAPREF and the Stanvic area towards the N2.
Duranta Road Closure for HGVs (Phase 3 Improvement)
The Duranta Road Closure for HGV movement will have similar effect on traffic flow as that of the Quality Street closure. Because of the relatively low HGV volumes on Duranta which is destined for Enref the model has shown that no significant traffic flow improvement will be achieved.

The total closure of Duranta Road will however result in an increase in the amount of “rat running” with significant increases in adjacent roads should Duranta Road be closed to all traffic. The closure of Duranta Road should only be based on the impact of HGV movement through residential area and not the improvement in traffic flow. The North – South link and limited access to the Stanvac area via the DIA site will further reduce the need for HGV to travel along Duranta Road towards Enref.

7.9 Prospecton Area Assessment Results
The Prospecton area, shown in Figure 25, is affected by the introduction of the dedicated freight route through the DIA site and introduction of an additional access route to the N2.

**Figure 25: Prospecton Area**

**Additional Access of N2 and from Prospecton Road to DIA (Phase 3 Improvement)**
The Prospecton area is affected by the introduction of the dedicated freight route through the DIA site and introduction of an additional access route to the N2.

The modelling results show the new access point will carry approximately 25% of the total trips into and out of the DIA port. Importantly it can be seen that the N2 opposite the Port of Durban carries approximately 10,800 trips northbound and 7,700 southbound. The V/C ratios are generally less than 1. There are some high V/C ratios on the new access N2 interchange however.

7.10 Road Based and Rail Based Public Transport Initiatives
The ETA has confirmed that South Coast Road will increasingly become more vital in the movement of people from Umlazi to the city and an improved PT service and infrastructure has been planned for South Coast Road. The mix of private vehicles, PT vehicles, pedestrians and heavy vehicles along South Coast Road already limit the expansion of the PT service along South Coast Road. The introduction of a dedicated HGV link along South Coast Road will result in an increase in pedestrian vehicular conflict and hence it will not be desirable to introduce a dedicated freight route along South Coast Road.

South Coast Road further allows for effective linkages between road and rail based Public Transport and Prasa has recently introduced an improved rail service with higher capacity between Umlazi and the CBD which further places the emphasis on South Coast Road as a major Public Transport Route.

7.11 Waterway and Associated facilities
An upgrade to the canal between the Clairwood Race Course and the existing Durban Port is planned but will not serve as any way in moving people or freight along this canal. The canal will allow for the introduction of a buffer zone between light industrial and logistics areas. Access to the water way should be in the form of local residential Non-motorised Transport (walking and cycling) and should not allow for access to vehicles.

8 Infrastructure Costs
The infrastructure cost associated with the different road infrastructure improvements has been broken down into work packages to separate bridge construction and road construction costs. Total cost per scheme is calculated by adding the different work package cost together for each option.

The table below shows the estimated cost per work package. These costs have not yet been confirmed by the ETA and is based on average construction cost for bridges and roads. Road Cost estimate is based on the recommended width and length at a rate of R1500-00/m² and cost for Bridges at R 30,000-00/m².

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<tr>
<th>Work Package Description</th>
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<tr>
<td>uMhlathuzana Arterial</td>
<td>R 500,000,000-00</td>
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<tr>
<td>Link from uMhlathuzana to Sydney Road</td>
<td>R 150,000,000-00</td>
</tr>
<tr>
<td>Bridge for uMhlathuzana -- Sydney Link</td>
<td>R 260,000,000-00</td>
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<tr>
<td>Grimsby Road Bridge</td>
<td>R 650,000,000-00</td>
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<tr>
<td>North – South Arterial (Above M4)</td>
<td>R 1,800,000,000-00</td>
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<tr>
<td>North – South Arterial (Alongside M4)</td>
<td>R 250,000,000-00</td>
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<tr>
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<tr>
<td>DIA to Stanvic Bridge</td>
<td>R 90,000,000-00</td>
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<tr>
<td>DIA Access to N2</td>
<td>R 8,000,000-00</td>
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<tr>
<td>Closure of Quality Street to HGV</td>
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<tr>
<td>Duranta Street Closure for HGV</td>
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<td>R 55,000,000-00</td>
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<tr>
<td>Bridge across South Coast Road to Mobeni</td>
<td>R 90,000,000-00</td>
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9 Infrastructure Costs / Phasing

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<td>Link between N2 and Durban Port – Additional Access</td>
<td>eThekwini Municipality (ETA)</td>
<td>By 2015 Phase 1</td>
<td>R 500 million</td>
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<td>Link from uMhlathuzana to Sydney Road</td>
<td>Allow for access from uMhlathuzana to Maydon Wharf</td>
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<td>R 410 million</td>
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<td>Link between Mobeni and M4 and Jacobs Areas</td>
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<td>R 694 million</td>
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<td>North – South Arterial</td>
<td>Link between DIA and Durban Port</td>
<td>eThekwini Municipality (ETA)</td>
<td>By 2019 Phase 2</td>
<td>R 1,800 million</td>
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<td>5</td>
<td>DIA to Stanvac Access</td>
<td>Improved access to refinery and diversion of HGV to dedicated network</td>
<td>eThekwini Municipality (ETA)</td>
<td>By 2019 Phase 3</td>
<td>R 138 million</td>
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<td>Quality Street Extension to Mobeni and Bridge</td>
<td>Improved Access between Mobeni and Jacobs area across South Coast road</td>
<td>eThekwini Municipality (ETA)</td>
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<td>R 145 million</td>
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<td>7</td>
<td>Road Closures for HGV’s Quality and Duranta Roads</td>
<td>Limited / restrict HGV movement to Tara Street</td>
<td>eThekwini Municipality (ETA)</td>
<td>By 2019 Phase 3</td>
<td>R 5 million</td>
<td>eThekwini Municipality / Transnet</td>
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10 Conclusions

This investigation has emphasised the need for an additional route into the port, exclusively for freight vehicles. The route that has been proposed is a combination of the uMhlathuzana Arterial and Link Road, linking the Port of Durban to the N2 and N3. The emphasis of this investigation is the identification of the cross section of this route over the period 2015 to 2035.

The investigation has shown the following:

- The study has shown that the uMhlathuzana Arterial and Link Road should link to the N2 by 2015 as the Edwin Swales VC Drive and Bayhead Road (with the Khangela Bridge) operate at poor levels of service in 2015 and this is when it is expected that all the current upgrades to the Durban Port has been finalised;
- The cross section required in 2016 is a single lane per direction, although it is recommended that 2 lanes per direction is considered to allow for overtaking and breakdowns;
- By 2017, it is expected that Maydon Wharf will be converted into a container terminal and hence the link from the uMhlathuzana Arterial and Sydney Road will be required;
- By 2019 it is expected that the DIA would be operational and hence the importance of providing the North – South link between the DIA dug-out Port and the existing port. This link will provide dedicated access between the Port of Durban with limited access from the adjacent areas within the South Durban Basin. At this stage only one access point in the region of Quality Street to the North – South Link Road is proposed;
- By 2035, the link carries over 3,000 PCU’s per hour between the Port of Durban and the N2 and just over 2,000 PCU’s per hour between the N3 and the N2 (in the peak direction). These volumes warrant the extension of the uMhlathuzana Arterial to the N3 from the port. A cross section is 2 lanes per direction is required between the N3 and the N2, and 3 lanes per direction between the Port of Durban and the N2.
Since the finalisation of the BoP LAP in 2012, Transnet have updated the development plans for the Port of Durban. It is the recommendation of the BoP LAP project team that the BoP LAP be adopted in its present form and that a team of professional service providers be appointed within 18 months to revise the BoP LAP in the light of the updates to the Transnet development plans for the Port of Durban. It is the opinion of the BoP LAP project team that the required revisions to the BoP LAP will, in the main, revolve around the location and extent of land areas required for back of port activities and the timing of these requirements. In other respects the BoP LAP will not, in the opinion of the BoP LAP project team, require major revision.

**Port of Durban - Role of the Port**

Durban is South Africa’s premier container port (65% of South Africa’s container traffic) and the principle port serving the KwaZulu-Natal province and the Gauteng region as well as the Southern African hinterland. The port handles over 4700 commercial vessels annually, the highest number in South Africa, equating to over 74 million tonnes of cargo per year. The 30 year forecast predicts around 175 million tonnes of cargo per year. Major growth areas for the port are seen to be in containers and bulk liquid handling, with moderate growth in automotive cargo.

Although Durban is a mature port with increasingly congested operations, there is potential to improve throughput capacity by reconfiguring and rationalising the existing precincts of DCT, Point, Maydon Wharf and Island View. The underutilised Bayhead rail precinct is ideally suited for back-of-port commercial logistics development, in the medium to long term. The development of the dig-out port at the old airport site is key to the provision of medium and long term capacity.

Major expansion projects in the short term include deepening of the North Quay and infill at Pier 1 of DCT, berth reconstruction and deepening at Island View and Maydon Wharf, and development of a new dedicated passenger terminal.

The complementary regional grouping of Durban (with the current port ant complemented by the new Dig-out port) and Richards Bay allows the rational and complementary allocation of cargo between the three ports. Richards Bay can focus on coal export and other dry bulk handling, while the two ports in Durban can focus on container, automotive and liquid bulk handling.

Durban will continue to provide a wide range of port infrastructure and operational services. With its well established logistics infrastructure and supporting local industrial base, it will continue to be the port of choice for high-value Gauteng and other inland cargoes.
TRANSNET UPDATED DEVELOPMENT PLANS FOR THE PORT OF DURBAN
TRANSNET UPDATED DEVELOPMENT PLANS FOR THE PORT OF DURBAN

Port of Durban – Metro Context Current Layout

[Map of Port of Durban showing various zones and locations]
TRANSNET UPDATED DEVELOPMENT PLANS FOR THE PORT OF DURBAN
TRANSNET UPDATED DEVELOPMENT PLANS FOR THE PORT OF DURBAN

Port of Durban – Short Term Layout [2019]
TRANSNET UPDATED DEVELOPMENT PLANS FOR THE PORT OF DURBAN

Port of Durban – Medium Term Layout [2042]
DURBAN BACK OF PORT LOCAL AREA PLAN (DRAFT):
STAKEHOLDER ENGAGEMENT REPORT

March 2013
J31333

ETHEKWINI MUNICIPALITY
DEVELOPMENT AND PLANNING DEPARTMENT

DURBAN BACK OF PORT LOCAL AREA PLAN (DRAFT):
STAKEHOLDER ENGAGEMENT REPORT

Draft 1.0 for Client Review

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ABM  Area Based Management
ARRA  Austerville Residents Ratepayers Association
BOP  Back of Port
CRRA  Clairwood Residents Ratepayers Association
DCM  Deputy City Manager
DWA  Provincial Department of Water Affairs
EIA  Environmental Impact Assessment
ECOD  Economic Development Committee
FAQ  Frequently Asked Questions
FBO  Faith Based Organisation
FM  Frequency Modulation
GIBB  GIBB (Pty) Ltd
GMA  Graham Muller and Associates
I&AP  Interested and Affected Party
IRA  Isipingo Ratepayers Association
ISO  International Organization for Standardization
km  Kilometre
KZN  KwaZulu-Natal
LAP  Local Area Plan
m  metre
MRA  Merebank Ratepayers Association
N2  National Route 2
NEMA  National Environmental Management Act
NGO  Non-Governmental Organisation
PPP  Public Participation Process
SA  South Africa
SANRAL  South African National Roads Agency Ltd
SDCEA  South Durban Community Environmental Alliance
SDB  South Durban Basin
SEP  Stakeholder Engagement Process
SIP  Strategic Integrated Projects
1.1 Background

The eThekwini Municipality has the constitutional mandate to plan for land use and zoning in their area of jurisdiction. Accordingly, the eThekwini Municipality Development and Planning Department (hereafter ‘eThekwini’ unless otherwise specified) developed the Durban Back of Port (BOP) Local Area Plan (LAP) in concept draft form, which proposes changes to the future land use and zoning within the South Durban Basin (SDB), including areas/precincts of Congella, Clairwood, Jacobs, Mobeni, Umbilo and Rossburgh. This was subsequent to the Economic Development and Planning Committee (ECOD) confirming their support to the strategic review of zoning and landuse within the study area on 23 November 2006.

Over the past six years, eThekwini has done extensive surveys, investigations and research to inform the development of the Draft BOP LAP with the intention to provide a clear framework for the management and development of the BOP land use. Notably, the Draft BOP LAP includes a Local Area Plan, detailed Land Use Management Scheme and comprehensive strategy on current land use practices and future demands. The Draft BOP LAP is detailed in a report titled ‘Back of Port Back of Port Concept, Framework, Precinct Plans and Zoning Framework Report, Rev 5 dated 30 May 2012’ compiled on behalf of eThekwini by a consortium of consultants led by Graham Muller and Associates.

In the interest of economic growth, alleviating community and business uncertainty and formulating a long term solution for the Back of Port area, the Draft BOP LAP was developed to accommodate the existing and expected market related pressures on the SDB. These market related pressures concern current land use practices and future demands within the context of an expanding Port of Durban and strategic need to develop an upgraded Durban-Gauteng freight corridor.

eThekwini prepared a document titled ‘Report to Economic Development and Planning Committee,’ dated 24 May 2012, which provided an summarised overview of the Draft BOP LAP. A presentation was then given to the ECOD in June 2012, whereafter this committee approved eThekwini’s recommendation that the draft plan be open to stakeholder engagement.

eThekwini thereafter embarked on a Stakeholder Engagement Process (SEP) which is the topic of this GIBB report.

1.2 Purpose of the Stakeholder Engagement Process

Being aware and mindful that the proposed BOP LAP would significantly impact on residents, business owners, trucking companies, the port and other interested parties, eThekwini’s project team initiated, developed and submitted a proposal to the eThekwini Council for the undertaking of a public / stakeholder consultation process. The initiative was also in the interest of a fair and informed decision making.

1.3 Team Members and their Roles and Responsibilities

After eThekwini developed a strategy for the SEP they appointed a support team of external consultants to assist them to implement this strategy. This subsection introduces the team members and briefly explains their roles and responsibilities.

1.3.1 Custodian: eThekwini Municipality

The eThekwini Development Planning, Environment & Management Unit, headed by Ms Soobs Moonsammy, were the custodians of the BOP LAP and have been involved with this project over the past 6 years. As mentioned the eThekwini team initiated and developed the strategy for the SEP and led the implementation of the SEP.

Mr Sipho Cele from Deputy City Manager (DCM) Governance supported the initiative by oversight and unblocking impasse.

Ms Moonsammy directed and was the lead spokesperson throughout the SEP. She was supported by the following core project team members from the eThekwini Municipality:

- Mr Lilhe Phewa - Deputy Head: Development Planning
- Mr Marcus Govender - Back of Port Project Manager, Development and Planning
M Gibb Report on the BoP LAP Public Participation Process

- Mr Eric Parker, Development and Planning
- Mr Leonard George, Development and Management
- Mr Fazal Ebrahim, Development and Planning
- Ms Kajal Singh, Development and Planning
- Ms Eurakhia Singh, Manager: Development Division, SDB Area Based Management Department
- Ms Sohana Singh - Back of Port Communications Officer, Communications Unit
- Mr Bongi Ngwane - isiZulu Translation reviewer, Communications Unit

This team was generally responsible for:

- Developing and implementing the SEP strategy and detailed plan
- Liaising with and reporting to the eThekwini Municipal Manager as and when required
- Directing, leading and coordinating the SEP
- Appointment and overseeing of consultants to assist with the SEP
- Initiating the SEP through media announcements
- Reviewing and approval of communications material that was prepared by consultants
- Reproduction of the majority of the communication material for the SEP
- Setting of dates, booking and hiring of venues for public and focus group meetings
- Placing of media notices
- Inviting stakeholders and municipal representatives to the meetings
- Being the Municipal spokesperson and representative at the public and focus group meeting
- Coordinating the panel of representatives at the public and focus group meetings
- Providing a isiZulu translator at public meetings.

The eThekwini Traffic Authority supported the team by attending the public meetings to answer any traffic and road infrastructure related queries. This particularly since the Draft BOP LAP covers the anticipated concept for the Durban-Gauteng road corridor that traverses the BOP area.

In response to stakeholders requests received during the Stage 1 of the Stakeholder Engagement Process, the Municipal Manager, Municipal Councillor and/or their representative showed their support to the process by facilitating and/or participating in certain meetings during Stage 2 of the SEP.

1.3.2 Key Developer (observer): Transnet

While it is important to note that Transnet had no direct representation in the SEP team and SEP, they are considered partners in eThekwini Municipality and key role players in terms of strategic infrastructure development planning within the SDB and BOP area. Transnet’s representatives attended one of the focus group meetings in Stage 2 of the SEP as ‘silent observers’.

The market driven expanding port and Transnet’s related strategic national infrastructure plans motivated and influenced the Draft BOP LAP. The Draft BOP LAP is well aligned with Transnet’s strategic plans for the expansion of the Port of Durban, including a potential new “dig-out” port at the former site of the Durban International Airport. Transnet’s long term framework plans includes the phasing in of major upgrades and expansions of the existing port (Phase 1), followed by the construction of a brand new dig-out port at the ‘old’ Durban international airport site (Phase 2) and thereafter major digging out and expansion of the existing port southwards at Bay Head (Phase 3).

1.3.3 Planning Consultant: Graham Muller and Associates

Graham Muller and Associates (GMA), town planning specialist had been appointed by the eThekwini as the lead consultany to develop the Draft BOP LAP. GMA specialise in economic research, development planning, economic modelling, business planning, financial modelling, costing studies (including Activity based costing) and management accounting. In developing the Draft BOP LAP, GMA was assisted by a consortium of other specialist who undertook a wide range of studies. Refer to Section 2.2 for further details.

GMA’s role and responsibility during the SEP was to present the Draft BOP LAP to the stakeholders and answer questions of a technical nature. Accordingly, Mr Graham Muller from GMA gave a presentation of the Draft BOP LAP at each public and focus group meeting. Note that this presentation was then also made available to the public in either hard copy or as part of the information pack provided on the CDs.

1.3.4 Stakeholder Engagement Support: Gibb (Pty) Ltd

eThekwini appointed Gibb at the end of June 2012 to assist the eThekwini project team with coordinating, supporting and providing capacity for communications and logistics management during the SEP.

As such, Gibb’s key role was to:

1. Develop and design range of communications material based on the Draft BOP LAP information provided by eThekwini
2. Provide logistics support for engaging with stakeholders (e.g. at meetings and through provision of a call centre)
3. Register stakeholders and their comments
4. Analyse the Stakeholders comments.

Gibb’s scope of work for the SEP included:

- Reviewing of the technical information package provided by eThekwini
- Developing and designing a “Easy Reader” communication material for distribution at inter alia the community meetings, Open Day sessions and focus group discussions
- Developing and designing an information tabloid for newspaper publication
- Drafting of a newspaper opinion piece
- Drafting of the content for a Proforma letter to inform property owners of the project and requesting comment (Rate Payers Letter)
- Facilitating focus group discussions
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- Scribing and keeping records of the community meetings, focus group discussions and Open Day sessions.
- Assisting eThekwini with contacting and informing Interested and Affected Parties (I&APs) of the various engagement meetings on request (Stage 2 only)
- Develop an I&APs register
- Provide a call centre (including a toll free call number) for the duration of the comments period, enabling I&APs to submit comments easily and efficiently
- Compile a Stakeholder Engagement Report (this report).

Note that all draft documents were submitted to the eThekwini project team in draft form for review, where after it was amended and resubmitted to eThekwini for publication, printing and distribution as a final version. Some documents were also revised depending on eThekwini’s needs, e.g. amendments for Stage 2 of the SEP. Certain documents were translated into isiZulu.

1.3.5 Independent Facilitator: Mr Karthi Govender

Mr Karthi Govender from Team Dynamix was appointed as independent facilitator to facilitate all the public meetings during Stage 1 of the SEP.

1.4 Regulatory Framework and Guidelines for Stakeholder Engagement

It is highlighted that the SEP for the Draft BOP LAP is part of the council’s package of plans and not a statutory process in terms of the Planning and Development Act 6 of 2008 (PDA) and or the National Environmental Management Act 107 of 1998 (NEMA), which in terms of such acts the process is legally prescribed. However, given the importance and controversy of the plan, the Council used the Public Participation Process (PPP) prescribed by the Environmental Impact Assessment (EIA) Regulations as guideline for the EIA. In this regard the process that eThekwini embarked on to share information on concept plans with communities and other stakeholders (access to information) and engage with them to gather information on their comments, issues and concerns in the interest of informed decision making (participation process).

Therefore and importantly, with the Draft BOP LAP presenting an ‘early-stage’ and ‘broad’ concept plan for the BOP area, it is not regulated by a specific planning and public engagement process. Statutory requirements and regulated processes, such as EIA and rezoning processes, would inevitably follow as next steps that would form part of the more detailed planning stages. Rezoning processes would precede any zoning change and EIA processes would precede any development activity that is listed in the EIA Regulations as requiring an Environmental Authorisation. Such process with their associated required Public Participation Processes would need to be undertaken by the relevant developers.

The SEP was therefore not ‘directly’ governed by a statutory process. Nevertheless, various legislation and guidelines were taken into consideration or informed the SEP, including:

The Constitution of South Africa

The Act contains both broad and specific provisions relating to municipal service delivery. Accordingly, a municipality has the right to exercise any power concerning a matter reasonably necessary for, or incidental to, the effective performance of its functions. Chapter 4 of the Act deals specifically with Community Participation.

As such relevant section of Chapter 4 deals with the following matters:

16. Development of culture of community participation
17. Mechanisms, processes and procedures for community participation
18. Communication of information concerning community participation
19. Public notice of meetings of municipal councils
20. Admission of public to meetings
21. Communications to local community
22. Regulations and guidelines

Promotion of Access to Information Act 2 of 2000

Closely linked to the notion of administrative justice (as governed by the Promotion of Administrative Justice Act 3 of 2000 (PAJA)) is the right of access to information. Without access to information, a person may be unable to determine whether or not his or her Constitutional right to just administrative action has been infringed. The purpose of the Promotion of Access to Information Act 2 of 2000 (PAIA) is to give effect to the Constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith. Accordingly, everyone has the right of access to all information held by the State, and any information held by non-State parties which is required for the exercise or protection of rights. Note, that this right prevails over statutory provisions that unreasonably limit disclosure of information. PAIA therefore gives effect to the Constitutional right of access to information, and lays down detailed procedures in respect of access to the records of public and/or private bodies. Only in certain circumstances, laid down in PAIA, may access to information be refused.

Various duties are imposed upon public bodies under PAIA.

National Environmental Management Act 107 of 1998: EIA Regulations of 2010

As mentioned, due process needs to be followed to obtain Environmental Authorisation for any proposed development that ‘triggers’ an activity listed in the EIA Regulations, including the following of an associated EIA process. Such an EIA process would include the regulatory Public Participation Process (PPP).

While the early land use and land rezoning planning stage represented by the Draft BOP LAP per se does not trigger a listed activity, eThekwini has opted in their development of their strategy for the SEP to align it reasonably closely with PPP specifications in the EIA Regulations. As such eThekwini considered EIA Regulations 21 to 25, 33 and 54 and the associated PPP Guidelines. This is inter alia demonstrated by:

Graham Muller Associates

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2 OVERVIEW OF BACK OF PORT LOCAL AREA PLAN PROJECT

This section provides a brief overview of the BoP LAP Project and its national and local context and motivation. A brief explanation of what the Draft BoP LAP entails and how it was developed is also provided. This is important background information to the Stakeholder Engagement Process (SEP) as it not only aids the understanding of the context of the SEP, but also underpins the explanations for the approach and methodology followed for the SEP as described in the chapters that follow.

For a more comprehensive summary of the BoP LAP Project refer to the Easy Reader document of Appendix C.

2.1 Project Context

2.1.1 National Context

During his State of the Nation Address on 9 February 2012 President Jacob Zuma explained that a massive infrastructure development drive includes improving the movement of goods and economic integration through a Durban-Free State-Gauteng logistics and industrial corridor. The intention is to connect the major economic centres of Gauteng and Durban/Pinetown, and at the same time, connect these centres with improved export capacity through the sea-ports. He announced a Market Demand Strategy for Transnet, which entails an investment over the next seven years of 300 billion rand in capital projects - mainly for rail and port projects in the country.

The Durban to Gauteng freight corridor is considered to be of critical importance to South Africa’s freight transportation network and is a vital national asset, facilitating economic growth for the country and for the entire Southern African region. The national spatial priorities translate into the National Department of Transport 2050 vision which provides an integrated solution to the growing expansion requirements of the Durban to Gauteng freight corridor which will form the foundation for the establishment of a Southern African regional freight network. The Durban Gauteng corridor is being pursued as a National imperative and is reflected in the National Development Plan, and was announced as an infrastructure priority in the President’s State of the Nation Speech, as well as the budget speech.

Municipal Context

The high level strategic planning for the major Port of Durban expansions, a new ‘dig-out’ sea port at the vacated Durban International Airport site and the Back of Port area started several years ago. As part thereof the eThekwini Municipality developed the Draft BoP LAP, which includes land use planning and rezoning concept plans.

The Municipality recognises that the study area will be significantly affected by the national strategic visions and that land use will evolve due to the future demands and market pressures. A LAP will therefore ensure that land use changes meet the strategic objectives of the country and that they happen in an orderly manner. The Plan forms part of a comprehensive strategy based on current land use practices and future demands within the context of an expanding Port.

The Plan also includes proposals for the areas adjacent to the Port, particularly with regard to land use and rezoning. These are shown on numerous draft rezoning maps. A comprehensive strategy based on current land use practices and future demands within the context of an expanding Port is included.

Study Area

The BoP LAP study area forms part of the South Durban Basin (SDB) district which is located within the eThekwini Municipality, the only Metropolitan Municipality within the KwaZulu-Natal Province, South Africa. (Refer to Figure 1).
The urban structure of the SDB is characterised by an urban corridor which comprises a variety of land use activities, but is dominated by a full range of industrial activities. The latter stretches from the Durban City Centre, through to Umbogintwini in the south. The Durban Central Business District (CBD) and the Port of Durban form the northern end of the urban corridor, and the Umbogintwini industrial node forms the south end of the corridor. Located along this corridor, in a linear belt, between some of the major nodes, are the various industrial areas of the SDB, namely, Prospecton, Isipingo Rail, Merebank West and East, Mbeni West and East, Jacobs, Clairwood Industrial, Rosshurgh, Bayhead, Congella and Maydon Wharf. Interspersed between these are a number of residential areas: parts of Umbilo Clairwood, Merebank, Wentworth, Auster-ville and Isipingo.

The residential communities are interspersed by a number of local retail, community facility and recreational (environmental) nodes (golf courses, parks, sport facilities etc.).

2.2 Development of the Back of Port Local Area Plan

As mentioned, the Draft BOP LAP aimed to provide a clear framework for the management and development of land use changes in the Congella, Clairwood, Jacobs and Mbeni, Umbilo Residential and Rosshurgh precincts, within the context of an expanding Port.

Over the past six years, the Municipality has undertaken numerous surveys and investigations in order to inform the development issues impacting on the BOP LAP. In doing so, the Municipality contracted a consortium of experts under the lead consultant Graham Muller and Associates to assist with these studies. Studies included inter alia studies on economics, town planning and urban design, social assessment, property market assessment, property owners survey and environmental planning. Studies covered status quo analysis and development of future land use and zoning recommendations.

The BOP LAP project is focused on reviewing plans and proposals for the BOP Interface Area in an effort to develop the following:

- Local Area Plan
- Detailed Land Use Management Scheme
- Comprehensive strategy based on current land use practices and future demands within the context of an expanding Port.

The BOP LAP project ultimately aims to provide insight into the nature and extent to which increased land use changes would occur through natural market forces and public-led investment with the intention of supporting port related industry, manufacturing and commercial development. The BOP LAP together with the Port expansion plans are also intrinsically linked to the Durban to Gauteng freight corridor which is a National Imperative.

The 376 page document by Graham Muller and Associates and Iyer Urban Design Studio, known in short as the Draft BOP LAP is titled Back of Port Concept, Framework, Precinct Plans and Zoning Framework Report, Rev 5 dated 30 May 2012. It includes the following additional documents as annexures and addendums:

**Annexures**

- Previous Studies
- City Structure and Growth Patterns
2.3 Implementation Framework

In summary the implementation framework for the proposed BOP LAP is as follows:

**Establish a Dedicated Institutional Organisation to Implement the Back of Port Zone Re-development:**

This organisation must have the necessary capacity to ensure the re-development of the Back of Port area and also it is also recommended that the organisation makes provision for current property owners to invest their properties (optional).

**Inter-Government Co-operation and Investment and Partnerships:**

All three spheres of government (including government agencies and parastatals) should jointly co-operate and invest in the study area through a Medium -Term Expenditure Framework (MTEF) and public-public and private partnerships.

**Clairwood Stakeholders:**

- The legal status and use of property owners will not be affected - the residential and legal business use of such property will continue for as long as owner would like to.
- Fair negotiated outcomes regarding property acquisition (buying) should be sought with individual land owners if owners choose to sell. All options of acquisition should be considered and the best value to the property owner should be the option of choice.
- Property owners should be given the option to invest their property into a legal entity for the re-development of the area.
- The rates code status of current legal use of property should remain unchanged. A change in rates code should only take effect when the proposed rezoning and associated infrastructure is in place and the use of the land is in accordance with the proposed zoning (logistics).

**Informal Housing:**

- Housing options and a housing plan for the current and recognised informal settlements should be expedited and treated as a special housing programme.

**Clairwood Racecourse:**

- The development footprint and future use of Clairwood racecourse will be determined through the required Environmental Impact Assessment and Rezoning process.

**Fresh Produce Bulk Market:**

- The relocation of the Fresh Produce Bulk market will have both economic and social implications and it is recommended that a suitable feasibility and identification of an alternative site is identified and prepared for a seamless transition.

**Environmental Protection and Mitigation:**

- The clean-up, greening and maintenance of the canal systems serving both as an environment and social asset are important to balance and support the economic aspects and re-development of the area.
- Changes in Town Planning Schemes for Current Industrial Zoning within the Study Area: an incremental approach is recommended.

**Back of Port Zone Re-development to be Coupled with Other Strategic Development Areas within EThekwini and Beyond:**

- Back of Port development must be coupled with new industrial development.
2.4.1 Congella, Umbilo and Rossburgh

Congella is considered to be a generally rundown area of mixed land uses, namely: noxious (toxic) industry, general industrial, residential, logistics and shopping/commercial outlets. The edges of this area are zoned industry while the central portion is zoned residential. The logistics group of uses being the largest user of the land. Industries consist of small clothing outlets occupied by several transport users and light and service industries. Small scale retail outlets are also scattered in the area. There are also many vacant and recreational sites within the area including a canal system. Several informal settlements occur in the area.

The proposal is to rezone the Clairwood precinct to suit logistic use. Planning for the Clairwood area will then also require that roads and other infrastructure are redeveloped with a new suitable logistics layout. It is the view of the Municipality that the area zoned residential, is not performing as a residential area. The close proximity to the port, the shortage of industrial land in eThekwini and in the South Durban Basin and continued loss of amenity has resulted in a number of business and industrial activities infiltrating the area.

In order for land uses in Clairwood to function efficiently, a total new layout will be required, including wider roads with improved access from truck freight routes. Residential and non-logistics related uses would be rezoned to logistics uses in order to accommodate the circulation of larger trucks, and on-site parking and handling. The Fresh Produce Market and Transnet Diesel Depot would function as the site of the initial logistics platform. Listed
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2.4.3 Jacobs and Mobeni East

Figure 4: Proposed Zoning for Jacobs and Mobeni East

Jacobs is considered to be one of the oldest and largest ‘industrial estate townships’ with a mix of noxious (toxic) industries, general industrial, logistics (40% of the landuse) and Private Open Space (Clairwood Racecourse). There are a number of large scale textile and chemical related manufacturers and many smaller service industrial users.

There are also several large warehousing, storage and freight transport activities to the north of Jacobs. Overall there are a number of large medium and small sites to accommodate a range of industrial opportunities.

Jacobs will not have any major planning interventions but will include a minor adjustment to zoning to allow for a gradation of zoning in the area. It is proposed to maintain the various types of logistics, manufacturing and service related uses but in a more directed format. Mobeni-East will be zoned for logistics to form part of the logistics ‘belt’ that stretches from the harbour to the new dig out port.

The Clairwood Racecourse is proposed as a recreation and environmental zone with the southern portion containing a series of office parks/logistics related uses. The development footprint will be determined through an EIA.

The zoning changes anticipated for the Jacobs area will allow for a gradation within the zoning types from noxious industries along the M4, general industry starting from Chamberlain Road and light industry between the general industry and residential areas. Numerous buffers would need to be created between residential and industrial areas. The

2.4.4 Mobeni West

Figure 5: Proposed Zoning for Mobeni West

The majority of Mobeni West consists of general industry, a narrow band of noxious (toxic) industries located in a central portion of the township, and residential areas strategically placed with access to the N2. There is a substantial amount of warehousing, storage, freight and transportation services uses all occurring on large sites. Many of the sites also include manufacturing of clothing and textiles, chemical activities, motor and transport related industrial activities. This area has not been subject to invasion by small scale service providers, as there are not many small and medium sized sites available.

Mobeni West with its large sites, strategic access points and rail reticulations will be an ideal continuation of the linear band of logistics uses. There will be landuse changes to facilitate the transition to logistics uses namely that the noxious (toxic) industries and general industries will be zoned to a Logistics A zone to permit open storage. The Merewent industrial area located in Mobeni will be converted to a Logistics B zone prohibiting open storage. Hospitals and hostel areas will be retained and the rail system will be upgraded and a new east-west road connection via Grimsby road will improve the connectivity of the area.

Minor changes in the landuse within Mobeni are proposed in order to facilitate a conversion to logistics adjacent to the Southern Freeway and the railway lines. Noxious and general industries will be transformed to a Logistics A zone and the Merewent Industrial area will be converted to Logistics B zone to better interface with the adjacent residential areas. Also by retaining hospital and hostel areas, these will act as buffers from the logistics zones to adjacent residential areas.
2.4.5 Merewent

Note that Merewent is outside of the study area, but is within close proximity to and contributes to traffic congestion, pollution and access issues within the study area. This area is zoned general industry with the balance being zoned residential and similar activities. Large manufacturing facilities are located and constrained to three large sites within this area each with their own access point via residential areas. These include Engen Oil Refinery, Mondi Paper and Sasol Fibres. Residential areas border these industrial activities, resulting in many residents being unhappy about industrial pollution.

The industrial developments and surrounding area will largely remain the same with the exception of an extension of the existing industrial area proposed to accommodate the proposed dig-out port. This extension will require a buffer of offices between the residential and industrial areas. Industries will therefore be graded so that lighter industries are adjacent to residential areas. The existing noxious (toxic) industries and general industries will continue functioning in their present format, and access will be via a new system along the periphery to the new dig-out port, removing heavy traffic flow from the residential areas.

Therefore, current industrial zones will continue to function in their present form and new industrial areas will be accessed through the link from the new dig-out port. Traffic congestion will also be improved with a segregation of local and light vehicles from heavy vehicles, reducing the pollution in the South Durban Basin.

2.5 Frequently Asked Questions

The technical team formulated the following responses on a range of FAQs that were anticipated and received from stakeholders. These responses were published as part of the newspaper tabloids (refer to Section 4.3) and during Stage 2 also as part of the Easy Reader (refer to Section 4.2).

How is the plan different to the new dig-out port that will be built on the old Durban International Airport site?

The BOP LAP is not a plan for the development of the dig-out port. The proposed dig-out port is a project that Transnet is driving. Expansion of Ports is also a national priority. The Municipality’s BOP LAP is a plan that responds to the current and future impacts that this development will have on the city, particularly in the South Durban Basin. The Municipality has to make sure the City is prepared and ready to cater for the impacts that this will have on the area. Therefore it is necessary to relook at the zoning in the area. Current Port anc industrial activity in the BOP also demand zoning and infrastructure changes.

If the area is being rezoned as logistics, will communities be asked to move?

The current zoning rights for property owners will remain and retain legal status and only when land is sold or redeveloped or acquired will this be done in terms of the proposed future zoning. So residents will not be asked to move. However, the current environment in the most impacted area, namely Clairwood, lacks normal residential amenity and will continue to decline.

How will communities be impacted by the dedicated freight route?

The dedicated freight route will remove heavy trucks from ‘normal’ roads, and reduce congestion. The freight route intends to create a special freeway linking the harbour to the N3, and the two ports. While the exact route is not yet available, planners are confident that feasible route can be achieved. This route will also reduce pollution and the number of accidents in the area. Trucks and congestion contribute much to pollution and accidents in the area. The freight route plan also takes into consideration the important role to be played by rail.

How will the plan affect heritage sites and listed buildings?

The Municipality understands the cultural importance of the area and intends to ensure that all listed buildings and heritage sites are preserved in terms of the Heritage Act.

How will the plan affect property value?

Research has been conducted that indicates that property values in the area will increase.

How does the plan consider the impact on the environment?

A study on the environmental impacts of the plan was conducted by independent specialists. It must be recorded that Environmental Impact Assessment (EIAs) will be done should any proposed infrastructure development and or change in land use require it.
3 APPROACH AND METHODOLOGY

3.1 Previous Stakeholder Engagement

eThekwini did not engage with public stakeholders on the Back of Port Local Area Plan (BOP LAP) prior to July 2012; with the exception of the Clairwood Ratepayers Association (CRA).

According to the city, it was recognised that Clairwood is the precinct for which the most engraving rezoning is proposed, the Municipality had meetings with the CRA Executive on numerous occasions during the drafting of the BOP LAP. These meetings were facilitated by an independent facilitator. (Please note that limited stakeholder engagement was designed specifically for the greater Clairwood area.)

The meetings proved to be very beneficial in that operational issues were raised and dealt with in particular with the Joint Operational Group (JOG) chaired by the Manager Development Division, SDB Area Based Management Department.

The Clairwood Ratepayer Association (CRA) Executive also had an opportunity to engage with the plan. He offered recommendations on several occasions, specifically through design workshops. It must be recorded that through these workshops concerning the BOP LAP the CRA Executives always recorded its non-acceptance of the plan.

City representatives advise that after a number of engagements sessions, the City and the CRA’s view points were running in parallel to each other and it became evident that no common solution could be reached. In particular, the City requested CRA to help design the SEP and requested responses to the Plan. In this process CRA met the Deputy City Manager (DCM) Forum. At this meeting CRA were informed that the Draft BOP LAP would be published for formal public engagement and participation. Also at this meeting CRA tabled a resolution. City representatives confirmed at this meeting that it cannot accede to the CRA resolution; and would proceed with plans to publish the Draft BOP LAP for public comment.

Note that notwithstanding the challenges of zoning and current use in the Clairwood precinct, the Municipality had in the past tried to retain residential amenity, through a set of interventions viz; enhanced enforcement team in the area with resulting cases being prosecuted, change of rates to illegal rates code and with the eThekwini Transport Authority, a restricted truck route, as well as a the satellite Metro Police presence. These initiatives have provided short-term and limited impact in managing the infiltration of industrial and business activities into the area.

3.2 Current Stakeholder Engagement

eThekwini’s in-house municipal team developed the strategy and designed the plan and roll-out programme for the current Stakeholder Engagement Process (SEP). Thereafter they appointed a team of external consultants including the technical expert and lead consultant that had developed the Draft BOP LAP (Graham Muller and Associates), the stakeholder engagement support consultants (GIBB) and the independent facilitator (Mr Karthi Govender) to assist the Municipality with the implementation and roll-out of the SEP (refer to Section 1.3 for more details on the roles and responsibilities).

The objective of the SEP was to provide all necessary facilities and capacities to allow opportunities for public stakeholders to engage efficiently on the Draft BOP LAP. This includes the transparent and effective dissemination of information related to the Draft BOP LAP and SEP to key stakeholders and the collection of public comment and opinion on the Draft BOP LAP and analysis thereof. In short, communications were to be through media announcements and publications, ratepayers letters, public and focus group meetings and availing of a call centre.
This section provides a brief overview of the approach and methodology adopted for the SEP.

1. Detailed Study Reports and Draft LAP (hard copies and CDs of full import in English)
2. Easy Reader: Background Information (1 A3 page insert in English and isiZulu)
3. Newspaper Tabloid: Background Information (4 A3 page insert in English and isiZulu)
4. Rotepapers Letter (2 A3 page letter in English and isiZulu)
5. Opinion Piece: Short Newspaper Article
6. Meeting Presentations (2 A3 page letter)

STAKEHOLDER ENGAGEMENT

1. Stakeholder Identification
   - Directly Affected: People residing or having businesses in Precincts within the study area
   - Indirectly Affected: Various focus groups
2. Announcements of Stakeholders / Public Engagement
   - Newspapers
   - Radio
   - Street Name Printed
   - Local Library Notices
   - Rotepapers Letters via Post
3. Information Disclosure
   - Newspaper Tabloid
   - Local Libraries
   - The South Durban Basin ABM Offices
   - eThekwini Website
   - Public and Focus Group Meetings
   - Screen Drop-off (house to house)
4. Consultation and Engagement Opportunities
   - Public Meetings
   - Focus Group Meetings
   - Open Days
   - Toll Free Call Line

STAKEHOLDER OPINION SORTING AND ANALYSES

1. Develop Key Questions
2. Develop Comments Sheet
3. Ask for Comments Sheet to Stakeholders (this was done as part of the Information Disclosure and Engagement)
4. Collect Comments Sheet from Stakeholders
   - Library Drop boxes
   - Information Desks at Meeting
   - GIBB Offices: Toll-free calls, Email, Faxes, Post and Hand Delivery
   - eThekwini Municipal Offices
5. Develop and Populate Comments Database (sort and capture information)
6. Analyse Comments and Prepare Report
Further details of the stakeholder engagement process are to be found in the full Gibb report, dated March 2013.
END OF REPORT