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CHAPTER 6 NEARBY TRANSPORTATION, CIVIL AND INDUSTRIAL FACILITIES

6.1. INTRODUCTION

This report provides information on the following aspects in the area around Koeberg Nuclear Power Station (KNPS):

- ◆ Transportation networks with reference to air, road, rail and sea traffic;
- ◆ The distribution of civil installations that include schools, day-care centres, homes, hospitals, prisons and police stations; and
- ◆ The extent and nature of industrial development and other urban infrastructure such as power stations, coal burning installations, telephone exchanges, water supplies, sewage purification works, shopping and recreational centres.
- ◆ Where relevant the distance of installations and facilities from KNPS is given in kilometres while direction is indicated by a compass sector (NE, SSE, etc).

6.2. AIRPORTS AND AIR ROUTES

6.2.1 Airports

6.2.1.1 Cape Town International Airport (35.5 km SSE)

Cape Town International Airport (CTIA) is the biggest and most important facility within the 50 km radius from KNPS. It handles all international and domestic flights for the Western Cape. The airport has two asphalt runways at 01/19* measuring 3 201 x 61 m and at 16/34 measuring 1 701 x 46 m.

**Note: The Standard notation for runway orientation is used, giving the departure, from magnetic north, of the longitudinal axis of the runway in degrees times ten. Thus, 01/19 refers to a runway running 10° east of magnetic north to 190° east of magnetic north.*

A massive increase in the number of passengers using CTIA is expected over the next ten years, according to the Airports Company Ltd, who manages the airport. To accommodate this expected increase several improvements are planned. Included in the plans are a shopping centre and the possibility of a hotel and commercial development on the perimeter of the airport.

Figures supplied by the Airports Company Ltd (**Reference 1**) reflect a remarkable increase in the number of passengers for the period 1994 - 1996. **Table T-6.1** reflects the increase in the number of international and domestic passengers for this period. However, the exceptionally high increases for the months April, May and June 1995 are due to the Rugby World Cup event. The percentage increases recorded for the rest of 1995 reflect a more realistic picture of the current trend.



TABLE T-6.1
International and Domestic Passengers at CTIA:
1994 - 1996

Month	INTERNATIONAL PASSENGERS			DOMESTIC PASSENGERS		
	94/95	95/96	% increase	94/95	95/96	% increase
April	12 608	21 461	70	93 760	118 836	26
May	10 051	18 672	86	79 473	120 216	51
June	12 602	20 084	59	58 847	121 018	105
July	15 166	17 967	18	77 798	111 213	43
August	15 203	16 658	9.5	86 353	114 996	33
September	16 569	22 289	34	113 058	120 043	6
October	20 289	22 182	9	112 345	123 153	10
November	21 260	27 198	28	113 156	125 799	11
December	22 830	27 973	23	115 693	119 992	4
January	24 782	29 509	19	120 540	131 264	9
February	22 635	-		138 322	-	
March	20 522	-		140 452	-	
Total	214 517	223 993		1 249 797	1 206 530	

The overall increase in activity at CTIA is also reflected by the number of air traffic movements for the period 1994 - 1996 as shown in **Table T-6.2** below.

TABLE T-6.2
Air Traffic Movements at CTIA : 1994 - 1996

INTERNATIONAL AIR TRAFFIC MOVEMENTS				DOMESTIC AIR TRAFFIC OVEMENTS		
Month	94/95	95/96	% Increase	94/95	95/96	% Increase
April	104	152	46	1 407	2 185	55
May	117	144	23	1 682	2 517	50
June	120	126	5	1 953	2 179	12
July	132	144	9	1 581	2 050	30
August	123	134	9	1 722	2 226	29
September	136	138	1	1 804	2 302	28
October	156	147	6	1 889	2 426	28
November	121	150	24	1 787	2 511	41
December	125	167	34	1 978	2 495	26
January	129	156	21	2 045	2 595	27
February	128	-		2 114	-	
March	124	-		2 305	-	
Total	1 515	1 458		22 267	23 486	

The increase in the number of passengers and traffic movements at Cape Town International Airport, in general, is due to the uplift in the tourism industry and the regional economy of the Western Cape.

CTIA hosts almost all types of aircraft, from the largest passenger aircraft to the smaller private aircraft. The airport is occasionally used by military aircraft.

The relevant data indicating weekly movements per type of aircraft is given in **Table T-6.3** below (**Reference 2**).

**TABLE T-6.3
Aircraft data for Cape Town International Airport - 1996**

Aircraft Type	Max. Mass (kg)	Fuel Capacity (l)	Ave. Number of movements per week
Boeing 747	317 968 - 394 625	198 390	33
Boeing 767	17 300 - 184 600	83 237	3
Boeing 727	86 410	30 623	11
Boeing 737	47 000 - 53 070	22 000	106
Boeing 707	149 688	90 299	1
Airbus A300	142 000 - 165 000	55 000	35
Airbus A320	73 500	55 000	36
MD11	280 320	-	8
DC9	49 895	21 876	43
F100	44 450	-	2
DH8	195 000	-	57
Other			266
Total			601



6.2.1.2 Ysterplaat (25 km SSE) and Langebaanweg (80 km NNE)

These facilities are dealt with in the separate report titled 'Koeberg Site Safety Report: Military Airfields'. The information regarding these military installations is restricted and must be treated in strictest confidence.

6.2.1.3 Stellenbosch Airfield (49 km SE)

The Stellenbosch Airfield is a private airfield for small aircraft controlled by the Stellenbosch Flying Club. The club uses the airfield for recreational and pilot training purposes. The asphalt runway is 760 m long and 16 m wide with an orientation of 01/19. There is no control tower at the airfield and landing lights are provided for landing in the southerly direction only. There are 45 hangers at the airfield and Avgas 100 and aircraft maintenance services are available.

The airfield operates on a daily basis. Aircraft movements are not monitored accurately. Saturdays are the busiest days in general with approximately 100 aircraft movements. During the week daily movements average about 5 (*Reference 3*).

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6.2.1.4 Fisantekraal Airfield (28.5 km ESE)

The Fisantekraal Airfield, situated approximately 10 km NE of Durbanville, is a private airfield. It has two concrete surfaced runways at 05/23 measuring 1 219 x 42 m and at 14/32 measuring 1 280 x 42 m. The airfield is used mainly by two- and four-seater private aircraft. It is also used by two microlight flying schools stationed at the airfield.

The airfield operates on a daily basis but aircraft movements are not monitored. There is no control tower at the airfield and the runway is not equipped with landing lights. Engen Airfuel is available at the airfield (*Reference 4*).

6.2.1.5 Other airports

The Malmesbury Airfield (34 km NE) which was controlled by the Municipality of Malmesbury, is no longer in existence.

The Boland Airspray Services Limited owns and manages the unregistered Diepkloof aerodrome (46 km NE of KNPS). It is situated 13 km north of Malmesbury and approximately 500 m west of the N7 National Road. The 860 m long runway has a gravel surface and a NNW/SSE orientation. Boland Airspray Services, who owns their own fleet of aircraft, uses the aerodrome primarily for airspray purposes. Present use of the aerodrome is limited to light spray - aircraft with a maximum gross mass of 5 700 kg. The use of the aerodrome is however available to private aircraft with prior permission and at own risk.

Between May and September the aerodrome is used by eight spray-aircraft on a daily basis. For the rest of the year there is relatively little air traffic. There is no control tower at the aerodrome and the runway is not equipped with landing lights. Avgas and Engen Airfuel is available at the aerodrome (*Reference 5*).

The Western Province Crop Spraying Company owns a private aerodrome (36 km NE of KNPS) situated on the farm Rosenberg, approximately 4 km south of Malmesbury. This unregistered aerodrome has a gravel surface runway at 16/34 measuring 950 x 25 m. It is used for airspraying and private purposes. Unauthorised use of the aerodrome is prohibited. Daily aircraft movements of approximately forty is recorded from May to October. The runway is to be upgraded to an asphalt surface within the course of 1996/97 (*Reference 6*).

Aeronautic Properties cc owns a private and unregistered airfield that is situated on Portion 6 of farm Brakkefontein No. 32, approximately 4.5 km NE of KNPS. The airfield is located 2 km to the east of the West Coast Road. It has a gravel surfaced runway at 17.9/35.9 measuring 800 x 12 metres. The airfield is currently used for light aircraft pilot training with the possibility of minimal charter type operations in the future.



- ◆ The West Coast Road (Trunk Road No. 77);
- ◆ The National Road N7;
- ◆ Otto du Plessis Drive (MR199);
- ◆ The Mamre-Darling Road (MR215);
- ◆ The Melkbosstrand Road (MR199);
- ◆ The Brakfontein Road (M61); and
- ◆ The Dassenberg Road (MR223).



Other significant roads include the Klein Dassenberg Road (MR221), Philadelphia Road (MR217) and the Old Malmesbury Road (D1111).

The West Coast Road and the National Road N7 serve primarily as north-south national and regional distributors, with the additional function of providing local rural access. The West Coast Road links the Cape Metropolitan Area with the northern west coast areas, traversing the farm Duynfontein at approximately 2.3 km from the reactor buildings. This road provides the major access to KNPS. The N7 provide an important regional link with Malmesbury and the areas beyond. It has a dual carriageway cross-section as far north as one kilometre beyond the Melkbosstrand Road (MR199) at-grade intersection. The other roads are all two lane, two way at present.

Current east-west traffic movements in the region of KNPS are served by the following major roads:

- ◆ the Dassenberg Road which connects the West Coast Road and Atlantis;
- ◆ the Klein Dassenberg Road serving as a link between the Mamre-Darling Road and the N7;
- ◆ the Brakfontein Road just north of KNPS, linking the West Coast Road with the Mamre-Darling Road;
- ◆ the Philadelphia Road between the Mamre-Darling Road and the N7;
- ◆ the Melkbosstrand Road south of KNPS serving as a link between the West Coast Road, the Mamre-/Darling Road and the N7.

Otto du Plessis Drive (MR199) which runs along the coast from Table View to Melkbosstrand and linking back onto the West Coast Road, provides an alternative access road to KNPS (**Reference 9**).

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Current traffic volumes on the West Coast Road vary from $\pm 8\ 100$ vehicles per day (vpd) at the Melkbosstrand Road intersection to $\pm 6\ 700$ vpd at the Dassenberg Road intersection. The volume at the access point to KNPS is approximately 7 000 vpd. The N7 carries a traffic volume of $\pm 10\ 100$ vpd at the Mamre-Darling Road intersection. Further northwards the volume decreases to $\pm 6\ 800$ vpd at the Philadelphia Road intersection (**Reference 12**).

There are two north-south railway lines within the 35 km zone:

- ◆ the line to Namaqualand which runs past Kalbaskraal and Malmesbury, approximately 24 km east of the KNPS site; and
- ◆ the Atlantis goods line which runs approximately 6 km east of the KNPS site, connecting with the suburban line system at Chempet Station.

The Atlantis line is intended to be doubled and electrified to become a future primary transportation facility for the West Coast Corridor. The need for (and the timing of) the upgrade will depend on the extent and rate of development in the West Coast Corridor.

6.3.2 The Future Transportation Network

The proposed future transportation network is shown on **Drawing No. 23**. The information was obtained from an interim report prepared for the Metropolitan Transport Planning Branch of the Cape Town City Council (**Reference 9**).

The major features of the proposed network are:

- ◆ a freeway route east of the Atlantis railway line running parallel to but further inland from the West Coast Road;
- ◆ an extension of the R300 (Kuils River Freeway) which will run towards and pass along the southwestern boundary of Atlantis;
- ◆ a connection to the freeway route for the planned R300 which will be utilised to provide direct access to Atlantis;
- ◆ an extension of the M12 as a primary or secondary north-south distributor for subregional traffic and controlled local access;
- ◆ a northwards extension of Koeberg Road; and
- ◆ east-west primary or secondary distributors between the R300 and the West Coast, generally opposite Bloubergstrand, Melkbosstrand (MR199), KNPS (M61) and Atlantis South (Klein Dassenberg Road).



The airfield is located within the Cape Town General Flying Zone and flying to and from the airfield is executed outside the Koeberg restricted zone (FAR 36). Aircraft with a maximum gross mass of 5 700 kg are allowed while the maximum fuel capacity is below 380 litres. The average number of daily movements is approximately 8 landings and take-offs. There are no fuel storage facilities at present but a 15 000 litre AVGAS storage tank is envisaged for the future. Although the airfield is unlicensed at the moment, application for a licence may be made in the near future (*Reference 7*).

There are numerous airfields or emergency landing strips without facilities on farms within 50 km of the KNPS site. These are mainly unregistered facilities for private use (*Reference 8*).

6.2.1.6 Future airports

There is currently no airport in the planning phase but the proposed airport for light aircraft south of Atlantis (*Drawing No. 26*) may well require re-investigation due to the increase in activity at Cape Town International Airport (*Reference 9*).

6.2.2 Air Routes

Information on the air traffic control within 50 km of KNPS is shown on *Drawing No. 21*.

Cape Town International Airport is the main centre for air traffic control in the area and the KNPS site falls within both the Terminal Control Area (TMA) and the Control Area (CTA) of this airport. The immediate airspace above KNPS is a restricted flying area (FAR36) from ground level to 610 m (2 000 ft) above mean sea level (msl) over an area with a radius of 2.5 nautical miles (4.63 km) from a centrepoint at 33°41'S; 18°25'50"E. To the south of FAR36 is a general flying area from ground level to 610 m (2 000 ft) above msl and to the north a general flying area from ground level to 1 220 m (4 000 ft). Above these areas is controlled airspace, namely the TMA and CTA. The TMA to the south is from 762 m (2 500 ft) to 3 505 m (11 500 ft) above msl and to the north from 1 372 m (4 500 ft) to 3 505 m (11 500 ft). The CTA applies from 3 505 (11 500 ft) to 14 020 m (46 000 ft) above msl (*Reference 10 and 11*).

6.3. ROAD AND RAIL TRANSPORT

6.3.1 The Existing Transportation Network

The existing transportation network within a radius of 35 km from KNPS is shown on *Drawing No. 22*. The traffic volumes shown were provided by the Provincial Roads Administration and reflect counts taken in 1993 and 1994. The volumes are given as the average annual daily traffic and represent the sum of traffic in both directions.

The existing major roads within the 35 km zone around KNPS include:

The proposed network retains the existing N7 as the new freeway route between point A (*Drawing No. 23*) at Du Noon and point B, west of Koeberg. The freeway continues northwards from point B to intersect with the proposed R300 at point C. From point C the R300 will provide direct access to Atlantis at point E. The extension of the freeway north of point C will pass to the east of Atlantis (point D). Alternative routes have been proposed in this area with the choice depending on the proposed airport south-east of Atlantis (which is still to be approved) and the ultimate destination of the freeway north of Atlantis. All the transportation routes north of Atlantis still have to be determined.

The proposed M12 extension will intersect with the freeway at point A, continuing northwards west of the freeway but to the east of the railway line. It is proposed to connect with the Melkbosstrand Road (MR199) and ultimately to turn north-eastwards, linking with the existing N7. This route will function as a primary distributor continuing north-eastwards towards Malmesbury and beyond.

6.3.3 Hazardous Loads

This subject is dealt with in the separate report titled 'Koeberg Site Safety Report: Hazardous Loads Transported within 10 km of KNPS'. The information contained in the aforementioned report is highly sensitive and must be treated in strictest confidence.

6.4. HARBOURS AND SHIPPING LANES

6.4.1 The Port of Cape Town

The Port of Cape Town, the largest harbour facility within 50 km of KNPS, is situated 25 km south of the power station and serves as a major commercial port. It is controlled and managed by Portnet. In the context of recent political changes in South Africa it is foreseen that the Port will play an increasingly important role in international trade in the future. The period 1995 - 1996 has seen a sharp increase of imports through the Port Coastal Cargo and transhipments have also shown an increase. Exports on the other hand have been declining over the same period. The total cargo handled at the Port, however, has shown a slight increase while the number of ships to visit the Port increased from 269 in February 1995 to 316 in February 1996. **Table T-6.4** summarises port activity for the period 1989 -1994. The information is categorised into breakbulk (non-containerised in units), bulk transhipments (cargo for onward transport from Cape Town), Ro-Ro (trailerized cargo) and containerised cargo.

**TABLE T-6.4
Port activity at Cape Town : 1989 - 1994
Tonnage Handled.**

YEAR	BREAKBULK	BULK	TRANSHIPMENTS	RO-RO	CONTAINERS	TOTAL
1989	1 941 827	231 824	205 389	65 433	2 301 759	4 746 232
1990	2 018 302	262 032	158 197	373 047	2 490 254	5 301 832
1991	2 067 385	92 292	123 738	503 726	2 752 907	5 540 048
1992	3 022 818	116 013	148 527	347 144	2 461 485	6 095-987
1993	2 312 503	106 605	229 022	331 845	2 920 833	5 900 808
1994	2 431 166	378 582	333 208	265 215	3 564 750	6 972 921

The Port of Cape Town serves the Western Cape, Eastern Transvaal and Gauteng industrial areas, as well as neighbouring Africa Countries. In addition it serves as a hub port for feeder services offered to Namibia and West African Countries, as well as for transhipments between vessels. Some of the Port's secondary functions include the hosting of local and foreign fishing fleets, slip repair, fuel bunker supply and as a logistical base for various countries with bases in Antarctica. The yacht basin for pleasure craft serves as base for the Royal Cape Yacht Club. Pilotage, tug and berthing services are available throughout the year. Pilotage at the Port is compulsory and Port Control provides 24 hour communication to vessels entering or leaving the Port by means of VHF radio. A helicopter service is available to ships for emergency medical service, mail, stores and air-lifting of technicians and spares. Salvage, towage operations and commercial diving services are also available.

The handling capacity of the harbour is reflected in **Table T-6.5** below.

**TABLE T-6.5
Capacity of the Port of Cape Town**

CARGO TYPE	HANDLING CAPACITY (PER ANNUM)
Containers	420 000 TEU*
Breakbulk	5.5 million tons
Bulk	0.5 million tons

**Note: 6 metre equivalent container units.*

The following table reflects the level of activity in the Port of Cape Town in terms of the numbers and gross tonnages of calling ships.



TABLE T-6.6
Vessel Arrivals : Port of Cape Town

TYPE OF VESSEL	1994	1995
Ocean Going	1 987	1 938
Coasters	170	165
Foreign Fishing	822	822
SA Trawlers	725	433
Other	281	311
TOTAL	3 985	3 669
Gross Registered Tonnage	100 761 247	101 044 574
Average Monthly Arrivals	332	306

Table T-6.7 shows the overall port activity in terms of monthly ship arrivals for 1995. In general port activity is shown to be fairly stable.

TABLE T-6.7
Monthly Arrivals in the Port of Cape Town - 1995

MONTH	OCEAN GOING	COASTERS	FOREIGN FISHING	SA TRAWLERS	OTHER	TOTAL
January	160	9	49	68	22	308
February	139	13	43	36	38	269
March	167	17	87	52	25	348
April	165	10	52	30	17	274
May	166	9	62	40	38	315
June	160	16	113	20	31	340
July	166	15	95	34	18	328
August	188	14	98	33	17	350
September	160	17	76	33	24	310
October	160	16	73	31	26	306
November	148	16	39	31	33	267
December	159	13	35	25	22	254
TOTAL	1 938	165	822	433	311	3 669



Table T-6.7 does not include the ocean-going vessels that are sometimes serviced off-shore in the Table Bay replenishment area. The number of ships serviced in the replenishment area averages around 68 per month or 816 per annum. This has been the trend for the past two years and is expected to remain static for the next few years (*Reference 13*).

Table T-6.8 gives an indication of the types and volumes of cargo handled in the harbour. Oil products and containers are excluded. An increase in all general cargo imported in the last three years is evident while there has been a slight drop in exports in 1995.

TABLE T-6.8
Cargo Handled at the Port of Cape Town

TOP COMMODITIES	TONNAGE	
	1994	1995
IMPORTS		
Chemicals	194 855	254 152
Paper Products	168 786	162 960
Mechanical Appliances	125 239	203 219
Meat	132 861	166 188
Agricultural Products	122 749	207 296
Timber	103 789	107 727
Vegetable Oils	91 572	27 188
Rice	84 519	88 810
Textiles	81 190	68 554
Fish	73 962	75 495
Acids	59 796	77 554
Total	1 239 318	1 439 143
EXPORTS		
Deciduous Fruit	1 166 166	1 201 337
Citrus Fruit	361 260	296 102
Cement	322 735	235 408
Beverages	235 496	232 667
Foodstuff	221 554	79 884
Steel	151 455	217 246
Fish	151 281	130 269
Exotic Fruits	97 156	84 084
Textiles	87 477	77 268
Chemicals	67 362	36 787
Meat	57 023	49 348
Total	2 918 965	2 640 400

Table T-6.9 shows the number of containers handled at the harbour for the years 1994 and 1995. The figures reflect the number of 6-metre equivalent container units.

TABLE T-6.9
Containers Handled at the Port of Cape Town

MONTH	1994	1995
January	17 790	24 121
February	16 265	21 767
March	19 485	28 920
April	19 567	19 602
May	20 864	22 744
June	20 948	24 750
July	19 789	23 369
August	21 324	27 265
September	18 234	21 275
October	17 926	23 716
November	22 663	24 517
December	14 454	17 051
TOTAL	229 309	279 097

(Reference 14)

6.4.2 The Port of Saldanha

The Port of Saldanha is situated 85 km NNW of KNPS at latitude 33° 03'S and longitude 17° 56'E. The Port was constructed by Iscor primarily for the export of iron ore and operated as a bulk export port until 1980. A General Cargo Quay (GCQ) was constructed during 1980 to facilitate the export of breakbulk cargo. A crude oil berth was added to the jetty structure to allow the importation of oil.

The Port of Saldanha is the biggest (water area) and deepest natural port in South Africa. The quay structure consists of a finger-type design, jutting some 3 km into the bay. A breakwater between Hoedjiespunt and Marcus Island protects vessels from the prevailing swell conditions along the West Coast. The water depth at the iron ore and oil jetties is 23 m CD (Chart datum), and 12 m CD at the GCQ. The GCQ can accommodate vessels of up to 40 000 dwt (dead weight ton) and the ore and oil jetties up to 250 000 dwt.



The Port operates on a 24 hour, 365 days per annum basis and cargo operations are performed on a similar basis. A pilot boat and three Voith Schneider tugs are owned and operated by Portnet. Pilotage and tug attendance are compulsory. Port Control is equipped with telex, telephone, faximile, VHF, RT, SSB and weather fax equipment. Shipping movements are controlled on a continuous basis.

About 225 iron ore vessels call at the Port annually, loading some 21 million tons of iron ore. A further 30 oil tankers visit the Port to discharge or load 5 million tons of crude oil. Approximately 20 breakbulk vessels call at the Port to load $\pm 200\,000$ tons of metal concentrates and heavy minerals annually.

The GCQ is to be extended to cater for the Saldanha Steel factory's imports and exports. The minimum extension will be one berth length (350 m) whilst the probability is two lengths (635 m). The navigation channels will be widened and possibly deepened by means of dredging. Construction is estimated to take 30 to 36 months to complete (*Reference 15*).

6.4.3 Other facilities

6.4.3.1 Victoria and Alfred Basins (25 km S)

Quay-side berths in the Victoria and Alfred Basins (V & A Basins), as well as the recently enlarged old tank farm known as the New Basin, contained in a line connecting East Pier to the Elbow, are administered and controlled by the Victoria and Alfred Company. Within this area, portions of quay-side berths are leased to various companies that include fishing companies, Portnet, Private Commercial Charter Boat Operators and the Maritime Museum. Quay side berths are available for use by passenger vessels, cargo vessels under light repairs, foreign fishing fleets re-supplying their provisions, research vessels, visiting naval vessels on State Official Occasions and foreign sailing ships. Portnet have exclusive use of No. 1 Jetty for the berthing of the Port operational tugs, launches and pilot boats. The Robben Island boat departure point is based at Quay 5 and No. 1 Jetty. Any type of vessel can be accommodated providing its purpose, size and navigational suitability fits the Victoria and Alfred Basins and is capable of being piloted by Portnet pilots.

Up to 160 South African fishing trawlers can moor at the various berths. Further accommodation is available for 3 - 6 modest size passenger vessels and 15 - 20 small passenger commercial charter boats. On occasions such as New Year's Eve 30 - 35 private yachts can moor at different berths. Special facilities for one seaplane are provided at Bertie's Landing. Pleasure entertainment for public participation includes every type of water boat activity except the use of power speed boating.





The movement of ships is controlled by the Port Captain through Port Control. On-going development scenarios include the construction of a water canal leading into the Dock Road area, the upgrading of the yacht moorings in the New Basin and improvements to the water's edge land adjacent to the East River for possible use of the Oceana Power Boat Club (**Reference 16**).

6.4.3.2 Granger Bay Harbour (25 km S)

The recently developed Granger Bay harbour, next to the Victoria Basin, falls under the jurisdiction of the Port Captain, Table Bay Harbour. The Granger Bay Boat Owners Association will be responsible for the internal management. The harbour is intended to be fully operational from March 1996. The harbour makes provision for 90 moorings for sailing and motorised vessels up to 25 m in length. The moorings are of the walk-on, floating type, held in place by mass gravity anchor columns and consisting of polystyrene pontoons, galvanised steel frames with balan timber cladding. Services on each mooring consist of a water point, electricity, telephone and television. A diesel refuelling bowser is provided. The entrance width of the harbour is 30 m while entrance depth is -4.5 m msl. The internal depth varies between -3.0 m and -4.5 msl. The basin is protected by a 220 m long main breakwater with 8 t tetrapods (for the first 120 m) and 20 t dolosse for the remaining 100 m. A secondary breakwater is also provided. The main breakwater crest level is 3.6 m msl and the secondary breakwater crest land is 3.6 m msl. Breakwater lights and entrance buoys are provided. There are no public launching facilities at Granger Bay Harbour. Of the 90 moorings, 74 are for the exclusive use of The Water Club. The remaining 16 moorings are earmarked as visitor moorings and form part of the hotel development (**Reference 17**).

6.4.3.3 Murray's Bay Harbour (14 km SSW)

The harbour at Robben Island is known as the Murray's Bay Harbour and extends over an area of 7.6 ha. It is the only point of access to the island and strict access control measures are enforced. Visits to the island by any person or institution are allowed by means of a permit system. Prior permission must be obtained in writing. Due to the sensitivity of the island, no foreign boats are allowed to enter the harbour. Patrol boats of the SAPS and Navy are allowed on special request. The Royal Cape Yacht Club has mooring facilities for a maximum of six yachts. The use of these facilities are allowed for a limited period at a time. The harbour is equipped with a 24 hour radio and telephone communications system. A fully equipped mechanical workshop allows repairs to be made in the harbour. A fleet of five vessels (four passenger boats and one cargo boat) are accommodated in the harbour. The harbour is currently being upgraded by the Department of Public Works and the expected date of completion is April 1996 (**Reference 18**).

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6.4.3.4 Hout Bay Harbour (42 km S of KNPS)

Hout Bay harbour is primarily a fishing harbour with facilities for the landing and processing of fish. Approximately 80 fishing boats are based at the harbour and it serves as the headquarters of the Peninsula's Cray-fishing fleet. The Atlantic Boat Club and the Hout Bay Yacht Club (± 100 yachts) are also housed at the harbour.

Two slipways have been provided, one for fishing vessels and the other for general public use. Several improvements proposed for the harbour include the extension of the existing southern breakwater, provision of an enclosed harbour to the east of the existing harbour, and the construction of improved boat storage and mooring facilities (*Reference 19*).

The National Sea Rescue Institute (NSRI) operates from slipways for their exclusive use at Hout Bay harbour, Bakoven (32 km S), the V & A Basins (25 km S) and at the yacht club at Saldanha Bay. Operations at the latter venue will be moved to Club Mykonos at the end of 1998.

The Oceana Power Boat Club currently operates from a temporary club house and launching ramp next to the Granger Bay Harbour (25 km S).

Small craft launching facilities for public use exist at Hout Bay Harbour (25,5 km S), the V & A Basins (42 km S), Three Anchor Bay (25,5 km S), the V & A Basins (25 km S) and at Yzerfontein (25 km NW). Boats are launched directly from the beach at Melkbosstrand. (*Reference 20*)

6.4.4 Future facilities

Bokbaai (15 km NW of KNPS) and Skulpbaai (13 km NW) have been identified as two possible sites for a small harbour for private craft to serve the recreational needs of the population of Atlantis.

Due to a shortage of suitable facilities in the peninsula, the demand for moorings along the West Coast is considerable. Limited possibilities exist for the expansion of existing facilities for the launching of small craft. A thorough investigation will have to be undertaken to determine suitable sites where artificially constructed facilities can be provided (*Reference 21*).

6.4.5 Shipping movements

Information on the movement and volumes of traffic of ocean-going vessels within an 80 km radius of KNPS was made available by the SA Navy (*Reference 22*). The table below reflects the average number of reported movements per type of vessel within the area during a month. The figures do not reflect the number of vessels active in the area per month, but the number of times a position report is received.

6.4.6 Shipping Lanes

The main paths followed by ocean-going vessels are shown in simplified form on **Drawing No. 24**. According to the SA Navy, the routes that vessels follow around the coast are standard and are not envisaged to change in the near future.

6.5. CIVIL INSTALLATIONS

6.5.1 Educational Institutions

The distribution of educational facilities (schools, colleges, universities) by sector is given in **Table T-6.12** and graphically illustrated on **Drawing No. 25**. A summary of this information is presented in **Table T-6.13**.



A total of 634 educational installations are located within a 35 km radius of the KNPS. The total enrolment in this area for the first quarter of 1996 amounted to 343 225.

The nearest schools to the KNPS are Van Riebeeckstrand Primary School (3 km S) and Melkbosstrand Pre-Primary (5 km S) with 682 and 81 pupils respectively. 22 schools in the Atlantis area are located within 15 km of the KNPS to the NNE. These schools have a total enrolment of 14 848. Another four schools with a total enrolment of 504 are located within 15 km of the KNPS to the E.

The pattern of distribution of schools shows concentrations that are closely related to the urban centres of Cape Town and Bellville. The Atlantis area accounts for only 3 % of the total schools and 4 % of the total pupils in the study area. Only 6 % of the total schools and 6 % of the total pupils are located within 20 km of the KNPS. 60 % of the total schools and 67 % of the total pupils are located between 30 and 35 km from KNPS, the majority in the SE, SSE and S sectors. These three sectors account for 91 % of the total schools and 92 % of the total pupils in the study area. 98 % of these schools are located further than 20 km from KNPS.

The SSE sector accounts for 50 % of the total schools of which 72 % are more than 30 km from KNPS. 26 % of the total schools are located in the S sector of which 98 % are between 20 and 35 km from KNPS. The SE sector accounts for 14 % of the total schools with 65 % of it being more than 30 km from KNPS. In contrast, only 9 % of the total schools are in the combined N, NNE, NE, ENE, E, ESE and SSW sectors.

The greatest concentration in any particular segment is the 146 221 pupils (230 schools), 43 % of the total, in the SSE sector between 30 - 35 km from the KNPS. The greatest concentration at any single educational facility is approximately 19 400 students and staff at the University of Cape Town, 31 km from KNPS in the S Sector (**Reference 23**).

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6.5.2 Day-care centres (crèches)

The distribution of day-care centres by sector is given in **Table T-6.14** and graphically illustrated on **Drawing No. 25**. A summary of this is presented in **Table T-6.15**.

A total of 234 day-care centres are located within a 35 km radius of the KNPS. The total attendance figure for the first quarter of 1996 amounted to 17 705.

The nearest day-care centres to the KNPS are Van Riebeeckstrand (2.5 km SSE) and Topolino Crèche (4.0 km SSE) in Melkbosstrand. The total attendance for the two centres is 189 pupils with a total of 10 staff members. Another seven centres with a total enrolment of 400 are located within 15 km of the KNPS to the NNE.

The pattern of distribution of day-care centres shows, as in the case of schools, concentrations that are closely related to the urban centres of Cape Town and Bellville.

Only 4 % of the total number of centres and 4 % of the total pupils are located within 20 km of the site. 59 % of the total centres and 62 % of the total pupils are located between 30 and 35 km from KNPS, the majority in the SE, SSE and S sectors. These three sectors account for 94 % of the total number of centres or 95 % of the total pupils in the study area. 90 % of these centres are located further than 20 km from KNPS.

23 % of the total centres (representing an attendance of 3 281 are located in the SE sector of which 76 % (2 672 pupils) fall outside the 30 km radius. 54 % of the total centres (10 983 pupils) are located in the SSE. The majority of these, 62 % (7 353 pupils) are more than 30 km from KNPS. The S sector account for 16 % of the total number of centres (2 520 pupils). In contrast, only 6 % of the total number of centres (921 pupils) are in the combined N, NNE, NE, ENE and ESE sectors (**Reference 24**).

6.5.3 Homes for the aged and disabled

The distribution of homes for the aged and disabled by sector is given in **Table T-6.16** and **Table T-6.17** respectively and graphically illustrated on **Drawing No. 25**. This information is summarised in **Table T-6.18** and **Table T-6.19** respectively.

There are 63 homes for the aged within 35 km of KNPS. The nearest home to the site is Sea Park in Melkbosstrand with 28 residents. This home is located 2 km to the SSE of KNPS. The majority of homes are concentrated in the S, SSE and SE sectors. Only 5 % of the total homes and 4 % of the total residents are located in the combined N and NE sectors.



The S sector accounts for the majority of homes. 48 % of the total homes and 46 % of the total residents are located in this sector between 20 and 35 km from KNPS. 32 % of the total homes and 36 % of the total residents are located in the SSE sector between 20 and 30 km from KNPS. The SE Sector accounts for 16 % of the total homes and 13 % of the total residents. 98 % of the total homes are located further than 20 km from KNPS and 47 % further than 30 km.

There are 11 homes for the disabled within 35 km from KNPS. There is one home located in each of the NNE, ENE and SE sectors. The SSE sector accounts for the highest concentration of 6 homes and the S sector accounts for 2 homes.

All the homes are located further than 10 km from KNPS. Two homes (NNE and ENE) are between 13 and 17 km from the site. Four homes are located between 20 and 30 km from KNPS and five homes between 30 and 35 km (*Reference 25*).

6.5.4 Hospitals

The distribution of hospital facilities by sector is given in *Table T-6.20* and graphically illustrated on *Drawing No. 25*. A summary of this information is given in *Table T-6.22*.

Table T-6.21 lists the location of community health centres.

There are 52 hospitals located within 35 km of KNPS. The nearest hospital to the site is the Wesfleur Hospital in Atlantis (14.5 km NNE) with 28 beds. There are no other hospitals within 20 km of KNPS. The highest concentration of hospitals beyond the 20 km mark falls within the SE, SSE and S sectors. Together these sectors account for 98 % of all hospital beds within 35 km of KNPS.

57 % of the total number of hospital beds in the SE sector are between 30 and 35 km from KNPS. In the SSE sector 62 % of the total number of beds are within the 30 - 35 km radius, while in the S sector the corresponding percentage is only 18 %. Hospital beds in the S sector are concentrated (82 %) between 20 and 30 km from KNPS. This sector also contains the most concentrated number of hospital beds in the study area, 48 % of the total.

No expansions to the major state hospitals are foreseen for the near future (*Reference 26*).

6.5.5 Prisons

The prison on Robbeneiland, 15 km from the KNPS in the SSW sector, is due to close at the end of 1996. The Department of Arts, Culture, Science and Technology will take over from the Department of Correctional Services as the new controlling authority for the island on January 1, 1997.



TABLE T-6.12
Location of Educational Facilities and 1996 Attendance (Reference 23)

SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Modderrivier Mor. Primary	57	2	N	23	-
Morning Star	62	3	N	28	119
Waylands NGK Primary	48	2	N	30.5	167
Darling Laerskool	189	10	N	33.5	356
Darling Pre-Primary	25	1	N	33.5	381
Koranrug Primary	61	3	N	34	442
Kraalbosdam NGK Primary	45	2	N	34	487
Vooruitsig Primary	1 047	38	N	34	1 534
Protea Technical College	70	5	NNE	11	-
Kerria Primary	1 261	39	NNE	12	1 331
Atlantis Pre-Primary	68	3	NNE	12.5	1 339
Protea Park Primary	858	29	NNE	12.5	2 257
Berzelia Primary	699	27	NNE	12.5	2 956
Grosvenor Primary	1 033	36	NNE	12.5	3 989
Parkview Primary	1 142	37	NNE	12.5	5 131
Reygersdal Primary	1 040	34	NNE	12.5	6 171
Saxonsea Primary	1 089	37	NNE	12.5	7 260
Robinvale Secondary	698	30	NNE	12.5	7 958
Saxonsea Secondary	1 004	46	NNE	13	8 962
Avondale Primary	1 003	35	NNE	13	9 965
Hermeslaan Primary	1 002	32	NNE	13	10 967
Proteus Secondary	1 253	62	NNE	13	12 220
Atlantis Secondary	1 192	52	NNE	13	13 412
Wesfleur Primary	1 014	34	NNE	13	14 426
Wesfleur Pre-Primary	50	4	NNE	13	14 476
Wonderland (Atlantis)	67	4	NNE	13	14 543
Robinhood (Atlantis) Pre-Primary	95	6	NNE	13.5	14 638
Silverstroom Pre-Primary	59	3	NNE	13.5	14 697
Wesfleur Pre-Primary	50	4	NNE	13.5	14 747
Saxonsea Pre-Primary	101	7	NNE	14	14 848
Pella Mor. Primary	247	7	NNE	17	15 095
Mamre Mor. Pre-Prim.	117	4	NNE	19	15 212
Mamre Primary	869	31	NNE	19	16 081
Riverlands Primary	334	12	NNE	21	16 415



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Papkuilsfontein Mor. Primary	36	2	NE	24	-
St. Michaels Primary	420	15	NE	31.5	456
Schoonspruit Secondary	999	54	NE	34	1 455
Welgemeend NGK Primary	74	3	NE	34	1 529
Anne Pienaar Gedenk NGK Primary	355	11	NE	35	1 884
Liebenberg Primary	1 273	41	NE	35	3 157
St Thomas Primary	977	34	NE	35	4 134
Wesbank Secondary	858	34	NE	35	4 992
Swartland HS	598	33	NE	35	5 590
Asterix Pre-Primary	61	1	NE	35	5 651
Swartland Pre-Primary	83	3	NE	35	5 734
Vrolike Vinkies Pre-Prim.	46	3	NE	35	5 780
Rosenberg NGK Primer	51	2	NE	35	5 831
Bloemendal NGK Primer	71	3	NE	35	5 902
Chatsworth AME Primary	92	3	ENE	23	
OJ Erasmus NGK Primary	203	7	ENE	23	295
Klein Morewag NGK Primary	36	2	ENE	30	331
Vaatjie Mor. Primary	147		E	7.5	
Philadelphia Primêr	78	4	E	14	225
Meulenhof Primary	265	8	E	14	490
Philadelphia Pre-Prim.	14	1	E	14	504
Kleipheuwel Primary	201	6	E	25	705
Fisantekraal Primary	216	8	ESE	26	
Monument Park HS	740	36	ESE	30.5	956
Visershok Primary	193	7	SE	17	-
Durbanville Pre-Prim.	50	3	SE	26	243
Alpha Primary	811	29	SE	26	1 054
Pampoenkraal Pre-Prim.	27	1	SE	26	1 081
The Valley Primary	175	6	SE	26	1 256
Durbanville High	620	37	SE	26	1 876
Valmary Park Pre-Prim.	100	4	SE	26.5	1 976
Durbanville Primary	809	34	SE	26.5	2 785
El Shaddai Christian School	140	12	SE	26.5	2 925
Durbanville Preparatory	547	22	SE	26.5	3 472
Kenridge Pre-Primary	76	3	SE	27	3 548
Attie van Wyk NGK Pri.	85	3	SE	27	3 633
Welgemoed Pre-Prim.	117	4	SE	27	3 750



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Blue Mountains Primary	90	3	SE	27	3 840
Kid's College Pre-Prim.	74	4	SE	27.5	3 914
Fairmont High School	978	53	SE	27.5	4 892
Kenridge Primary School	960	42	SE	27.5	5 852
Beehive Montessori Pre-Primary	46	4	SE	28	5 898
Boston Private Pre-Primary	30	1	SE	28	5 928
Gene Louw Primary	896	41	SE	28	6 824
Eversdal Primary School	964	39	SE	28	7 788
Welgemoed Primary	613	31	SE	28	8 401
Boston House College North	48	14	SE	28	8 449
Bellville Technical High	905	54	SE	28.5	9 354
Aristea Primary	766	29	SE	28.5	10 120
Eversdal Pre-Primary	128	5	SE	28.5	10 248
Boston Primary	668	28	SE	29	10 916
Holy Cross Pre-Primary	56	2	SE	29	10 972
Holy Cross Sister's School	315	11	SE	29	11 287
Totius Pre-Primary	29	1	SE	29	11 316
La Rochelle Pre-Primary	115	4	SE	29.5	11 431
Aristea Pre-Primary	29	1	SE	30	11 460
Aristea Pre-Prim. No.2	28	1	SE	30	11 488
Bellville Pre-Primary	69	3	SE	30	11 557
Deutscher Kindergarten	25	1	SE	30	11 582
Fanie Theron Pre-Primary	29	1	SE	30	11 611
DF Malan High	951	54	SE	30	12 562
Bellpark Primary	874	36	SE	30	13 436
Totius Primary	417	19	SE	30	13 853
Vredelust Primary	468	20	SE	30	14 321
Bellville Primary	362	17	SE	30.5	14 683
Bellville North Primary	565	21	SE	30.5	15 248
Gereformeerde LS	35	3	SE	30.5	15 283
Holy Cross Pre-Primary Bellville	56	2	SE	31	15 339
Bellville High School	971	48	SE	31	16 310
Kasselsvlei Secondary	1 179	61	SE	31	17 489
Kasselsvlei Primary	916	32	SE	31	18 405
Bellville Mor. Primary	305	12	SE	31.5	18 710
Scottsville Secondary	1 017	52	SE	31.5	19 727
Gereformeerde Primary School	35	3	SE	31.5	19 762



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Aaron Figaji Pre-Prim.	71	7	SE	31.5	19 833
Hansel en Gretel Pre-Prim.	33	4	SE	31.5	19 866
Heidi en Peter Pre-Prim.	56	2	SE	31.5	19 922
Protea Technical College (Bellville)	620	35	SE	32	20 542
Shawco (Kraaifontein) Pre-Primary	52	2	SE	32	20 594
Eikendal Primary	970	35	SE	32	21 564
Tinkerbell Pre-Primary	54	3	SE	32	21 618
Eflakeni Primary	1 502	26	SE	32	23 120
Brackenfell High	866	45	SE	32	23 986
Excelsior Primary	829	34	SE	32	24 815
Northpine Primary	775	29	SE	32	25 590
Bottelary Primary	708	25	SE	32.5	26 298
Brooklands Primary	557	17	SE	33	26 855
Watsonia Primary	985	35	SE	33	27 840
Winsley Primary	854	30	SE	33	28 694
Bernadino Heights Sec.	921	43	SE	33	29 615
Eben Dönges High	722	36	SE	33	30 337
Brackenfell Primary	1 079	43	SE	33	31 416
Fanie Theron Primary	868	37	SE	33	32 284
Simonsberg Primary	969	36	SE	33	33 253
Bellville South Primary	656	24	SE	33	33 909
Erica Primary	798	32	SE	33	34 707
Winsley Primary	854	30	SE	33	35 561
Kraaifontein AME Primary	418	14	SE	33	35 979
Northpine Pre-Primary	156	8	SE	33	36 135
Bellville Tegniese Kollege	250	38	SE	33.5	36 385
Labiance Primary	404	18	SE	33.5	36 789
Bellville South Senior Secondary	692	49	SE	34	37 481
Kasselsvlei Primary	916	32	SE	34	38 397
Cavalleria Primary	997	36	SE	34	39 394
Parkdene Primary	1 191	39	SE	34	40 585
Scottsdene Secondary	1 183	54	SE	34	41 768
Scottsville Primary	960	35	SE	34	42 728
Jan Bosman Primary	1 122	39	SE	34	43 850
Athlone School for the Blind	280	120	SE	34.5	44 130
Gardenia Primary	784	29	SE	35	44 914
Lawrencia Primary	201	6	SE	35	45 115



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	C TC (P
Good Hope Primary	111	7	SE	35	4
Riebeeckstraat Primary	1 037	34	SE	35	4
Bloubergrant Pre-Primary	97	4	SSE	16	
Table View High School	1 072	58	SSE	18	1
Table View Primary	1 173	49	SSE	19	2
Lilliput Pre-Primary	178	6	SSE	19	2
Elda Mahlentle Primary	301	14	SSE	21.5	2
Wolraad Woltemade Primary	587	27	SSE	22	3
De Grendel ACVV Pre-Primary	67	1	SSE	22	3
Seamount Primary	263	13	SSE	22	3
De Grendel SSKV Primary	22	1	SSE	22	3
Bosmansdam High School	517	27	SSE	22.5	4
Milnerton High School	656	36	SSE	22.5	4
Milnerton Primary School	600	21	SSE	22.5	5
Bothasig ACVV Pre-Primary	60	2	SSE	23	5
Bosmansdam Primary	693	28	SSE	23	6
Dafna Pre-Primary	85	4	SSE	23.5	6
Edgemead Primary	1 155	48	SSE	23.5	7
Milnerton Pre-Primary	90	3	SSE	23.5	7
Garden Village Pre-Primary	106	4	SSE	23.5	7
Herzlia Jun. (Milnerton)	60	5	SSE	23.5	7
Edgemead High School	969	49	SSE	24	8
Edgemead Pre-Primary	74	3	SSE	24	8
Tygerhof Milnerton	425	18	SSE	24	9
Zonnekus Primary	344	16	SSE	24	9
Joe Simon Pre-Primary	84	3	SSE	25	9
Panorama LS	1 347	43	SSE	25	1
Monte Vista Primary	644	28	SSE	25.5	1
Kensington Senior Secondary	1 111	53	SSE	26	1
Goodwood Pre-Primary	78	3	SSE	26	1
Sunderland Primary	771	29	SSE	26	1
WD Hendricks Primary	495	18	SSE	26	1
Kensington Pre-Primary	94	8	SSE	26.5	1
Gateway Pre-Primary	97	4	SSE	26.5	1
Windermere Primary	625	23	SSE	26.5	1
Windermere Secondary	756	40	SSE	26.5	1
Kenmere Primary	727	28	SSE	26,5	1



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SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Parow Oos Pre-Primary	30	1	SSE	28.5	32 846
La Gratitude Pre-Primary	60	2	SSE	29	32 906
De Waveren Primary	372	15	SSE	29	33 278
Valhalla Primary	832	31	SSE	29	34 110
Parow HS	817	39	SSE	29	34 927
Valhalla Secondary	994	45	SSE	29	35 921
Parow East Primary	425	21	SSE	29	36 346
Ruyterwacht Preparatory	402	16	SSE	29	36 748
Thornton Primary	377	18	SSE	29	37 125
La Gratitude Pre-Primary	60	2	SSE	29	37 185
Parowvallei Pre-Primary	56	2	SSE	29.5	37 241
Meerendal Pre-Primary	87	2	SSE	29.5	37 328
Tom Thumb Pre-Primary	65	6	SSE	29.5	37 393
Elswood Secondary	905	41	SSE	29.5	38 298
Elswood Primary	516	16	SSE	29.5	38 814
The Settlers High	1 008	56	SSE	29.5	39 822
Pinelands High	925	48	SSE	29.5	
Pinelands Primary	391	18	SSE	29.5	41 138
Pinehurst Primary	461	20	SSE	29.5	41 599
Northwood Methodiste Pre-Primary	100	3	SSE	30	41 699
Stoute Kabouter Pre-Primary	53	2	SSE	30	41 752
Husseland Pre-Primary	75	3	SSE	30	41 827
Pedo-Oudiologiese Pre-Pri.	164	17	SSE	30	41 991
Cinda Park Primary	599	24	SSE	30	42 590
Elsies River Primary	420	13	SSE	30	43 010
Norwood Central Primary	792	27	SSE	30	43 802
Pioneer Primary	616	22	SSE	30	44 418
Parow Valley Pre-Primary	56	2	SSE	30	44 474
Parow Valley Preparatory	289	11	SSE	30	44 763
Oude Molen HTS	712	41	SSE	30	45 475
WP Tegniese Kollege	1 628	71	SSE	30	47 103
St. Louis Primary	429	12	SSE	30.5	47 532
Florida (Moravian) Pre-Pri.	57	3	SSE	30.5	47 589
Langa Pre-Primary	33	2	SSE	30.5	47 622
Lexi Consani Pre-Pri.	65	5	SSE	30.5	47 687
Northwood Early Learning Pre-Primary	70	4	SSE	30.5	47 757
Presbyterian Pre-Primary	74	7	SSE	30.5	47 831



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Ravensmead Pre-Primary	150	7	SSE	30.5	47 981
Siddique Pre-Primary	81	5	SSE	30.5	48 062
Leonsdale Primary	449	16	SSE	30.5	48 511
Avonwood Primary	661	25	SSE	30.5	49 172
Saffier Primary	656	28	SSE	30.5	49 828
Cravenby Secondary	972	47	SSE	31	50 800
Range Secondary	913	51	SSE	31	51 713
Ravensmead Secondary	1 065	55	SSE	31	52 778
St. Andrew's Secondary	1 372	65	SSE	31	54 150
Peak View Secondary	482	16	SSE	31	54 632
CL Wilmot Primary	444	17	SSE	31	55 076
Eldene Primary	540	21	SSE	31	55 616
Dickory Dock Pre-Primary	49	3	SSE	31	55 665
St. Anthony's Pre-Primary	166	4	SSE	31	55 831
Santa Sunshine Educare Centre	30	8	SSE	31	55 861
St. Matthews Early Learning Centre	57	4	SSE	31	55 918
Trinity Early Learning Centre	76	5	SSE	31	55 994
Balvenie Primary	700	24	SSE	31	56 694
Northway Primary	856	30	SSE	31	57 550
Webner Street Primary	696	27	SSE	31	58 246
Elnor Primary	690	25	SSE	31	58 936
Hazendal Primary	329	12	SSE	31	59 265
Langa Secondary	1 173	32	SSE	31	60 438
Mokone Primary	800	22	SSE	31	61 238
Siyabulela Primary	701	18	SSE	31	61 939
Them bani Primary	874	20	SSE	31	62 813
Moshesh Primary	479	17	SSE	31	63 292
Zimasa Primary	744	14	SSE	31	64 036
Matroosfontein Primary	742	27	SSE	31.5	64 778
Babs Pre-Primary	101	6	SSE	31.5	64 879
Elsies River Pre-Primary	81	6	SSE	31.5	64 960
Hazendal Pre-Primary	27	2	SSE	31.5	64 987
Marion Institute (Bridgetown)	98	5	SSE	31.5	65 085
Matroosfontein (NWMHF) Pre-Primary	104	5	SSE	31.5	65 189
Riverton Pre-Primary	46	5	SSE	31.5	65 235
The Bridges Playcentre	98	5	SSE	31.5	65 333
Tygersig Primary	720	28	SSE	31.5	66 053



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Kulani Secondary	752	13	SSE	31.5	66 805
Florida Primary	462	19	SSE	31.5	67 267
Florida Senior Secondary	1 054	53	SSE	31.5	68 321
Nebo Primary	725	29	SSE	31.5	69 046
Pinedene Primary	689	26	SSE	31.5	69 735
Florida Mor Pre-Primary	857	3	SSE	31.5	70 592
Vorentoe Primary	741	27	SSE	31.5	71 333
Range Primary	850	31	SSE	31.5	72 183
Bramble Way Primary	674	26	SSE	31.5	72 857
Edward Primary	916	33	SSE	31.5	73 773
Elsies River Secondary	1 217	64	SSE	32	74 990
Eurocon Primary	812	30	SSE	32	75 802
Eureka LB Primary	175	8	SSE	32	75 977
Eureka Primary	1 016	35	SSE	32	76 993
JS Klopper Primary	1 070	36	SSE	32	78 063
Matroosfontein Holy Trinity RK Primary	1 124	35	SSE	32	79 187
Uitsig Primary	1 063	37	SSE	32	80 250
Uitsig Secondary	917	36	SSE	32	81 167
Klipfontein Primary	550	20	SSE	32	81 717
Montana Primary	705	26	SSE	32	82 422
Rosewood Primary	696	25	SSE	32	83 118
Elsbury Primary	611	22	SSE	32	83 729
Garlandale Secondary	1 323	58	SSE	32	85 052
Clarke Primary	922	32	SSE	32	85 974
Helderberg Primary	615	23	SSE	32	86 589
Bridgetown Pre-Primary	67	5	SSE	32	86 656
Early Learning Centre	104	7	SSE	32	86 760
Katie Kagan Sunbeam Pre-Primary	65	2	SSE	32	86 825
Rotary Pre-Primary	45	4	SSE	32	86 870
Tommy Thumb Pre-Primary	75	5	SSE	32	86 945
Arcadia Senior Secondary	1 051	46	SSE	32	87 996
Bergsig Primary	839	30	SSE	32	88 835
Bonteheuwel Secondary	993	45	SSE	32	89 828
Cedar Primary	521	19	SSE	32	90 349
Central Park Primary	499	18	SSE	32	90 848
Kalksteenfontein Primary	601	23	SSE	32	91 449
Mimosa Primary	791	27	SSE	32	92 240



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Disa Primary	487	17	SSE	33	111 101
Protea Primary	561	22	SSE	33	111 662
Athlone Secondary	667	36	SSE	33	112 329
Silverlea Primary	656	24	SSE	33	112 985
Alexander Sinton Secondary	1 020	53	SSE	33	114 005
Polytechnic School of Commerce	18	1	SSE	33	114 023
Blossomstraat Primary	769	26	SSE	33	114 792
Rylands Primary	574	23	SSE	33	115 366
Garlandale Primary	549	19	SSE	33	115 915
Church of Christ Pre-Primary	106	7	SSE	33	116 021
Greenlands Pre-Primary	116	5	SSE	33	116 137
Heideveld Pre-Primary	24	2	SSE	33	116 161
Holy Cross (Parow) Pre-Primary	542	28	SSE	33	116 703
Habibia Kokani Mos. Primary	876	30	SSE	33	117 579
Heatherdale Primary	882	31	SSE	33	118 461
Regina Coeli RC Primary	260	11	SSE	33	118 721
Beauvallon Secondary	971	52	SSE	33	119 692
Sunnyside Primary	792	27	SSE	33	120 484
Thornton Road Primary	316	13	SSE	33	120 800
St Mark's Primary	255	10	SSE	33	121 055
Montevideo Primary	767	29	SSE	33	121 822
Alpha (Athlone) Pre-Primary	74	5	SSE	33.5	121 896
Genesis Pre-Primary	108	5	SSE	33.5	122 004
Surrey Est. Methodiste Prep.	62	3	SSE	33.5	122 066
Tomorrowland Pre-Primary	72	4	SSE	33.5	122 138
Belvue Primary	938	35	SSE	33.5	123 076
Rondebosch East Primary	588	19	SSE	33.5	123 664
Bishop Lavis Secondary	1 277	58	SSE	33.5	124 941
John Ramsay Secondary	883	46	SSE	33.5	125 824
Nerina Primary	768	26	SSE	33.5	126 592
St Theresa RK Primary	724	24	SSE	33.5	127 316
Belgravia Secondary	1 108	54	SSE	33.5	128 424
University of the Western Cape	13 590	2 000	SSE	33.5	142 014
Excelsior Secondary	686	44	SSE	34	142 700
Intyatyambo Secondary	2 147	46	SSE	34	144 847
Symphony Secondary	817	43	SSE	34	145 664
Rylands HS	923	46	SSE	34	146 587



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Athwood Primary	660	23	SSE	35	171 427
Blomvlei Primary	755	26	SSE	35	172 182
Edendale Primary	807	28	SSE	35	172 989
Kenwyn Primary	314	13	SSE	35	173 303
Surrey Primary	751	88	SSE	35	174 054
Easter Peak Primary	745	36	SSE	35	174 799
Portavue Primary	815	30	SSE	35	175 614
Lehlohonolo Primary	309	10	SSE	35	175 923
Perseverance Secondary	545	27	SSE	35	176 468
Swartland HS	598	33	SSE	35	177 066
Summit Primary	651	24	SSE	35	177 717
Crystal Secondary	873	41	SSE	35	178 590
Fezeka Secondary	1 666	41	SSE	35	180 256
Mount View Secondary	723	41	SSE	35	180 979
Oscar Mpetha HS	1 216	36	SSE	35	182 195
Silverstream Secondary	761	37	SSE	35	182 956
Xolani Primary	700	17	SSE	35	183 656
Alpha (Hanover Park) Pre-Primary	158	7	SSE	35	183 814
Manenberg (Union of Jewish Woman)	93	6	SSE	35	183 907
Manenberg Mor. Nursery School	77	4	SSE	35	183 984
Silvertree Pre-Primary	104	6	SSE	35	184 088
Uluntu Pre-Primary	200	4	SSE	35	184 288
Luzuko Primary	660	18	SSE	35	184 948
Manenberg Primary	602	22	SSE	35	185 550
Parkfields Primary	851	29	SSE	35	186 401
Primrose Park Primary	689	23	SSE	35	187 090
Sonderend Primary	730	25	SSE	35	187 820
Van Riebeeckstrand LS	682	26	S	3	-
Melkbosstrand Pre-Primary	81	3	S	5	763
Sea Point High	393	22	S	25.5	1 156
Ysterplaat Pre-Primary	95	3	S	25.5	1 251
Loreto Pre-Primary	56	2	S	26	1 307
Ysterplaat Junior Primary	274	12	S	26	1 581
Buren HS	436	23	S	26	2 017
Holy Cross Convent (Brooklyn)	253	9	S	26	2 270
CBC Green Point	307	17	S	26	2 577
Pinnocchio (Groenpunt) Pre-Primary	32	2	S	26	2 609

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SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Ellerton Primary	397	15	S	26	3 006
Sea Point Primary	464	21	S	26	3 470
Sea Point Pre-Primary no.2	30	1	S	26	3 500
Christopher Robin Pre-Primary	112	5	S	26.5	3 612
Herzlia Weizmann Primary	200	17	S	26.5	3 812
Hebrew Academy	88	13	S	26.5	3 900
Training Centre for Seamen	551	16	S	27	4 451
Scotsche Kloof Mos. Primary	498	19	S	27	4 949
Training College Roggebaai	4 504	52	S	27	9 453
Ysterplaat Primary	307	15	S	27	9 760
Koeberg Primary	153	7	S	27.5	9 913
Marion Inst. (Chapelstr.)	62	6	S	27.5	9 975
Sea Point Pre-Primary no.2	30	1	S	27.5	10 005
Chapel Street Primary	536	18	S	27.5	10 541
Shereen's Pre-Primary	112	5	S	27.5	10 653
Holy Cross Convent (Maitland)	184	8	S	27.5	10 837
Alon/Ashel Pre-Primary	107	4	S	27.5	10 944
Maitland Secondary	643	28	S	27.5	11 587
German St. Martini Pre-Primary	84	4	S	27.5	11 671
Silvertree (NWMHF) Pre-Primary	115	4	S	27.5	11 786
Technical College - Cape Town	2 390	90	S	27.5	14 176
Cape Technikon	9 467	700	S	28	23 643
Deutsche Schule	553	51	S	28	24 196
Vuyiseka Secondary	865	20	S	28	25 061
Bambi Pre-Primary	27	2	S	28	25 088
Harold Cressy High School	791	41	S	28	25 879
Carmel Pre-Primary	40	2	S	28	25 919
Holy Cross RC Primary	328	14	S	28	26 247
Prestwich Street Primary	215	7	S	28	26 462
St Paul's Primary	686	24	S	28	27 148
Trafalgar Secondary	754	36	S	28	27 902
Vista High School	402	21	S	28	28 304
Walmer Estate Primary	323	12	S	28	28 627
Zinzendorf Mor Educare Centre	85	5	S	28	28 712
Cecil Road Primary	506	17	S	28	29 218
Huppelland Pre-Primary	50	2	S	28	29 268
Dryden Street Primary	549	17	S	28	29 817



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
St Mary's Primary	239	9	S	28	30 056
Cape Town High	589	28	S	28	30 645
Gardens Commercial High	402	18	S	28	31 047
Good Hope Seminary High	272	13	S	28	31 319
Rahmaniyeh Mos. Primary	601	18	S	28	31 920
Herzlia Weizman Primary	200	17	S	28	32 120
Boston House College	167	9	S	28	32 287
Greendale Education Centre	42	6	S	28	32 329
Headstart College	132	9	S	28	32 461
St Agnes's Primary	389	17	S	28	32 850
Jan van Riebeeck High	481	30	S	28	33 331
Jan van Riebeeck Primary	421	19	S	28	33 752
Villa Maria Pre-Primary	52	3	S	28	33 804
Peter Pan Down Syndrome Prep.	31	4	S	28	33 835
Mountain Road Primary	377	13	S	28	34 212
Pikkieland Pre-Primary	57	2	S	28	34 269
Tamboerskloof Primary	469	16	S	28	34 738
Stepping Stones Pre-Primary	45	4	S	28	34 783
Protea Technical College (Cape Town)	493	28	S	28	35 276
Zonnebloem Boys Primary	246	11	S	28.5	35 522
Wonderland Pre-Primary (Maitland)	41	1	S	28.5	35 563
Zonnebloem Girls Practical School	273	10	S	28.5	35 836
Shelly Str. Nursery School	40	2	S	28.5	35 876
Walmer Secondary	76	6	S	28.5	35 952
Tafelberg (NWMHF) Pre-Primary	40	2	S	28.5	35 992
Queens Park High	293	14	S	28.5	36 285
Good Hope Seminary Junior	451	18	S	28.5	36 736
Nazareth House Pre-Primary	17	1	S	28.5	36 753
Zonnebloem Nest Senior School	152	10	S	29	36 905
St. Cyprians Pre-Primary	132	6	S	29	37 037
Wesley Met Practising School	380	13	S	29	37 417
Village Tods Pre-Primary	37	3	S	29	37 454
Salt River Mos. Primary	198	8	S	29	37 653
Wrench Road Pre-Primary	51	2	S	29	37 703
Salt River Secondary	922	42	S	29	38 625
Saplings Remedial Pre-Primary	25	2	S	29	38 650
Gardens Village Primary	220	9	S	29	38 870

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SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Hadar Pre-Primary	25	1	S	29.5	38 895
Herzlia High	850	73	S	29.5	39 745
St. Cyprians High	433	47	S	29.5	40 178
Mary Kihn School	76	11	S	29.5	40 254
Herzlia Highlands Primary	329	24	S	29.5	40 583
Observatory Junior	347	13	S	29.5	40 930
Disa Park Pre-Primary	57	2	S	29.5	40 987
St Georges Grammer	326	23	S	30	41 313
Peakview Pre-Primary	23	1	S	30	41 336
Camps Bay High	735	41	S	30	42 071
Vered Pre-Primary	79	4	S	30	42 150
Rhodes High	463	21	S	30	42 613
Oaktree Pre-Primary	116	4	S	30	42 729
Hillcrest Intermediate School	84	6	S	30	42 813
Cape Town College of Education	843	56	S	30	43 656
Stepping Stones (Red Cross) Pre-Primary	103	4	S	30.5	43 759
Univ. Pre-Primary	48	2	S	30.5	43 807
Lea Pre-Primary	50	2	S	31	43 857
Rustenburg Girls High	675	40	S	31	44 532
UCT Pre-Primary	35	2	S	31	44 567
Camps Bay Preparatory	168	7	S	31	44 735
Rosemeade School	26	3	S	31	44 761
Rosebank House College	181	16	S	31	44 942
University of Cape Town	15 350	4 100	S	31	60 292
Progress College	95	15	S	31	60 387
Marist Brothers' Jun.	103	7	S	31.5	60 490
Forres Pre-Primary	73	4	S	31.5	60 563
Forres Primary	26	2	S	31.5	60 589
Thandokhulu Secondary	1 000	30	S	31.5	61 589
St Joseph's College	408	32	S	31.5	61 997
Camps Bay Primary	273	12	S	31.5	62 270
Rustenburg Girls Junior	674	30	S	31.5	62 944
Diocesan College	1 011	84	S	32	63 955
Abbots College	220	25	S	32	64 175
Micklefield School	193	11	S	32	64 368
Rosebank Primary	224	9	S	32	64 592



SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Kildare Pre-Primary	100	4	S	32.5	64 692
Rondebosch Boys High	764	41	S	32.5	65 456
SACS High	727	40	S	32.5	66 183
Westerford High	921	52	S	32.5	67 104
Oakhurst Girls Primary	240	10	S	32.5	67 344
Rondebosch Boys Prep.	693	28	S	32.5	68 037
SACS Junior	687	31	S	32.5	68 724
Bairnsleigh Pre-Primary	41	2	S	33	68 765
Groote Schuur High	308	21	S	33	69 073
Montessori Pre-Primary	25	2	S	33	69 098
Sans Souci Girls High	441	24	S	33	69 539
Groote Schuur Primary	265	13	S	33	69 804
Arderne Gardens Pre-Primary	46	2	S	33.5	69 850
Garfield Pre-Primary	35	2	S	33.5	69 885
Lady Buxton Pre-Primary	84	3	S	33.5	69 969
Menorah Pre-Primary	82	4	S	33.5	70 051
Progress College	95	15	S	33.5	70 146
Golden Grove Primary	587	23	S	33.5	70 733
Hewat Training College	862	64	S	34	71 595
Rosmead Central Primary	525	17	S	34	72 120
Claremont Primary	332	14	S	34	72 452
Harfield Pre-Primary	96	4	S	34	72 548
Molteno Road Pre-Primary	75	3	S	34	72 623
Western Province Prep.	403	26	S	34	73 026
Herschel	773	55	S	34	73 799
The Children's Workshop	68	6	S	34	73 867
The Hill Pre-Primary	94	4	S	34	73 961
Abbott's College	220	25	S	34	74 181
The Children's Studio	47	2	S	34.5	74 228
Oaklands Secondary	1 245	61	S	34.5	75 473
Grove Primary	772	33	S	34.5	76 245
Herschel	773	55	S	34.5	77 018
Livingstone High School	978	49	S	35	77 996
Greenfield Girls Primary	263	11	S	35	78 259
Voortrekker HS	372	19	S	35	78 631
Wynberg Boys HS	798	41	S	35	79 429
Wynberg Girls HS	807	45	S	35	80 236



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SCHOOLS	PUPILS	STAFF	SECTOR	DISTANCE (Approx) km from KNPS	CUM. TOTALS (Pupils)
Wynberg Secondary	609	34	S	35	80 845
Sunlands Primary	596	23	S	35	81 441
Wynberg Boys Junior	695	28	S	35	82 136
Wynberg Girls Junior	715	28	S	35	82 851
Michael Oak Waldorf Sch.	218	14	S	35	83 069
Anav Pre-Primary	24	1	S	35	83 093
Michael Oak Waldorf Pre-Primary	60	3	S	35	83 153
Springfield Convent Pre-Primary	104	4	S	35	83 257
Robben Island Primary	42	3	SSW	15.5	42



TABLE T-6.13
Summary : Location of Educational Facilities and 1996 Attendance

Annual Distance km	SECTOR										Annual Total
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	
0 - 5	-	-	-	-	-	-	-	-	2	-	2
	-	-	-	-	-	-	-	-	(763)	-	(763)
5 - 10	-	-	-	-	1	-	-	-	-	-	1
	-	-	-	-	(147)	-	-	-	-	-	(147)
10 - 15	-	22	-	-	3	-	-	-	-	-	25
	-	(14848)	-	-	(357)	-	-	-	-	-	(15205)
15 - 20	-	3	-	-	-	-	1	4	-	1	9
	-	(1233)	(42)	(938)	-	-	(193)	(2520)	-	(42)	(3988)
20 - 30	2	1	1	2	1	1	30	87	89	-	214
	(119)	(334)	(36)	(295)	(201)	(216)	(11238)	(39079)	(40224)	-	(91742)
30 - 35	6	-	13	1	-	1	58	230	74	-	383
	(1415)	-	(5866)	(36)	-	(740)	(34832)	(146221)	(42270)	-	(231380)
	8	26	14	3	5	2	89	321	165	1	634
	(1534)	(16415)	(5902)	(331)	(705)	(956)	(46263)	(187820)	(83257)	(42)	(343225)

Attendance figures given in brackets below the number of installations.



TABLE T-6.14
Location of Day-care Centres (Crèches) and 1996 Attendance
(Reference 24)

Day-care centres	Pupils	Staff (Based on a Staff/Pupil ratio of 1:20	Sector	Distance (approx) km from KNPS	Cum. Totals (pupils)
Sonstraal Educare	40	2	N	33.5	-
Wippelvoetjies	20	1	N	33.5	60
Sunpak E/C Centre	60	3	NNE	10	-
Wonderland Creche	67	3	NNE	12.5	127
Hollandia Private Creche	15	1	NNE	13	142
Silwerstroom Creche	80	4	NNE	13	222
Wesfleur Creche	43	2	NNE	13	265
Methodist Educare Centre	75	4	NNE	14	340
St John the Baptist	60	3	NNE	14	400
Happy Tots Bewaarskool	45	2	NNE	17	445
Goue Vlokkies Pre-primer	180	9	NE	35	-
Speelkasteel Versorgingsoord	100	5	NE	35	280
PG: Brakanjan speelgroep	15	1	ESE	28	-
Masakhane Greche	100	5	ESE	34	115
Little Heights Creche	21	1	ESE	35	136
Thom Thumb Creche	90	5	SE	21	-
Tinkerbell Creche	90	5	SE	24	180
SP: Andy Pandy	30	2	SE	26	210
Mickey Muis kleuterhuis	18	1	SE	27	228
PG: Lollapot	20	1	SE	27.5	248
Kinderland	80	4	SE	28	328
PG: Nakkie Nar	10	1	SE	28	338
PG: Karnallies	30	2	SE	28	368
De Oude Werf	70	4	SE	28	438
PG: Karel Kraai	30	2	SE	28	468
Little lights	76	4	SE	28	544
Jack and Jill	50	3	SE	28	594
PG: Tannie Slakkie	15	1	SE	29	609
Kids College Naskoolsentrum	115	6	SE	30	724
Busy Bee Play Group	9	1	SE	30	733
SP: Alte Lekker Speelgroep	20	1	SE	30	753
Siembamba	99	5	SE	30	852
Stellenryk Dagsorg	15	1	SE	30	867
SP: Otterjasie Speelgroep	15	1	SE	30	882



Day-care centres	Pupils	Staff (Based on a Staff/Pupil ratio of 1:20)	Sector	Distance (approx) km. from KNPS	Cum. Totals (pupils)
Lenie kleuterskool	12	1	SE	30	894
Die Bont Huis	57	3	SE	30	951
Klein spoortjies	12	1	SE	30	963
Linga Longa Day Care	30	2	SE	30	993
Tingeling Dagsorg	20	1	SE	30	1 013
Cinderella Educare	40	2	SE	30	1 053
Toyland Playschool	17	1	SE	30	1 070
Noah Play Group	20	1	SE	30.5	1 090
Mommy Massey's	6	1	SE	30.5	1 096
PG: karalie karool	15	1	SE	30.5	1 111
Dickory Dock Creche	70	4	SE	31	1 181
Crown Cork Day Care	45	2	SE	32	1 226
PG: kitcats Dagsorg	15	1	SE	32	1 241
Toddlers Educare	15	1	SE	32	1 256
PG: Die Vrolike Duifies	14	1	SE	32	1 270
New life Centre	46	2	SE	32	1 316
Aaron Figaji Centre	108	5	SE	32	1 424
PG: kleinskool	8	1	SE	32	1 432
Scottsville Creche	75	4	SE	32.5	1 507
Ebony Community	120	6	SE	33	1 627
Northpine Educare	121	6	SE	33	1 748
Pieriewierie Creche	50	3	SE	33	1 798
SP: Luilekker Speelgroep	15	1	SE	33	1 813
kiddies Joy	100	5	SE	33	1 913
Heilsleer Creche	110	6	SE	33	2 023
Dar Es Salaam Creche	15	1	SE	33	2 038
Little Sparrow E/C	100	5	SE	33	2 138
Watsonia E/Care	105	5	SE	33	2 243
Pinokkio	560	28	SE	34	2 803
SP: Hompie kedompie	75	4	SE	34	2 878
Dino's Den	70	4	SE	34	2 948
Kleinbegin Versorging	8	1	SE	34	2 956
Brakanjan	40	2	SE	34	2 996
Maranatha Educare Centre	120	6	SE	34	3 116
Tomorrow Land	90	5	SE	34	3 206
Belhar Educare Centre	75	4	SE	34	3 281
Van Riebeeckstrand	99	5	SSE	2.5	-
Topolino Creche	90	5	SSE	4	189
Sue's Daycare Centre	75	4	SSE	18.5	264
ACVV De Grendel Creche	126	6	SSE	21	390

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Day-care centres	Pupils	Staff (Based on a Staff/Pupil ratio of 1:20)	Sector	Distance (approx) km from KNPS	Cum. Totals (pupils)
PG: Little People's Den	16	1	SSE	21	406
ACVV Bothasig Creche	144	7	SSE	22	550
The Treasure Chest	30	2	SSE	22	580
PG: Glen Rose	50	3	SSE	23	630
PG: Rose's Playgroup	16	1	SSE	24	646
PG: Jubilee Activity Centre	66	3	SSE	24	712
PG: Bambi's Fun Centre	15	1	SSE	24	727
Sanddrift Care Centre	60	3	SSE	25	787
Edgemead Dagsorg	80	4	SSE	25	867
Boulevard Playcentre	97	5	SSE	25	964
Sonstraal Versorgingsoord	30	2	SSE	25	994
SP: Smurfspeelgroep	15	1	SSE	25	1 009
Pieriewierie Speelgroep	15	1	SSE	25	1 024
PG: Funtime Playschool	15	1	SSE	25	1 039
Disneyworld Day Care Centre	89	4	SSE	25	1 128
Libertas Children's Centre	118	6	SSE	26	1 246
Challenger Child Care Centre	75	4	SSE	26	1 321
Moemfie Speelskool	72	4	SSE	26	1 393
Disney Versorgingsoord	66	3	SSE	26	1 459
PG: Kiddies Kampus	15	1	SSE	26	1 474
Klein Panorama	56	3	SSE	26	1 530
Manenberg Creche (UJW)	90	5	SSE	27	1 620
Kensington Creche	135	7	SSE	27	1 755
PG: Davy Deer Play Centre	30	2	SSE	27	1 785
Miekie Muis Kleuterhuis	50	3	SSE	27	1 835
Ysterplaat C Cum Naskool	128	6	SSE	27	1 963
Watersprite Nursery School	0	0	SSE	27.5	1 963
Uit en Tuis	147	7	SSE	28	2 110
Jack and Jill	61	3	SSE	28	2 171
Goodwoodpark	194	10	SSE	28	2 365
Pikkewouter	100	5	SSE	28	2 465
Goodwood Naskoolsentrum	20	2	SSE	28	2 485
Village Tods Educare	90	5	SSE	29	2 575
Maja C Cum Preprim	191	10	SSE	29	2 766
Robin Hood Creche	85	4	SSE	29	2 851
St Theresa's Educare	21	1	SSE	29	2 872
Ebenaazer Kindersentrum	90	5	SSE	29	2 962
Lexi Consani Creche	100	5	SSE	29	3 062
PG: Carebears Play Centre	45	2	SSE	29	3 107
Mount Carmel	63	3	SSE	29	3 170



Day-care centres	Pupils	Staff (Based on a Staff/Pupil ratio of 1:20	Sector	Distance (approx) km from KNPS	Cum. Totals (pupils)
Huppelland Bewaarsentrum	110	6	SSE	29	3 280
Maja Dagversoringsoord	110	6	SSE	29	3 390
Elsiesrivier Welsynsentrum	120	6	SSE	29	3 510
Union for Jewish Women Centre	120	6	SSE	29	3 630
Elsiesrivier Dagversorgingsoord	0	0	SSE	30	3 630
Elsiesrivier Speelgroep	60	3	SSE	30	3 690
Avondwood	90	5	SSE	30	3 780
Noncedo	0	0	SSE	31	3 780
Eyethu	0	0	SSE	31	3 780
Nolukhanyo	150	8	SSE	31	3 930
Roni's Day Care Centre	30	2	SSE	31	3 960
Springbok Park Creche	170	9	SSE	31	4 130
St Matthew Educare	73	4	SSE	31	4 203
Norwood Educare	70	4	SSE	31	4 273
Katy's Educare Centre	40	2	SSE	31	4 313
Langa Creche	80	4	SSE	31	4 393
Inzame Zethu	30	2	SSE	31	4 423
Leonsdale Creche	90	4	SSE	31	4 513
Happy Valley Play Centre	76	4	SSE	31	4 589
Noluthando	18	1	SSE	31	4 607
Early Learning Centre	180	9	SSE	31.5	4 787
Ma Roof Educare Centre	180	9	SSE	31.5	4 967
St Matthews Creche	70	4	SSE	31.5	5 037
Methodist Mission Playcentre	240	12	SSE	31.5	5 277
Colin John Cambell Creche	61	3	SSE	31.5	5 338
Bokmakierie Creche	80	4	SSE	31.5	5 418
Matroosfontein Sentrum	100	5	SSE	31.5	5 518
Ravensmead Creche	120	6	SSE	32	5 638
Precious Lambs Centre	15	1	SSE	32	5 653
Masjid-Us-Salaam E/C	163	8	SSE	32	5 816
Church of Christ E/C	104	5	SSE	32	5 920
Holy Trinity Creche	68	3	SSE	32	5 988
Babs Pre-School Educare	105	5	SSE	32	6 093
Ravensmead Pre-School Centre	75	4	SSE	32	6 168
Florida Mor Kleuterskool	100	5	SSE	32	6 268
Toddlers College	48	2	SSE	32.5	6 316
Luther Wesley Play Centre	114	6	SSE	32.5	6 430
Masakhane Educare	60	3	SSE	32.5	6 490



Day-care centres	Pupils	Staff (Based on a Staff/Pupil ratio of 1:20	Sector	Distance (approx) km from KNPS	Cum. Totals (pupils)
Riverside Pre-School Creche	60	3	SSE	32.5	6 550
Eduworld Pre-School	44	2	SSE	32.5	6 594
Little Children Nursery School	75	4	SSE	32.5	6 669
Santa Sunshine Centre	87	4	SSE	32.5	6 756
Littlewillow Montessori Works	30	2	SSE	33	6 786
Fairyland Speelgoed	40	2	SSE	33	6 826
St Martin's Early Learning Centre	60	3	SSE	33	6 886
Doudruppel	80	4	SSE	33	6 966
Duinefontein Creche	140	7	SSE	33	7 106
Janet Bourhill Creche	250	13	SSE	33	7 356
Bonteheuwel Methodis	150	8	SSE	33	7 506
Genesis Educare	94	5	SSE	33	7 600
Pliny Street Creche	0	0	SSE	33	7 600
Rotary Creche Communicare	140	7	SSE	33	7 740
Riverton Creche Communicare	165	8	SSE	33	7 905
Greenlands Creche	165	8	SSE	33	8 070
Silvertown Educare	150	8	SSE	33	8 220
Babbel en Bekkie	0	0	SSE	33.5	8 220
Lukhanyo	160	8	SSE	34	8 380
Manenberg Mor Bewaarhuis	176	9	SSE	34	8 556
Muslim Assembly Educare	105	5	SSE	34	8 661
Alpha Pre-School	30	2	SSE	34	8 691
Nazley's Daycare	23	1	SSE	34	8 714
Toddlers Educare	25	1	SSE	34	8 739
PG: Topolino's Play Group	50	3	SSE	34	8 789
Zinzendorf Moravian Creche	90	5	SSE	34	8 879
Rosmead Nursery School	96	5	SSE	34	8 975
Masigcinane Creche	41	2	SSE	34.5	9 016
Nomzamo	0	0	SSE	34.5	9 016
Kid's Kampus	60	3	SSE	34.5	9 076
Nonkululeko Educare Centre	650	33	SSE	35	9 726
Adolf Hartman	90	5	SSE	35	9 816
Nonzame	50	3	SSE	35	9 866
Sivunyiwe	60	3	SSE	35	9 926
Noxolo	70	4	SSE	35	9 996
Sivuyile Nurridin	0	0	SSE	35	9 996
Manenberg Methodist Playcentre	110	6	SSE	35	10 106



Day-care centres	Pupils	Staff (Based on a Staff/Pupil ratio of 1:20)	Sector	Distance (approx) km from KNPS	Cum. Totals (pupils)
Silvertree Creche	120	6	SSE	35	10 226
Manenberg Preschool	176	9	SSE	35	10 402
Hanover Park Daycare	150	8	SSE	35	10 552
Salvat Army Goodwill Cntr	120	6	SSE	35	10 672
Busy Bees Day Care Centre	21	1	SSE	35	10 693
Siseko	140	7	SSE	35	10 833
Battswood Educare Centre	150	8		35	10 983
PG: Albow Gardens	40	2	S	24	-
Eve's Shoe	90	5	S	25	130
Christopher Robin	94	5	S	26	224
Sugar and Spice	50	3	S	26	274
PG: Humpty Dumpty	30	2	S	27	304
Schoonekloof Babycare	25	1	S	27.5	329
Boorhaanol Nursery of Pre-Prim	75	3	S	27.5	404
Aziza Play Centre	86	4	S	28	490
Maitland	75	4	S	28	565
Owlaadunah Jnr Madrasah	54	2	S	28	619
Silvertree Creche	70	4	S	28	689
Little Buddies	45	2	S	28	734
Shereen's Play Centre	120	6	S	28	854
Silvertree C Cum Preschool	200	10	S	28	1 054
St. Georges	60	3	S	28	1 114
Cradleland	50	3	S	28	1 164
Buzy Bees	30	2	S	28	1 194
Sugar and Spice Too	88	4	S	28	1 282
Parliamentary Educare	100	5	S	28	1 382
Peter Pan Creche	45	2	S	28	1 427
Wonderland	15	1	S	28.5	1 442
Observatory Recreation Centre	63	3	S	28.5	1 505
Tafelberg Creche	180	9	S	28.5	1 685
Shelley Street Centre	50	3	S	28.5	1 735
Stepping Stones C	70	4	S	28.5	1 805
Hester Hablutzal ACVV C	174	9	S	28.5	1 979
Bambi C Cum Prep	90	5	S	28.6	2 069
Rainbow Pre-Primary	15	1	S	30	2 084
The Ginger Bread House	0	0	S	30.5	2 084
PG Camps Bay Kiddies Corner	30	2	S	30.5	2 114



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Day-care centres	Pupils	Staff (Based on a Staff/Pupil ratio of 1:20)	Sector	Distance (approx) km from KNPS	Cum. Totals (pupils)
UCT Educare Centre	66	3	S	32	2 180
Kay-Dee Creche	60	3	S	32	2 240
Keurboom Nursery	57	3	S	32	2 297
Silwood Creche	60	3	S	32	2 357
Rondebosch Play Learn Centre	50	3	S	— 32.5	2 407
Madison Garden Pre-Prim	36	2	S	33.5	2 443
The Lady Buxton E/C	40	2	S	34	2 483
Fingers and Toes	37	2	S	35	2 520

TABLE T-6.15
Summary : Location of Day-care Centres and 1996 Attendance

Annual Distance km	SECTOR									Annual Total
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	
0 - 5	-	-	-	-	-	-	2	-	-	2
	-	-	-	-	-	-	(189)	-	-	(189)
5 - 10	-	-	-	-	-	-	-	-	-	-
10 - 15	-	7	-	-	-	-	-	-	-	7
	-	(400)	-	-	-	-	-	-	-	(400)
15 - 20	-	1	-	-	-	-	-	1	-	2
	-	(45)	-	-	-	-	-	(75)	-	(120)
20 - 30	-	-	-	-	-	1	13	45	27	86
	-	-	-	-	-	(15)	(609)	(3 366)	(2 069)	(6 059)
30 - 35	2	-	2	-	-	23	42	78	11	137
	(60)	-	(280)	-	-	(121)	(2 672)	(7 353)	(451)	(10 937)
	2	8	2	-	-	3	55	126	38	234
	(60)	(445)	(280)	-	-	(136)	(3 281)	(10 983)	(2 520)	(17 705)

Attendance figures given in brackets below the number of installations.

TABLE T-6.16
Location of Homes for the Aged and number of Residents - 1996
(Reference 25)

Homes for the aged	Residents	Sector	Approx distance km from KNPS	Cumulative totals
Huis Groeneweide	42	N	33.5	42
Aandskemering	101	NE	35	-
Goue Aar Tehuis	68	NE	35	169
Green Pastures Rest Home	70	SE	25.5	-
Huis Aristeia	80	SE	26	150
Peace Haven	6	SE	27.5	156
Ons Tuiste	93	SE	30.5	249
Huis Andre Van der Walt	90	SE	31	339
George & Annie Starck	135	SE	31	474
Huis Boland	38	SE	32	512
Huis Magnolia	15	SE	32	527
AGS Kuilsrivier	41	SE	35	568
Huis De Kuilen	100	SE	35	668
Sea Park	28	SSE	2	-
Mon Desir	40	SSE	22	68
Huis Zonnekus	96	SSE	24.5	164
Protea Ouetehuis	100	SSE	26	264
SASSAR Aftreeoord	130	SSE	26.5	394
Kensington Old Age Home	110	SSE	27	504
St Johannes Heim	50	SSE	27	554
Libertas Aftreeoord	85	SSE	28	639
Kendrick House	53	SSE	28	692
Clareinch	39	SSE	29	731
SAWAS House	50	SSE	29	781
Zerilda Steyn	372	SSE	29	1 153
Helen Keller Hostel	41	SSE	29.5	1 194
Huis Martina	153	SSE	30	1 347
Nazareth House, Elsie's River	32	SSE	32	1 379
Erica Place	83	SSE	32.5	1 462
Lily Haven Place	126	SSE	32.5	1 588
Nerina Place	98	SSE	32.5	1 686
Ekuphumleni Old Age Home	134	SSE	34.5	1 820



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Homes for the aged	Residents	Sector	Approx distance km from KNPS	Cumulative totals
GH Starck Centre	52	SSE	34.5	1 872
Good Hope Park	150	S	25	-
Sea Point Place	202	S	25.5	352
Stadium Residence Old Age Home	30	S	26	382
Beth Rogelim Men's Hostel	52	S	26	434
Huis Ysterplaat	45	S	26	479
Huis Zenobia du Toit	45	S	26	524
Protea Park	25	S	26.5	549
Ons Geluk	94	S	28	643
Ladies Christian Home	81	S	28	724
Rogelim Monte Rosa	111	S	28	835
Glenlea Sun Citizens Residence	19	S	28.5	854
Booth Memorial Home	97	S	28.5	951
Brown and Annie Lawrence Home	60	S	28.5	1 011
Nazareth House, Mill Street	116	S	28.5	1 127
Arcadia	185	S	28.5	1 312
Highlands House	314	S	28.5	1 626
Zonnebloem Tehuis	108	S	29	1 734
St Anthony's Home for the Aged	45	S	30.5	1 779
Avondrust	124	S	30,5	1 903
Huis Luckhoff	155	S	31	2 058
Princess Christian Home	33	S	31	2 091
St Michaels Dominican	15	S	32	2 106
Fairmead Court	104	S	32.5	2 210
Claremont House	24	S	33.5	2 234
Colstine Lodge	15	S	33.5	2 249
Selous House	25	S	33.5	2 274
Huis Nuweland	55	S	34	2 329
Nancy Muir Home	20	S	35	2 349
Blantyre and Kenilworth House	16	S	35	2 365
Hampton House	16	S	35	2 381



TABLE T-6.17
Location of Homes for the Disabled and number of Residents 1996

Homes for the aged	Residents	Sector	Approx distance km from KNPS	Cumulative totals
Orion Home, Atlantis	60	NNE	13	60
Camphill Village, Kalbaskraal	90	ENE	16.5	90
Alta du Toit, Bellville	147	SE	28.5	147
Eric Miles, Milnerton	40	SSE	24	-
Robertsonhuis, Milnerton	7	SSE	24	47
Cheshire Home, Langa	20	SSE	31.5	67
Garden Cottage, Athlone	8	SSE	33.5	75
Turfhall Chestire Home, Hanover Park	60	SSE	34	135
Oasis Home, Kenwyn	10	SSE	35	145
Elizabeth Roos Tehuis, Cape Town	35	S	28	-
Rosedon House, Rondebosch	48	S	33.5	83



TABLE T-6.18
Summary: Location of Homes for the Aged 1996

Annual Distance km	SECTOR									Annual Total
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	
0 - 5	-	-	-	-	-	-	-	1 (28)	-	1 (28)
5 - 10	-	-	-	-	-	-	-	-	-	-
10 - 15	-	-	-	-	-	-	-	-	-	-
15 - 20	-	-	-	-	-	-	-	-	-	-
20 - 30	-	-	-	-	-	-	3 (156)	12 (1 166)	17 (1 734)	32 (3 056)
30 - 35	1 (42)	-	2 (169)	-	-	-	2 (512)	7 (678)	13 (647)	30 (2 048)
Sector Total	1 (42)		2 (169)				10 (668)	20 (1 872)	30 (2 381)	63 (5 132)

Number of residents given in brackets below the number of homes.

**TABLE T-6.19
Summary: Location of Homes for the Disabled 1996**

Annual Distance km	SECTOR									Annual Total
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	
0 - 5	-	-	-	-	-	-	-	-	-	-
5 - 10	-	-	-	-	-	-	-	-	-	-
10 - 15	-	1 (60)	-	-	-	-	-	-	-	1 (60)
15 - 20	-	-	-	1 (90)	-	-	-	-	-	1 (90)
20 - 30	-	-	-	-	-	-	1 (147)	2 (47)	1 (35)	4 (229)
30 - 35	-	-	-	-	-	-	-	4 (98)	1 (48)	5 (146)
Sector Total		1 (60)		1 (90)			1 (147)	6 (145)	2 (83)	11 (525)

Number of residents given in brackets below the number of homes.

**TABLE T-6.20
Hospital Location and number of Beds per Hospital - 1996
(Reference 26)**

Hospital	Sector	Beds	Approximate Distance - km from KNPS	Cum. Totals (Beds)
Atlantis Wesfleur Hospital	NNE	28	14.5	28
Malmesbury (Infections Diseases) Hospital	NE	52	35.5	-
Malmesbury Swartland Hospital	NE	149	36.5	201
Private Hospital, Durbanville	SE	140	26	-
Karl Bremmer Hospital, Bellville	SE	395	29	535
Ramot Centre for Alcoholics	SE	44	29.5	579
Louis Leipoldt Hospital, Bellville	SE	237	29.5	816
Jan S Marais Clinic, Bellville	SE	123	31	939
Kraaifontein Day Clinic	SE	6	31.5	945
Stikland Hospital, Bellville	SE	925	32	1 870
Brackenfell Hospital, Bellville	SE	35	33	1 905
Medicity Milnerton Hospital	SSE	120	22	-
Monte Vista Clinic	SSE	24	24	144
Panorama Medi-Clinic, Parow	SSE	392	26	536
N1 City, Goodwood	SSE	140	26.5	676
Libertas Hospital, Goodwood	SSE	196	28	872
Conradie Hospital, Pinelands	SSE	581	29	1 453
McIntyre Day Clinic	SSE	6	30	1 459
Tygerberg Hospital, Parow	SSE	1 823	31	3 282
Cape Eye Hospital, Bellville	SSE	20	31	3 302
Gatesville Medical Centre, Athlone	SSE	154	32	3 456
Sarah Fox Convalescent Home, Athlone	SSE	68	33.5	3 524
St Joseph's Hospital, Montana	SSE	135	34	3 659
Guguletu Midwife Obstetrics Unit	SSE	8	35	3 667
GF Jooste After Care Hospital, Manenberg	SSE	176	35.5	3 843
Brooklyn Chest Hospital	S	320	25	-
Green Point, Somerset and City Hospital,	S	401	25	721
St Monica's Hospital, Cape Town	S	32	26.5	753
City Park Hospital, Cape Town	S	247	27	1 000
Shirnel Clinic, Foreshore	S	6	27	1 006
Cape Anaesthetic Hospital, Cape Town	S	13	28	1 019
Leeuwendal Hospital, Tamboerskloof	S	75	28	1 094
Alexandra Hospital, Maitland	S	758	28.5	1 852
Valkenburg Mental Hospital	S	870	28.5	2 722
Booth Hospital, Oranjezicht	S	97	29	2 819



Hospital	Sector	Beds	Approximate Distance - km from KNPS	Cum. Totals (Beds)
Groote Schuur Hospital	S	1 423	29	4 242
Vincent Pallotti, Pinelands	S	153	29.5	4 395
Mowbray Maternity Home	S	174	29.5	4 569
St Anthony's Nursing Home	S	21	30.5	4 590
Red Cross Childrens Hospital	S	353	31	4 943
William Slater Hospital	S	20	32	4 963
Surgical Clinic, Newlands	S	68	32	5 031
Avalon Treatment Centre, Athlone	S	20	32.5	5 051
Maitland Cottage Hospital, Newlands	S	85	33	5 136
Selous House, Claremont	S	25	33.5	5 161
Kingsbury Hospital, Claremont	S	134	34	5 295
Surgical Clinic, Claremont	S	100	34	5 395
Medicity, Kenilworth	S	55	34	5 450
McKinley Ann House, Kenilworth	S	21	34.5	5 471
Surgical Clinic, Wynberg	S	69	35	5 540
Broadway Surgical Clinic, Wynberg	S	27	35	5 567
Sherwood House Nursing Home	S	27	35	5 594



TABLE T-6.21
Location of Community Health Centres

COMMUNITY HEALTH CENTRES	SECTOR	APPROXIMATE DISTANCE km FROM KNPS
Darling	N	33
Mamre	NNE	18.5
Morningstar (Durbanville)	SE	28
Bellville (Wilshammer Road)	SE	31.5
Bellville (Reed Street)	SE	32
Kraaifontein (Milton Street)	SE	32.5
Scottsdene (Eoan Lane)	SE	34
Goodwood (Cook Street)	SSE	28
Parow (Voortrekker Road)	SSE	29
Ruytyerwacht	SSE	29
Good Hope (Ysterplaat, Justin Str)	SSE	24
Kensington (Twelfth Ave)	SSE	27.5
Maitland (Norfolk Way)	SSE	27.5
Langa (Harlem Lane)	SSE	30.5
Elsiesrivier (29th Avenue)	SSE	31
Athlone (Ebbehout Street)	SSE	32.5
Bishop Lavis (Lavis Avenue)	SSE	33
Heideveld (Heideveld Way)	SSE	34
Hanover Park (Hanoverpark Way)	SSE	35
Guguletu (NY3)	SSE	35
Nyanga (6th Lane)	SSE	35
Robbie Nuroch (Buitenkant Street)	S	28
Woodstock (Mountain Road)	S	28
Wynberg Mews (Broad Road)	S	34.5

**TABLE T-6.22
Summary of 1996 Hospital Location and number of Beds**

Annual Distance km	SECTOR									Annual Total
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	
0 - 15	-	1 (28)	-	-	-	-	-	-	-	1 (28)
15 - 20	-	-	-	-	-	-	-	-	-	-
20 - 30	-	-	-	-	-	-	4 (816)	6 (1 453)	13 (4 569)	23 (6 838)
30 - 35	-	-	2 (201)	-	-	-	4 (1 089)	8 (2 390)	14 (1 025)	28 (4 705)
Sector Total		1 (28)	2 (201)				8 (1 905)	14 (3 843)	27 (5 594)	52 (11 571)

*Number of beds given in brackets below the number of hospitals. Military hospitals excluded.



TABLE T-6.23
Police Station Location 1996 (Reference 29)

POLICE STATIONS	SECTOR	DISTANCE (km) from KNPS
Darling	N	33.5
Atlantis	NNE	13
Saxon Sea (Atlantis)	NNE	14.5
Mamre	NNE	19
Malmesbury	NE	35
Philadelphia	E	14
Durbanville	SE	26
Bellville	SE	30.5
Bellville Station	SE	32
Brackenfell	SE	32
Bellville South	SE	33
Kraaifontein	SE	33
Melkbosstrand	SSE	5
Table View	SSE	17.5
Milnerton	SSE	23
Bothasig	SSE	23
Kensington	SSE	26.5
Goodwood	SSE	28
Parow	SSE	29.5
Pinelands	SSE	29.5
Ravensmead	SSE	31
Langa	SSE	31
Elsies River	SSE	32
Athlone	SSE	32.5
Bishop Lavis	SSE	32.5
Guguletu	SSE	35
Lansdowne	SSE	35
Manenberg	SSE	35
Sea Point	S	25.5
Table Bay Harbour	S	26
Maitland	S	27.5
Woodstock	S	28
Caledon Square	S	28
Mowbray	S	30.5
Camps Bay	S	31.5
Rondebosch	S	32
Claremont	S	34

**TABLE T-6.24
Summary of 1996 Police Station Location**

Annual Distance km	SECTOR									Annual Total
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	
0 - 5	-	-	-	-	-	-	-	1	-	1
5 - 10	-	-	-	-	-	-	-	-	-	-
10 - 15	-	2	-	-	1	-	-	-	-	3
15 - 20	-	1	-	-	-	-	-	1	-	2
20 - 30	-	-	-	-	-	-	1	6	5	12
30 - 35	1	-	1	-	-	-	5	8	4	19
Sector Total	1	3	1		1		6	16	9	37

6.6. INDUSTRIAL INSTALLATIONS AND OTHER URBAN INFRASTRUCTURE

(Drawing No. 26 and 35)



The Cape Metropolitan Area has a large number and wide range of comparatively smaller industrial areas, many of which have a relatively low occupancy level. The land available for industrial development has increased during recent years. Even though the cost of serviced industrial land in some of the Cape Metropolitan areas is regarded as comparatively high, the availability of land is not a significant impediment to the growth of industry in the Cape Metropolitan Area.

Over the past ten years there has been a distinct shift of the industrial growth momentum from the older established areas close to the Inner city/Epping/Maitland areas to the north-west (mainly Montagu Gardens) and the north-east (Parow, Bellville South, Brackenfell). To a lesser degree there has also been expansion in the Ottery and Retreat areas of the southern metropolitan area. There has been little momentum in the Mitchell's Plain/Phillippi/Blackheath areas.

While the 1980's were dominated by the growth of very large industrial areas, like Montague Gardens, the present trend is towards smaller mixed-use industrial parks located in highly accessible central points. This tendency is confirmed by the development of large hives close to the labour force in places like Mitchell's Plain, Blackheath and Elsies River.

With the gradual acceptance of the draft Metropolitan Spatial Development Framework (MSDF) as the basis for future metropolitan expansion and structure planning, the focus with respect to further industrial expansion is currently changing and may soon become quite pronounced. The densely populated south-east of the metropolitan area is starting to attract small, medium and larger industries. This can strengthen the Ottery/Lansdowne industrial area, as well as the Philippi and Mitchell's Plain areas. The Parow/Bellville/Brackenfell/Tygerberg area is also likely to attract further industries. Industries in the Epping/Maitland area are likely to go through processes of upgrading/expansion which could result in a more modern and competitive Epping area.

The present relative popularity of Montague Gardens may be dampened by the developments outlined above, and the rapid cost escalation of industrial premises in the area. It will however probably form the kingpin of the Paarden Island/Milnerton/Atlantis/Saldanha development corridor. With the Saldanha steel plant and prospects of substantial downstream developments it seems likely that industrial growth between Paarden Island, Atlantis and Saldanha/Vredenburg will accelerate rapidly over the next ten to 15 years (*Reference 30 and 31*).

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6.6.1 Atlantis Industrial Areas (10 km NNE)

The Atlantis industrial area consists of 964 ha of developable land of which 606 ha (63 %) is currently undeveloped. Out of a total of 307 industrial erven only 123 are developed while the remaining 184 erven are still vacant. Atlantis Diesel Engines and Foundaries represent the largest concern in the area. Other activities in the area include textiles, paper and packaging, engineering services and chinaware. Since its establishment the Atlantis area experienced substantial initial growth in terms of undeveloped land being taken up and developed. However, a number of large companies have since withdrawn from the area, relocating closer to the Cape Metropolitan Area.

The Atlantis industrial area is favourably located in the context of the new north-west corridor and the prospects of significant industrial growth along this axis. Once the corridor vision has been accepted in principle and becomes widely known, it is possible that the industrial areas along the north-west corridor can reassert their inherent locational and other advantages. Given an over-supply of low-priced land, a good transport infrastructure, nearby supplies of semi-skilled and unskilled labour and a few catalytic industries in place, the Atlantis area could move on a steady expansion path of between 3 and 8 per cent employment growth per annum. (Reference 31)

6.6.2 Montagu Gardens (22 km SSE)

The Montague Gardens area has continued to densify with various large erven being subdivided and made available for development. The total land available for industrial purposes amounts to 215 ha. Approximately 44 ha (20 %) is still undeveloped. The type of activities in Montague Gardens are a mix of light and heavy industries, retail trading and office uses. The activities in Montague Gardens have diversified to include every single category of industrial activity. The oil depots of BP/Shell and Zenex occupy a large part of this area. The Kynoch fertilizer factory is situated immediately north of Montague Gardens on a 62 ha piece of land. The Caltex oil refinery lies immediately north of the Kynoch factory on land in excess of 180 ha. The Hoechst plant is situated further north along Potsdam Road on a 21 ha piece of land. Two fuel tank farms are located north and east of the Caltex refinery.

This area is likely to expand further and spill over into adjoining areas (rezoned, currently vacant). It benefits significantly from its attractive location close to the Inner City, the Epping area and the north-west corridor. It also reflects the new type of upmarket, export-orientated and skill-intensive industrial clustering which will be one of the pillars of Greater Cape Town's industrial growth. Average annual employment growth rates are expected to vary between 2 and 6 per cent for the next decade. (Reference 31)



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6.6.3 Metro/Paardeneiland (25 km S)

Together the Metro and Paardeneiland industrial area occupies 105 ha of which very little is still undeveloped. The Metro area is fully occupied and there is no land available for expansion. Only 2.4 ha is still undeveloped in the 97 ha Paardeneiland area. In general there has been little movement in Paardeneiland. The Metro/Paardeneiland area contains a variety of industrial concerns ranging from ship chandlers, engineering works, industrial machinery, warehousing, cold storage facilities, manufacturing of chemicals and related industries. Many of these activities are related to import/export activity at the Cape Town harbour. The area also harbours the Total storage tank and liquid gas storage tanks.

This area has the advantage of being close to the Inner City, the routes to Epping and the southern suburbs as well as the southern tip of the north-west corridor. It has evolved in a vibrant industrial area accommodating a mixture of wholesale, repair and service establishments, light industries and import/export warehouses. The lack of space for expansion resulting in higher property costs may inhibit future growth, unless the Culemborg area provides substantial land for small- to medium-sized industries. The demand for industrial land in the Paarden Island vicinity seems certain to increase steadily due to the good location of the area (**Reference 31**).



6.6.4 Maitland/N'dabeni (28 km SSE)

The 60 ha of the N'dabeni industrial area is fully developed. The Maitland area similarly has very little undeveloped land left out of its 27.5 ha. This latter area contains a mixture of light manufacturing works (electronics, foodstuffs, chemicals, packaging, etc) and functions such as the municipal abattoir, cold storage and engineering works.

The Maitland/N'dabeni area is in a phase of transition that will see it move towards commercial and city-related activities rather than primary industries. Several of the larger industries in the area have had to scale down operations or close down due to stronger competition, and few larger new industries have moved into this area. It is unlikely that this area will provide more industrial employment in the short to medium term. (**Reference 31**)

6.6.5 Epping Industria (30 km SSE)

The greater Epping industrial area occupies a total of 413 ha of industrial land. Only 16 ha of this is still undeveloped. This extensive industrial area includes every possible industrial activity ranging from engineering services, manufacturing, warehousing and storage to building supplies, painting works and chemical products.

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Epping has for some time been confronted with strong competitive challenges from new industrial areas and more competitive industries. Although not very close to the five proposed MSDF nodes or the related corridors, its size, good transport links and the presence of a range of modern establishments give Epping the potential to strengthen its competitive position. Epping's future probably lies in the sphere of capital intensive, modern industries, warehouses and repair establishments than in large, labour-intensive manufacturing enterprises (which are probably better located in the south-east and Atlantis). Employment growth is likely to be low over the next decade. (*Reference 31*)

6.6.6 Vredenburg/Saldanha (85 - 95 km NNW)

The existing zoned industrial area in Saldanha consists of:



- ◆ 177 ha zoned light industrial, of which approximately 35 ha (20 %) is developed; and
- ◆ 600 ha zoned heavy industrial, of which approximately 240 ha (40 %) is developed.

While present industrial activities are mostly of a light manufacturing nature, a move towards the secondary manufacturing of steel products and engineering works is anticipated with the erection of the Saldanha steel plant. There are a number of liquid gas tanks in the Saldanha area as well as the Strategic Fuel Fund (SFF) tank farm.

Vredenburg has an industrial area of 70 ha of which approximately 7 ha (10 %) are still vacant. A further 24 ha area is earmarked for light industrial use.

An area of approximately 1 500 ha to the north and east of the Saldanha Steel plant (SSP) has been proposed for industrial development (in addition to the ±450 ha of the SSP). The Vredenburg railway line serves as the northern boundary of this proposed industrial area. A site of ±900 ha for general industry is proposed for the area north of the SSP on either side of the iron ore railway line. A further 500 ha of proposed industrial land lies west of the SSP and north of the harbour. Approximately 110 ha is reserved for restrictive industries (offensive and noxious activities) east of the SSP. These proposals have been prompted by the expected surge in demand for industrial land as a consequence of the establishment of the SSP.

The future growth of this area is difficult to predict in the light of the Saldanha Steel mega-project. The prospects of major downstream developments and spin-off industries create expectations about thousands of new industrial jobs being created over the next 15 years. Lessons from the illusions around the Sishen/Saldanha project and Richard's Bay development dictate against overly optimistic projections. However, industrial employment growth in this northern part of the corridor is likely to exceed five per cent per annum for more than a decade. (*Reference 32 and 33*).

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6.6.7 Other Industrial Areas

6.6.7.1 Marconi Beam (22 km SSE of KNPS)

The 240 ha Marconi Beam site, bounded by Koeberg Road to the west, Bosmansdam Road to the south, and Montague Drive to the east, is being developed for a mix of industrial, residential and retail uses. The site is bordered along its northeastern boundary by the successful Montague Gardens industrial area. Approximately 84 ha have been zoned for light industrial use. It is envisaged that the industrial development will be similar to that of Montague Gardens, consisting of a mixture of large erven of >2 000 m², erven smaller than 2 000 m² and hive developments. If the above scenario materializes, an estimated number of approximately 11 500 workers could be employed when the industrial area is fully developed (*Reference 34*).

6.6.7.2 Killarney Gardens (29 km SSE)

The new Killarney Gardens industrial area is bounded by the N7, Potsdam Road, the Caltex refinery and the Atlantis railway line. The 74 ha site is already about 15 % developed, and it is envisaged that the area will be fully developed during the course of 1997-8. This industrial development will be similar in nature to that of Montagu Gardens (*Reference 35*).

6.6.7.3 Doornbach Industrial Area (18 km SSE)

The planned Doornbach industrial area is located next to the Potsdam Road opposite Du Noon. Its southern boundary is formed by the Atlantis railway line. The developable area of the 55 ha site amounts to 38 ha. The type of industries will be general light industries. The site provides for 314 units that include one commercial plot (*Reference 36*).

6.6.7.4 Mamre

A small site of 3,6 ha is reserved for light industrial purposes. The site consisting of 51 erven is still undeveloped at this stage (August 1996). A few applications for the establishment of light industries are presently being considered by the authorities. (*Reference 37*).

6.6.8 Scattered industries

There are several quarries in the northwest Tygerberg region of which three are currently active. These quarries are the main source of building materials in the metropolitan area (*Reference 38*). Sandmining activities managed by Atlantis Foundries take place south of Dassenberg Drive, Atlantis. The Kilson Limeworks is located along the coastal stretch between Melkbosstrand and Blouberg. Claybrick Enterprises runs their brickworks at Visserhok (13.5 km SE). This is also the site of the Cape Town City Council's evaporation depot and the Wastetech Treatment Works. Other brickworks are dispersed through the area north of the Tygerberg hills and at Fisantekraal, Durbanville.

6.6.9 Standby Power-Generating Installations

The Cape Metropolitan Council no longer runs any standby power generators in the area. Several private companies in the Atlantis and Montague Gardens industrial areas run their own standby generators that vary in capacity from 100 kVA to 400 kVA (*Reference 39*).

6.6.10 Coal Burning Installations

There are several installations in the Atlantis industrial area and one each at Vissershok, Montague Gardens and Melkbosstrand. Table 25 lists the installations within a 25 km radius of KNPS. The numbers correspond with those shown on *Drawing No. 26*.

TABLE T-6.25
Coal Burning Installations (Reference 40)

Installation	Locality	Coal usage per annum (tons)
C-1 Claybrick Enterprises	Frankdale Road Vissershok	9 800 (coal) 4 000 (coke)
C-2 Killson Limeworks	Otto du Plessis Drive Melkbosstrand	850
C-3 SAPPI	Esso Road Montague Gardens	14 000
C-4 Atlantis Diesel Engines	William Gourlay Str. Atlantis Industria	2 600
C-5 Promeal	Neil Hare Rd Atlantis Industria	1 800
C-6 Rotex Fabrics	Charles Mathews Str Atlantis Industria	1 380
C-7 SA Fine Worsteds	Charles Mathews Str Atlantis Industria	1 095
C-8 Arwa Yarns	Josias Blankenberg Rd Atlantis Industria	4 880

6.6.11 Telephone Exchanges and Radio and TV Installations

The telephone exchanges falling within a 16 km radius of the KNPS site, together with the total number of subscribers and the number of subscribers within the specified radius, are listed below and illustrated on **Drawing No. 35**.

**TABLE T-6.26
Telephone Exchanges**



Exchange	Distance from KNPS (km)	Sector	No. Subscribers	
			Total	Within 16 km radius
E-1 Atlantis	14	NNE	5 130	5 114
E-2 Altria	9	NNE	906	906
E-3 Philadelphia	14	E	160	123
E-4 Melkbosstrand	5.5	S	2 272	2 272
E-5 Bloubergstrand	13	S	1 850	1 850
E-6 Robbeneiland	15.5	SSW	97	97
Total		Total	10 415	10 362

Telkom has microwave towers at Atlantis (M-1) and Melkbosstrand (M-2), 14 km and 6 km to the NNE and S respectively. There are no radio and television transmitters connected to Telkom infrastructure within 16 km of KNPS.

Telkom's South Atlantic Submarine cable which serves the whole Republic and which forms an important link in the international telecommunications network terminates at Melkbosstrand 6 km to the south of the KNPS site. The Melkbosstrand termination point is linked by optic fibre cable to Bellville via two alternative routes. In the event of a breakdown of both routes, the satellite service would have to accommodate the extra load. The Melkbosstrand station has to be permanently manned and falls under the jurisdiction of Telkom. (**Reference 41**)

Sentech (Pty) Ltd controls all radio and television transmitters in the region. There are no radio or television installations within the specified 16 km radius of Koeberg Power Station.

The Regional Operations Centre of Sentech, situated approximately 23 km south of Koeberg, handles all transmissions of radio and television programmes. The Tygerberg transmitting station is situated approximately 30 km southeast of Koeberg Power Station (**Reference 42**).



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6.6.12 Water Supplies and Water Retaining Structures

Numbered items correspond to the locality of structures on *Drawing No. 35*.

There are several reservoirs located in the vicinity of Atlantis (*Reference 43*), Melkbosstrand and Milnerton North (*Reference 44*).

- W1. The Pella reservoirs are located 16.5 km to the NNE of the KNPS. The two reservoirs with a capacity of 40 Mℓ and 10 Mℓ respectively, serve the Atlantis residential area. The water originates from an open source and 11 boreholes in the Silwerstroomstrand area. A pumpstation (W-6) and 3 other smaller pumpstations pump the water over a distance of 14.5 km to the reservoir.
- W2. There are two underground reservoirs at the Wesfleur sport stadium in Atlantis, 14 km to the NNE of the site. The capacity of each is approximately 5780 m³. The reservoirs contain untreated water from underground supplies. The water is used for the irrigation of sportsfields and public open space in Atlantis.
- W3. Two further reservoirs for Atlantis (known as the hospital reservoirs) 13 km to the NNE, contain 20 Mℓ and 10 Mℓ respectively. The water originates from the Witzand borehole project consisting of 23 boreholes. The reservoirs feed the Atlantis industrial area while the excess is pumped to the Pella reservoir.
- * A softening plant and pumpstation is located at the junction of the West Coast Road and Dassenberg Road. This plant supplies water to the hospital in Atlantis.
 - * Two infiltration ponds exist near the Witzand boreholes east of the West Coast Road. The ponds are known as Pond 7 (north of Dassenberg Road) and Pond 12 (south of Dassenberg Road).
 - * The Midlands reservoir is a recently built 10 Mℓ reservoir located along the Silwerstroomstrand Road, close to the Silwerstroomstrand resort. Although not yet operational it is intended to serve the development at Silwerstroomstrand.
- W4. The Melkbos reservoirs are located on the rear slopes of the Blouberg, 9 km to the SE of the site. The two reservoirs (2 x 20 Mℓ) are supplied off the Voëlvlei pipeline from the Voëlvlei Dam near Tulbagh. Melkbosstrand, Bloubergstrand and KNPS are supplied from these reservoirs.

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W5. The Milnerton reservoirs (2 x 45 Mℓ) are located at Bosmansdam, 21.5 km to the SSE of the site. These reservoirs are supplied directly off the Voëlvelei line as well as a separate line from the Plattekloof reservoir on the Tygerberg. The existing water demand of Milnerton is supplied by these reservoirs. Additional reservoir storage will be required for the future needs of Milnerton and a new reservoir site is proposed on the Tygerberg east of Table View North.

* The proposed Koeberg Dam

The proposal for a new dam on the Diepriver is low on the priority list of the Department of Water Affairs in the Western Cape. The development of the proposed Platrug Dam is therefore only a remote possibility. The financial viability in terms of desalination of the water and the impact on the ecology of the Rietvelei are two factors that count against the proposed establishment of such a dam (**Reference 45 and 46**).



* Robben Island

Fresh water for human consumption (±5 200 ℓ) is shipped from Cape Town once a week and stored in reservoirs. Each house on the island has a 2 250 ℓ freshwater storage tank. A total of 9 boreholes also supply water to a purification plant where it is treated for household purposes (**Reference 18**).

6.6.13 Sewage Purification Works

Numbered items correspond to the locality of structures on **Drawing No. 35**.

- S1. There are two sewage purification plants at Atlantis 9.5 km to the NNE of the site. The two plants serve the residential area (8Mℓ/d) and industrial area (6Mℓ/d) of Atlantis respectively.
- S2. A sewage plant is located at Melkbosstrand 4.5 km to the SE of the site. The present capacity of the plant is 3.75 Mℓ/day. (**Reference 47**)
- S3. The Potsdam Treatment Works serves as a regional sewage works for the former Milnerton municipal area, Bloubergstrand and parts of Parow, Goodwood and Cape Town. The existing capacity of the works is 35 Mℓ/day, but it is being upgraded to a capacity of 40 Mℓ/day. The Potsdam site will then be fully used and any further increase in sewage will require a new works elsewhere. The current proposal is to locate such works at a site immediately to the north of the former municipal boundary where it could also serve the future development of the Bloubergsvlei area (**Reference 44**).
- S4. An **oxidation plant** of 100 m³/day is located just south of the Silberstroomstrand resort.

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6.6.14 Shopping and Recreation Centres

The approximate location of the major shopping and recreational centres within a radius of 30 km from KNPS is shown on **Drawing No. 35**. Numbered items correspond to the locality of structures on **Drawing No. 35**.

6.6.14.1 R-1 Tygervalley Centre, Bellville (28 km SE)

The Tygervalley Centre is situated on Durban Road in Bellville, 28 km SE of KNPS. It is a major regional shopping and recreational complex. The gross leasable area (GLA) of the centre is 76 000 m². An additional 20 000 m² of retail space is envisaged for the centre. At present the complex accommodates 266 shopping units and 10 cinema theatres. The average daily flow of shoppers is approximately 36 000 while the month-end flow averages 70 000 per day. The peak flow is recorded around Christmas with an average of 80 000 shoppers per day. (**Reference 48**).

6.6.14.2 R-2 Table View Mall, Table View (17 km SSE)

Table View Mall, situated on the SE corner of Otto du Plessis Drive and Blaauwberg Road, Table View, has a GLA of 10 380 m². It houses one anchor store plus 35 line shops. The daily flow of shoppers fluctuates between 2 700 and 3 000. The month-end flow varies between 5 000 and 6 000 shoppers per day. The peak flow during the Christmas season is approximately 10 000 shoppers per day. No extension is planned at this stage. (**Reference 49**).



6.6.14.3 R-3 Bayside Centre, Table View (17 km SSE)

The Bayside Centre is situated on the NE corner of Otto du Plessis Drive and Blaauwberg Road, Table View. The complex has a GLA of 14 547 m². There are 68 shop units in the complex. An additional 10 000 m² or approximately 25 shop units including a chainstore, cinema theatres and a food court will be added by mid-1997. The flow of shoppers is not monitored but it is roughly comparable with that of Table View Mall. (**Reference 50**).

6.6.14.4 R-4 N1 City Mall, Goodwood (26 km SSE)

The N1 City Mall is located between the N1 Freeway and Frans Conradie Drive, Goodwood. It represents another of the major regional shopping and recreational centres with a total GLA of 54 500 m². There are 144 shopping units and seven cinema theatres. The daily and month-end flow of shoppers are 20 000 and 30 000 respectively. The peak flow at Christmas averages at 50 000 shoppers per day. There are no plans for extensions to the retail space. There is a possibility of a link between the mall and the adjacent Tygerdal station.

The N1 Value Centre is an auxiliary shopping complex with a total floor space of 15 627 m² and 38 value shops. (**Reference 51**).

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6.6.14.5 R-5 Sanlam Centre, Parow (29 km SSE)

The Sanlam Centre is situated on the corner of Voortrekker and De La Rey Roads, Parow. This major regional shopping complex accommodates 170 units and 6 cinema theatres. The GLA of the centre is 63 600 m². The average daily flow of shoppers is 25 000 and the month-end flow approximately 80 000 shoppers per day. The peak at Christmas varies between 80 000 and 100 000 per day. (*Reference 52*).

6.6.14.6 R-6 Victoria Wharf Shopping Centre, Waterfront (25.5 km S)

This shopping complex forms part of the multifunctional node of retail, office, entertainment and residential uses at the Victoria and Alfred Waterfront. The shopping centre has the longest trading hours in the Western Cape and is open seven days a week. The GLA of the original centre stands at 26 500 m², accommodating 125 shops. The centre has been extended to add another 18 000 m² of retail space. This new extension was opened in October 1996. It is envisaged that the Waterfront will develop into a major regional shopping for Cape Town's City bowl and the Atlantic Seaboard. The total GLA will eventually stand at 44 500 m². There are 11 cinema theatres in the main shopping complex.



The average number of daily visitors to the Waterfront during weekdays (prior to the opening of the new shopping complex) varied between 30 000 - 35 000 while the weekend equivalent was 40 000 - 50 000. These figures include all visitors to the Waterfront recreational area. (*Reference 53*).

6.6.14.7 R-7 Golden Acre Centre, Central Cape Town (27 km S)

The Golden Acre is the main shopping centre in the CBD of Cape Town. It accommodates 82 shopping units with a GLA of 15 605 m². The complex also houses 5 cinema theatres. The shopping area is part of a larger complex that include 18 063 m² of office space with the result that no exclusive figures for the number of shoppers are available. There is no expansion planned for the complex. (*Reference 54*).

6.6.14.8 R-8 Gardens Centre, Cape Town (28.5 km S)

This centre situated in Gardens, Cape Town has a GLA of 11 561 m² and accommodates 65 shopping units. An additional 1 000 m² of retail space will be added during the course of 1997-98. The current daily flow of shoppers averages 8 000 with a month-end figure of 10 000 per day. Peak flow during the Christmas season varies between 12 000 and 14 000 shoppers per day. (*Reference 55*).

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6.6.14.9 R-9 Bellville Stadium (29.5 km SE)

The Bellville Stadium is located between Hume Road and Willie van Schoor Avenue in Bellville. It serves as the base of the Bellville Athletics and Cycling Clubs. The stadium has a capacity of 18 000. Meetings during the athletics season (from October to March) draw crowds ranging from 2 000 to 10 000 people. It is also used for school athletics meetings throughout the season. The cycling season runs from January to April with crowd attendances of approximately 500. Other activities hosted at this venue include drum majorettes, religious gatherings and choir festivals with attendance figures of up to 10 000. (*Reference 56*)

6.6.14.10 R-10 Theo Marais Park (21 km SSE)



This is the closest sports complex to KNPS and is located next to Koeberg Road in Milnerton. It provides for a variety of sports that include rugby, cricket, hockey, netball, softball, soccer, a radio car track and indoor sports such as volleyball and squash. The complex serves mainly as a practise venue for most of the sports. Only rugby attracts significant crowds in the region of 1 000 per match during the season. Crowd attendances for other sports vary between 50 and 500 people depending on the type of meeting. (*Reference 57*)

6.6.14.11 R-11 Green Point Stadium (26 km S)

The stadium serves as venue for a variety of recreational and sport activities. This includes athletics, soccer, community festivals, choir festivals and the coon carnival during the festive season. It occasionally hosts music concerts that involves large crowds of 35 000 - 45 000. The capacity of the stadium's stands is approximately 10 000 - 12 000. The athletics season runs from October to March and involves crowd attendances of up to 8 000. Crowd attendance during soccer matches in winter (March - October) varies around 3 000 per match. The coon carnival during the festive season draws approximately 12 000 - 13 000 people per day. The stadium occasionally hosts "fun runs" organised on an ad hoc basis with crowd attendance varying between 1 000 - 5 000. (*Reference 58*)

6.6.14.12 R-12 Century City (25 km SSE)

The Century City development to be located between the N1 and Montagu Gardens will form a major regional node of commercial, office and leisure uses. The development will include a theme park of 12 ha, a major shopping centre of 140 000 m² GLA, 100 000 m² of additional retail space, a cinema/theatre complex of 1 800 seats, 200 000 m² office space and a number of hotels with a total of 1 200 rooms. The abovementioned figures are preliminary and the development will be expanded according to demand.

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6.6.15 Caravan Parks

The caravan parks within a radius of 30 km from KNPS are Silwerstroomstrand (12 km NW), Ganzekraal (12,5 km NW), Zonnekus Holiday Resort (29 km N), Parow Caravan Park (28 km SE), Hardekraaltjie (29,5 km SE) and Ou Skip Park (2 km SSE). The approximate location of these caravan parks is shown on *Drawing No. 35*. Numbered items correspond to the locality of structures on *Drawing No. 35*.

6.6.15.1 K-1 Silwerstroomstrand (12 km NW)

The caravan park at Silwerstroomstrand is part of the larger beach resort situated on the coast approximately 12 km northwest of KNPS. At present it provides 55 sites as well as 6 chalets. The caravan park is usually filled to capacity (approximately 260 persons) over the Christmas season while it averages a 50 % figure over Easter weekends. There are no permanent residents living in the park. The number of day visitors during the period of February - November varies in accordance with the weather. There are currently no plans to expand the caravan park. (*Reference 60*).

6.6.15.2 K-2 Ganzekraal Resort (15 km NW)

Ganzekraal Resort is situated at Bokbaai on the West Coast, approximately 15 km northwest of KNPS. The resort has 40 caravan sites, 15 chalets and 40 sites for tents. It is a popular venue over the Christmas and Easter seasons during which it is normally fully occupied (approximately 410 persons). For the rest of the year it averages a 50 % occupation rate over weekends. The chalets are usually fully occupied (± 90 persons) over weekends and school holidays. There are no permanent residents living in the Ganzekraal caravan park. No expansion is envisaged for the resort at this stage. (*Reference 61*).

6.6.15.3 K-3 Zonnekus Holiday Resort (12.5 km SE)

This resort is located in the Morning Star area on the Old Darling Road, approximately 12.5 km SE of KNPS. There are currently 18 caravan sites in use out of a possible 80 sites. There are nine permanent residents in the park. The occupation figures for the 18 sites in use are respectively 60 % over Christmas (± 50 persons), 70 % over Easter and 50 % throughout the year. Other facilities include 14 bungalows with a 30 % average occupancy (± 30 persons) and 3 houses which are fully occupied. (*Reference 62*).

6.6.15.4 K-4 Parow Caravan Park (28 km SE)


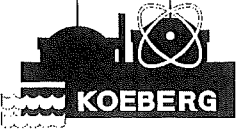
The Parow caravan park is located on the southern boundary of the Tygerberg Nature Reserve north of Parow. The park has 38 sites of which 70 % are permanently occupied (± 110 persons). The park is usually fully occupied over the Christmas and Easter seasons (± 160 persons). An 80 % occupancy rate is recorded for the rest of the year. No extensions are planned for the park. (*Reference 63*).

6.6.15.5 K-5 Hardekraaltjie, Bellville (29,5 km SE)

Hardekraaltjie caravan park is situated on Voortrekker Road in Bellville. There are 108 sites with eleven permanent residents. The park is usually fully occupied over the Christmas season (± 450 persons). A 60 % occupancy rate is recorded over the Easter weekend (± 260 persons). Occupancy for the rest of the year varies around 40 %. (**Reference 64**).

6.6.15.6 K-6 Ou Skip Park (2 km SSE)

Ou Skip Park is the nearest caravan park to KNPS. It is situated on Otto du Plessis Drive in Melkbosstrand, 2 km SSE of KNPS. It is also the largest of all the caravan parks with 300 sites. There are 87 permanent residents in the park. Occupancy levels vary from 76 % at Christmas (± 920 persons), 54 % at Easter (± 650 persons) and approximately 7 % for the rest of the year. There are no plans to extend the park. (**Reference 65**).

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6.7. EXTERNAL HAZARDS

6.7.1 AIRCRAFT CRASH (*Reference 66*)

6.7.1.1 Overview

The analysis was conducted by determining a statistical estimation of the expected frequency of types of aircraft to crash into vulnerable buildings or unconfined systems. Clearly for the cases where affected systems are well contained within civil structures, further analyses are required to determine the secondary effects of the accident impact.

The estimated expected accident rate is expressed in terms of a yearly frequency of the accident occurring and the area of the building affected.

6.7.1.2 Aircraft Categories

6.7.1.2.1 Non-Military Aircraft

This category includes aircraft used for non-military applications, and is subdivided into categories according to International Civil Aviation Organisation (ICAO) mass classifications. Sub-category "Commercial" is defined as those aircraft exceeding 5.7 t, while sub-category "General" includes aircraft of mass less than 5.7 t (Lear Jet, commercial helicopters and Cessna type aircraft). This classification is also used in similar French studies.

The calculated crash frequencies are:

COMMERCIAL - 5.4×10^{-9} per year per km²

GENERAL - 3.6×10^{-5} per year per km²

6.7.1.2.2 Military Aircraft

This category includes jet combat aircraft, the entire spectrum of military helicopters, military cargo and personnel carriers, as well as surveillance aircraft.

This calculated crash frequency is:

MILITARY AIRCRAFT - 3.1×10^{-5} per year per km²

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The quality of military pilot training and aircraft maintenance, as well as the fact that military flights are monitored, could warrant a further reduction of the determined frequency when compared to the frequencies of "General" aircraft. It is also noted however, that the power station is located directly in a straight path between Ysterplaat Military Airbase and Langebaan Military Airbase.

The closest unregistered and unlicensed airstrip is a mere 4.5 km NE of KNPS. A cross section of the controlled airspace and "no flying" zones along a straight line connecting KNPS and Cape Town International Airport (**Figure 6.1**) shows a free flying area, not monitored by any control body (military, Cape Town Air Traffic Control, etc), all round FAR36 up to a height of 2500 ft. The removal of the aviation lights from the dome of the reactor buildings of both units therefore adds to the concern, especially in view of the weather conditions of the West Coast.

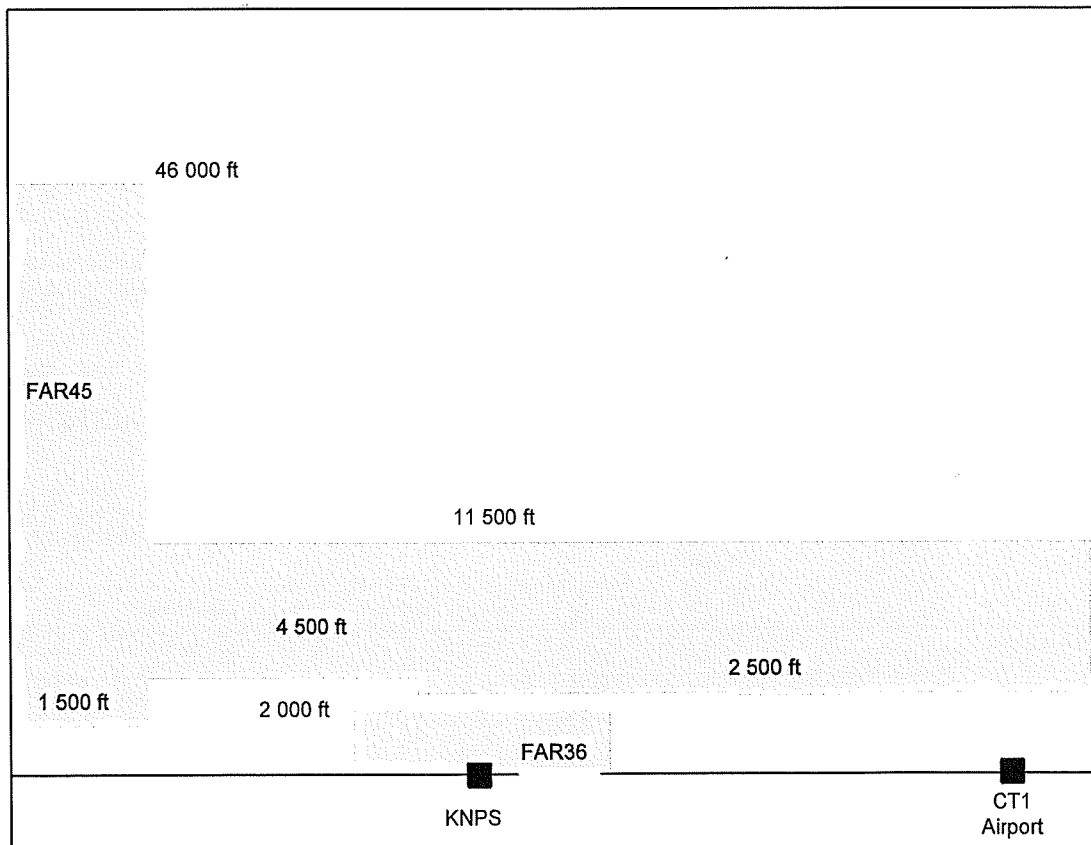




Figure 6.1
Cross section of controlled flying zones

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In summary the risk resulting from large commercial aircraft can be regarded as negligible. The standard 900 MW Unit EDF plants are designed to

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6.7.2 SHIPPING HAZARDS [REF.66]

6.7.2.1 Nature of the problem

At Koeberg the ultimate heat sink for all trains of both the component cooling system and condenser cooling system take suction from a common sea water intake basin. A "Loss of ultimate heat sink" event could result from initiators like excessive ingress of seaweed and shellfish, Sunami events or ocean transport activities. The threats from natural occurring phenomena have been part of the design basis of Koeberg in terms of the *location* of the intakes (below mean sea level and above sea bed), and designed *equipment* (screening chlorination and filtration).

Shipping hazards include oil spills and debris from wrecked vessels, and accidental explosions causing a pressure or shock wave. Floating debris from ship wreckage can be accommodated for by means of the designed cleaning systems. Pressure waves or shock waves resulting from *all* possible sources (not only off-shore sources) are dealt with in the next section. This section will therefore address mainly the frequency of an oil spill.

6.7.2.2 Approach

The methodology of the analysis started, by determining the relevant oil release area boundaries. Within these boundaries, ports and handling facilities, as well as the types of vessels making use of shipping lanes in the area were considered.

Following this, the different processes of weathering of oils being released at sea were addressed. A postulated "worst case" scenario was identified, and extended to include the impact of spilled oil on the essential water cooling system (SEC).

Finally the overall estimated expected frequency of the event with reference to a ship experiencing casualty and the likelihood of the slick reaching the intake basin was derived. The frequency of ship casualties were derived from historical data in the Western Coastal waters, and the likelihood of the slick reaching the intake basin based on 15 year average wind data information of the Koeberg area.



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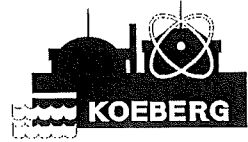


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