

CHAPTER 8: THE BASELINE ENVIRONMENT	2
8.1 BIOPHYSICAL ENVIRONMENT	2
8.1.1 Climate And Air Quality	2
8.1.2 Topography And Geology	3
8.1.3 Aquifer Types	3
8.1.4 Groundwater	3
8.1.5 Freshwater Ecology	4
a. Sector 1	4
b. Sector 2	5
c. Sector 3	5
8.1.6 Botany	5
a. Sector 1	6
b. Sector 2	7
c. Sector 3	7
8.1.7 Avifauna	8
a. Sector 1	8
b. Sector 2	8
c. Sector 3	8
8.1.8 Herpetofauna	8
a. Sector 1	8
b. Sector 2	9
c. Sector 3	10
8.1.9 Mammals	10
a. Sector 1	10
b. Sector 2	10
c. Sector 3	10
8.1.10 Entomology	10
a. Sector 1	10
b. Sector 2	11
c. Sector 3	11
8.2 THE SOCIO-ECONOMIC ENVIRONMENT	11
8.2.1 Archaeology	11
a. Sector 1	11
b. Sector 3	11
8.2.2 Social Fabric	12
a. Sector 1	12
b. Sector 2	13
c. Sector 3 (Section 6) And Sector 4	15
d. Sector 3 (Sections 7 And 8)	15
e. Section 7	16
f. Section 8	16
g. Sector 5 (Cape Flats Freeway Extension) (CFFE)	17
8.2.3 The Proposed False Bay Ecology Park (FBEP)	18

CHAPTER 8: THE BASELINE ENVIRONMENT

This chapter provides a description of the key characteristics of the environment, both biophysical and socio-economic, through which the proposed N21 (R300) Cape Town Ring Road would traverse. Refer to Appendix 1.K for drawings of the areas discussed.

Further details of the affected environment and species lists are provided in the specialist reports, presented in Volumes 3 and 4.

8.1 BIOPHYSICAL ENVIRONMENT

8.1.1 Climate And Air Quality

Cape Town has a Mediterranean-type climate with warm, dry summers and cold, wet winters. Snowfalls occur occasionally on Table Mountain and light frosts and hail are experienced occasionally throughout the study area.

Data from the data measurement sites in the study area illustrate weather conditions and variations in weather across the area.

Table 8.1: Mean Temperature and Precipitation Data for sites within the study area

SITE	MEAN TEMPERATURE (°C)			MEAN RAINFALL (MM)		FOG Days
	MEAN	MIN	MAX	Mean	Days	
Cape Town International Airport (1954-1996)	16.6	7.1 (Jul) (abs+ - 1.3)	26.3 (Feb) (abs+ 40.7)	554.8	125	58
*Marina Da Gama	16.7	1.3	32.1	655	-	-
Muizenberg Pavilion	-	-	-	908.9	89.7	-
Durbanville Police Station	-	-	-	606.8	61.7	-
Blouberg Strand	16.3	12.7 (Jul) (abs+ 1.1)	24.3 (Feb) (abs+ 37.5)	-	-	-
Melkbosstrand	-	-	-	375.3	54.5	-
Koeberg	-	-	-	459.9	63.2	-

∞

+Absolute (abs)

Mean temperatures vary little across the study area, although the maximum and minimum temperatures show a marked variation. Rainfall is lower on the west coast of the Peninsula than in False Bay and Durbanville due to orographic influences. Rain falls on the leeward (eastern) side of the Peninsula Mountain Chain making these slopes wetter than the western slopes.

Table 8.2: Monthly Averages Of Wind Speed (M/S) And Direction For The Cape Town International Airport.

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Year
SSE 19.4	SSE 18.4	SE 20.9	NW 18.9	N 20.4	N 18.4	NNW 22.4	SE 23.5	N 17.9	SE 20.4	NNW 19.4	SSE 18.4	SE 23.5

The South Atlantic High, or high-pressure cell, predominantly affects the climate of Cape Town, during the summer months associated with strong south-easterly winds and by the passage of cold fronts over the region during the winter, associated with north-westerly winds. During the change in weather from high-pressure dominated conditions to a cold front ridging in, wind and atmosphere conditions cause temperature inversion that traps pollutants and prevent their dispersal (Jury, 1991). These conditions result in the brown haze, which is normally most evident from March to August.

The CCT is responsible for air pollution monitoring and control in the metropolitan area. Monitoring stations exist at City Centre, Oranjezicht, Goodwood, Table View, Bothasig, Khayelitsha and Platteklouf. Long-term trends in air pollution are as follows:

- A decrease in NO₂ levels at both the City Centre and Goodwood sites over the past decade;
- Decrease in SO₂ levels over the past decade;
- Decrease in PM10 (Particulate matter fraction less than 10 micron, or inhalable particulates) concentrations at Khayelitsha during 2000 (potentially due to electrification of homes);
- Increase in ozone concentration for the City Centre, with reductions in levels at Goodwood;
- No significant change in lead concentrations was noted over the past decade;
- The annual number of air pollution events/episodes decreased between 1999 and 2000, although the medium trend (3-4 years) is increasing; and
- Both the Goodwood and City Centre sites were found to experience a decrease in the number of "poor" visibility days (Burger, et al, 2002).

8.1.2 Topography And Geology

The proposed ring road is situated on relatively flat land with low relief in Muizenberg through to the N1 national road north of Bellville. From here, through to the N7, the road passes over gently rolling hills whereafter it again traverses relatively flat land with low relief.

Topography along the proposed route is strongly controlled by geology. The gently rolling hills encountered along the north-eastern sections of the proposed ring road comprise rocks of the Malmesbury Group, and in places inliers of granites of the Cape Granite Suite. Younger unconsolidated sediments of Tertiary to Recent age underlie the flatter lying areas. Soils range from shallow acid sands over a ferricrete cap, to wet clays derived from shales to deep, alkaline, coastal sands.

The Malmesbury Group was deposited some 800 Millennia (ma) ago and predominantly comprises low-grade metamorphic rocks such as phyllitic shales, quartz and sericitic schists, greywacke and siltstones. The Group is relatively susceptible to weathering, resulting in low relief landforms. Various granitic plutons intruded the Malmesbury Group between 630 and 525ma. This was followed by a period of about 50ma during which much of the metamorphosed material overlying the Cape Granite Suite was removed by erosion.

Unconsolidated sediments of Tertiary to Recent age are found on the coastal plains in the southern and northern sections of the proposed ring road. The nature, thickness and extent of these deposits vary significantly.

8.1.3 Aquifer Types

Two aquifer types are readily distinguished. Primary aquifers associated with unconsolidated deposits are generally classified as major aquifer systems. Its recognised saturated thickness and hydraulic properties vary significantly throughout the study area. The primary aquifer in the vicinity of the Philippi Horticultural Area is used extensively, while groundwater may be abstracted for small-scale garden irrigation elsewhere along the route in the south. Groundwater levels are generally shallow (less than 2m below surface) and these aquifers are considered vulnerable to anthropogenic impacts.

Geological units of the Malmesbury Group and Cape Granite Suite are classified as minor aquifer systems that produce variable quantities of groundwater of variable quality. In general, aquifers of the Cape Granite Suite are low yielding and are known to produce poor quality groundwater in places. Aquifers of the Malmesbury Group also generally produce poorer quality groundwater, but high yields of good quality have been obtained. These aquifer systems are moderately vulnerable to anthropogenic impacts. Groundwater levels are variable, but are generally in the range of 5 to 30 m below surface, with deeper levels associated with elevated topography.

8.1.4 Groundwater

Large-scale groundwater abstraction for irrigation purposes takes place in the PHA. Groundwater is abstracted from the extensive primary aquifer system by means of both conventional boreholes and pits. Estimated abstraction from this area amounts to some 20 Mm³/a.

Small-scale abstraction for garden irrigation is expected elsewhere along the route. Shallow, small diameter wellpoints are widely used on the Cape Flats for garden irrigation.

No large-scale groundwater abstraction from Malmesbury Group aquifers adjacent to the proposed route is known. Small-scale abstraction for domestic use or stock watering may take place, but individual groundwater users have not been identified.

The viability of the PHA is entirely dependant on the availability of groundwater. Similarly, most wetland systems are groundwater-dependant. Groundwater is hence considered to be regionally significant and has a high value in areas underlain by the primary aquifer system.

On a more local scale, groundwater is used for domestic supply, garden irrigation and stock watering.

As potential impacts could affect local users, both the extent of impact and significance of impact need to be considered in this assessment. This is particularly true where users do not have ready access to other safe and reliable potable water supplies.

Many of the wetlands on the Cape Flats are groundwater-fed systems with groundwater being the sole source of water during dry summer months. The proposed ring road passes directly north of the Westlake wetland, south of Zeekoevlei and in the vicinity of Varkensvlei and Bloubergsvlei. Numerous other small-scale, local groundwater-fed rivers, wetlands and terrestrial ecosystems would also be traversed.

8.1.5 Freshwater Ecology

a. *Sector 1*

Starting at the Main Road/Steenberg Road interchange, the route crosses the very degraded Westlake Stream (Low Ecological Importance and Sensitivity) via an existing four-lane bridge construction that has been in place for many years. Thereafter, the proposed alignment closely abuts the northern edge of the Westlake Wetland, a Category B wetland (one determined as possessing High Ecological Importance and Sensitivity). This is the last wetland remnant linked to Zandvlei (Category B estuarine wetland), an estuarine system that is almost completely surrounded by dense urban development, and which is subject to high levels of recreational use. The wetland is of known high botanical importance. The proposed road alignment abuts the upland (terrestrial) interface of this wetland, and would encroach within the 40m ecological buffer determined for this system.

After the Westlake Wetland, the route would cross the unlined channel of the Keysers River, upstream of Zandvlei. This reach of the Keysers River abutts the undeveloped areas of the Westlake Wetland and the Zandvlei Bird Sanctuary. As such, this site forms a continuum between the Westlake Wetland and the Zandvlei, and is already impacted by the alignment of the railway line.

The Keysers River is described as having a Low Ecological Importance and Sensitivity, a rating that increases to Moderate when considered in conjunction with the importance of Zandvlei, and the wetland and bird sanctuary environments, of high ecological value, on either side.

North of the Zandvlei Bird Sanctuary, the route encompasses some 6ha of dry land that has been fenced off for several years as a deterrent to illegal dumping. Although this area does not include a wetland system, it contains fynbos vegetation of ecological importance and is the only zone of natural to semi-natural terrestrial environment remaining which is associated with the shoreline of the Zandvlei estuary.

Where the route crosses the Sand River, the river exists as a lined box canal, with negligible ecological value. The water level in the canal is determined by the outlet of the vlei in summer, and a combination of outlet level and wet season flows during summer.

The next river along the route is the Zeekoe Canal which is a man-made canal in an extremely degraded condition that provides very little ecological value.

Between the Zeekoe Canal and the pump station of the CFWWTW, the route passes along an existing sandy track that forms the southern boundary of the Rondevlei Reserve, and the CFWWTW. At the eastern end of this section, in the vicinity of the pump station, the route passes south of some degraded, seepage-fed and nutrient enriched ponded areas. The route crosses effluent ponds P8 and P9 of the CFWWTW. East and north-east of the CFWWTW the route traverses a dune/Strandveld area that is now degraded and invaded with woody alien vegetation. Some marshy and boggy areas remain in the dune slack and depressions.

This area, due west of the terminus of the existing R300 and Vanguard Drive, has wetlands which were previously identified. Post-1999 the area has been extensively mined for sand and clay, and is now seriously degraded. The remaining wet areas have no conservation value as wetlands *per se*.

b. Sector 2

At the existing interchange between the R300 and Vanguard Drive, an area exists that has retained some groundwater-fed wetland nodes within the cloverleaf reserves. The next sites of note along this route are where the existing road crosses the Kuils River at Bottelary Road and where it crosses near it at the N1 interchange. The water quality of the Kuils River in the study area is not very high and the river exists in a D-category (= Low Ecological Importance and Sensitivity).

c. Sector 3

Between the N1 and Fairtrees Road the route would be aligned to the east of the river, presumably above the riparian zone. Although the Kuils River exists in a D-category (= Low Ecological Importance and Sensitivity), these upper reaches represent the best remaining condition for the entire river.

The headwaters of the southern arm of a tributary of the Mosselbank River rises in the area near Wellington Road, and then flows east and north towards the Mosselbank. The creation of drainage lines on both sides of the road have somewhat altered the area, with more natural seasonal stream character being evident towards the east.

On the farm Phisantekraal, the route crosses a stream line (northern arm of the tributary of the Mosselbank River). The crossing occurs just below a large farm dam that has degraded the natural character of the area. Downstream of the dam, agricultural activities encroach to within a few metres of the stream.

North of Phisantekraal, the route traverses hilly agricultural lands devoted to animal husbandry (dairy farming), wheat, pastures and some viticulture. The routes intersect a number of aquatic environments, chiefly a number of stream drainage lines (12 sites), the Diep River and a combined wetland/stream site. The environment traversed by the route is highly modified in terms of landuse and almost without exception, the stream drainage sites are moderately to severely impacted by agricultural activities, but nonetheless form part of the greater local catchment discharging to the Diep River. Furthermore, these zones provide the only vestiges of remnant natural vegetation and habitat within the local landscape.

8.1.6 Botany

The proposed road falls entirely within the lowland area of the Cape Metropolitan Area (CMA), and the natural vegetation in this area has long been identified as highly threatened and supporting numerous rare and locally endemic plant species. The area concerned is often known as the Cape Flats, this being a subset of the wider region known in botanical terms as the Cape Lowlands (being all areas under about 300 masl from Piketberg to Cape Town to Albertinia). Due primarily to rapid urbanisation, agriculture, and alien plant invasions the extent of natural vegetation on the Cape Flats has declined very rapidly over the last thirty years, and many species confined to the area have now become globally rare and are listed in the Red Data Book (RDB) of threatened plant species. As an indication of the degree of threat to the Cape Flats flora, it should be noted that the

Cape Flats has contributed a disproportionately large (10%) of the total plant extinctions in South Africa.

The main broad vegetation types found within the study area are Cape Flats Fynbos/Thicket Mosaic (also known as Cape Flats Dune Thicket) (Figure 8.1), Blackheath Sand Plain Fynbos, Boland Renosterveld (Figure 8.2), and Langebaan Fynbos/Thicket Mosaic (also known as Strandveld; categories as mapped by the CAPE project). Recent studies have shown that the majority of the lowland vegetation types found within the CMA are critically threatened and severely underrepresented in terms of conservation areas. The CAPE (Cape Action Plan for the Environment) project is an internationally funded, innovative, objective approach to assessing the threats to natural habitats in the Cape Floral Region, and has, as one of its goals, adequate conservation planning for the area. Two of its core tenets are the concepts of Irreplaceability (how much of the remaining natural habitat is critical in order to achieve the conservation "targets") and Vulnerability (the degree of threat posed by factors such as urbanisation, alien plants, and agriculture). These studies have shown that most of the vegetation types on the Cape Flats (namely Cape Flats Fynbos/Thicket Mosaic, Blackheath Sand Plain Fynbos, and Boland Coast Renosterveld) have both Vulnerability and Irreplaceability values of 100%, and that all remaining examples of these natural habitats need to be conserved in order to achieve the designated conservation targets.

a. Sector 1

The majority of the natural vegetation in this sector is Cape Flats Fynbos/Thicket Mosaic, with small elements of Blackheath Sand Plain Fynbos.

From the Westlake Interchange to Main Road, there is no natural vegetation remaining. Between the railway and the Main Road is an area of saline wetland, with seasonally damp, non-saline fringes. The drier edges along the northern boundary support patches of Cape Flats Dune Thicket. Over 100 indigenous plant species were found in the area, and the area was given a high regional conservation value, noting a number of unique elements. There are a number of patches of high quality natural vegetation within the sector that require attention. One of these patches is an area that supports a viable population of one of the Cape Flats' rarest species — *Passerine paludose* ("Endangered" RDB status). Much of the area has been degraded by alien plant invasions subsequent to disturbance (usually by earthmoving machinery), and most of these areas are of Low conservation value.

East of the railway line is a 300m-long strip of natural CAPE Flats Fynbos/Thicket Mosaic of interest in that it provides habitat for numerous animals and birds. Botanically, the significance of this strip is Moderate. No RDB or locally endemic species were recorded here. To the east of this area, up to Prince George Drive, is bulldozed ground of no botanical value.

Between Prince George Drive and Pelican Park, the alignment cuts between the southern end of Rondevlei and the northern end of Capricorn Park. Much of the area has been degraded by alien plant invasions subsequent to disturbance (usually by earthmoving machinery), and most of these areas are of Low conservation value.

The vegetation in the Pelican Park area (between the CFWWTW and Strandfontein Road) is mostly in very good condition and supports at least two RDB species (*Satyrium carneum*, *Euphorbia caputmedusae* ssp. *marlothiana*), with a number of other rare or localised species recorded (*Lessertia argentea*, *Passerina paludosa*) just south of alignment. This large patch of natural vegetation has a High regional conservation value, and extends up to 1km south of the alignment, with the bulk of the valuable natural vegetation lying south of the alignment.

Immediately east of Strandfontein Road, south of the proposed alignment, and west of Strandfontein suburb, is a Local Nature Reserve with Fynbos/Thicket Mosaic of Moderate – High regional conservation value. North of the Strandfontein suburb, the proposed alignment runs through good quality Cape Flats Fynbos/Thicket Mosaic which is relatively undisturbed and of Moderate to High conservation value. It is more the general habitat that is important here, rather than any individual rare species.

Between Strandfontein and the Westgate Interchange much of the vegetation has been burned, and would also have supported a dense (>50%) cover of *Acacia cyclops*. There is also a large sandy area here that appears to have been an agricultural area, with a sand mine in the northern part. The entire area is of Low conservation value and is unlikely to support any valuable species.

There is a patch of Moderate conservation value Fynbos/Thicket Mosaic in the triangle formed by the proposed alignment, Vanguard Drive, and the extension of Wespoort Road. No RDB species are likely to be present in this area.

b. Sector 2

The original vegetation in this area would have been Cape Flats Fynbos/Thicket Mosaic, interspersed with numerous wetland areas due to the shallow water table. Soils are slightly alkaline white sands. Virtually all the natural vegetation in this area has been destroyed by development in this densely populated portion of the Cape Flats. There is a 30m-wide strip of natural wetland vegetation along the southern edge of the existing R300 at the Vanguard Drive intersection. A single RDB species (*Muraltia mitior*) was recorded here, and the wetland habitat is in remarkably good condition.

Some of the narrow strips of natural vegetation within the existing R300 road reserve are conservation worthy (Moderate conservation value, with no rare species). One such area is the Hindle Road interchange, and patches along the road north of this.

c. Sector 3

The soils in this area are primarily clays and loams derived from Malmesbury shales, although these have been overlain by sandy sediments in certain areas, such as along the Kuils River. The natural vegetation in most of this area would have been a form of Boland Renosterveld, with substantial portions having a shallow water table, such as in the vicinity of the Kuils River, and along Wellington Road. Agriculture and urbanisation have had a huge impact on this vegetation type within the CMA. The remaining revegetation is found mostly in various road reserves, on hills, and in some small reserves. The vegetation along the Kuils River is generally heavily invaded by alien species such as kikuyu grass (*Pennisetum clandestinum*).

From De Bron road to just north of Madeliefie Road there is no significant natural vegetation along the alignment.

From just north of Madeliefie Road, there is an increasing amount of Boland Renosterveld vegetation on the seasonally wet clays prevalent in this area. The vegetation is moderately disturbed, and has been invaded by alien grasses, but supports at least one listed RDB species (*Athanasia capitata*), and there is a low - moderate likelihood of others not recorded during the survey (such as *Gladiolus watsonius*). This area has a Moderate – High regional conservation value, and is considered 100% irreplaceable in terms of CAPE.

The road reserve of the Wellington Road Interchange (from 300m south of Wellington Road to the Phisantekraal farm boundary) is the highest priority plant conservation area on the entire route of the proposed road, and supports at least eight listed or proposed RDB species (*Athanasia capitata*, *Arctotheca forbesiana*, *Ischyrolepis duthieae*, *Lampranthus fillicaulis*, *Lampranthus leptaleon*, *Chondropetalum rectum*, *Gladiolus watsonius*, and *Psoralea alata*). The number of rare plants is exceptionally high here, as this is a seasonally wet clay area supporting Boland Renosterveld, a rare habitat that has been all but destroyed throughout the region, and the remaining patches are thus refuges for many rare species and should enjoy the highest conservation priority within the CCT.

The Wellington Road Interchange area has a Very High local, regional, and global conservation value.

Over the majority of the route, the original natural vegetation would have been Swartland Renosterveld on the predominant shale-derived loams, with elements of Blackheath Sandplain

Fynbos coming in on the sands in the vicinity of the N7. However, due to intense agricultural pressure there is now minimal natural vegetation remaining in the area, and the route itself crosses no significant undisturbed patches of natural vegetation.

Where the proposed road crosses the Diep River, high levels of disturbance and eutrophication have largely destroyed any Renosterveld vegetation. The river valley has also been invaded by Port Jackson willow (*Acacia saligna*) and kikuyu grass. No rare species are likely to occur here.

East of Van Schoorsdrift Road, the road enters a dense gum (*Eucalyptus*) plantation that also has dense stands of alien *Acacia saligna* on its edges. Very few indigenous plants persist in this area. West of Van Schoorsdrift Road the gum plantation continues, only to be replaced further on by a very dense stand of *Acacia saligna* (90% cover) in what may once have been disturbed ground. Remnant Renosterveld vegetation is found in this area, with elements of Sandplain Fynbos, with species such as *Calopsis viminea*, *Berkheya armata*, *Babiana sp.*, and *Ischyrolepis capensis* noted. There is a Moderate – High likelihood of rare species occurring in this area (e.g. *Erica ferrea*, *Leucadendron thymifolium*), but the area is already highly disturbed, fragmented, poorly managed, and unlikely to have much of a conservation future. Although Swartland Renosterveld has a 100% Irreplaceability rating in terms of the CAPE project targets, this area does not present much of an opportunity for effective long-term conservation due to the abovementioned factors.

8.1.7 Avifauna

a. Sector 1

The alignment of the proposed road traverses through areas affected by urbanisation and alien vegetation infestations and the route lies adjacent to important wetlands such as those of the Zandvlei Nature Reserve, Zeekoevlei Nature Reserve, Rondevlei Nature Reserve and the CFWWTW.

Greywing Francolin (*Francolinus africanus*) is still present in this area of dune fynbos north of Zandvlei. Generally, they are highly sensitive to disturbance and in this case, it would seem that the remnant populations have become habituated to suburban disturbance.

Other bird species expected in this sector are summarised in the species list for Rondevlei. It would be reasonable to assume that, with the exception of vagrants and rare over-flights, this list would hold true for this entire sector.

b. Sector 2

This area is practically fully urbanised and the bird species occurring here at present are those associated with an urban environment.

c. Sector 3

From the Stellenberg Interchange on the N1 to Wellington Road in Durbanville, the proposed route is located within an area that is fully urbanised and extensively altered. The routing of the proposed road is hemmed in by residential developments and fenced off with vibracrete walls. Immediately to the west between the N2 and De Villiers Road, remnants of wetlands still occur albeit extensively invaded by alien plant species. Stormwater spillage, solid waste disposal and grazing by cattle contribute to the disturbances in the area. These wetlands still support a number of bird species. The species that are found or expected to occur commonly in this area, are those generally associated with urban to peri-urban areas with wetland patches.

The most important habitats for birds north of Durbanville are a few remnants of renosterveld still remaining at Km 8 and 9 and the crossing of the Diep River. It must also be borne in mind that many species of birds have adapted to anthropomorphic habitats and some may even have benefited from agricultural activities.

8.1.8 Herpetofauna

a. Sector 1

A total of 10 amphibians and 30 reptiles (19 snakes, 9 lizards, 2 chelonians) have either been recorded or are likely to occur in the study area. However, mainly due to urban development,

associated threats and general habitat degradation, this area no longer provides ideal habitat for some of these species and they therefore only occur in low numbers with poor long-term viability.

No amphibian or reptile is endemic to the sector 1 area, but two species are endemic to the region within a 100-kilometre radius of the proposed ring road area. The remaining species have wider distribution ranges. Amphibian and reptile species in the Sector 1 area therefore have relatively wide distribution ranges in relation to the extent of the road development area.

The most significant areas of the route alignment for amphibians and reptiles are the areas between the Main Road and Prince George Drive, partly the area between Prince George Drive and the CFWWTW (where it passes through undeveloped zones), and the area between the CFWWTW and Strandfontein Road.

Threatened species that occur are the:

- Cape sand snake (*Psammophis leightoni leightoni*) - VULNERABLE category in most recent (1988) edition of the South African RDB - Reptiles and Amphibians. This snake is restricted to the predominantly sandy western coastal lowlands between Muizenberg and Eerste River on the Cape Flats and the Darling district on the West Coast - a distribution range spanning a distance of about 80 kilometres. This is also a region undergoing rapid development and the survival of this snake depends to an ever increasing degree on the adequate conservation of the diminishing stretches of natural veld within its restricted distribution range. Owing to development pressure in particular, this snake is rarely seen on the Cape Flats.
- Yellowbellied house snake (*Lamprophis fuscus*) - RARE category in most recent (1988) edition of the South African RDB - Reptiles and Amphibians. This species has a wide but scattered distribution extending from the south-western Cape northeastwardly into the eastern half of the country. There are relatively few Cape Flats records of this species and it is rarely seen.
- Western leopard toad (*Bufo pantherinus* - formerly *B. pardalis*) - ENDANGERED in Conservation Assessment and Management Plan report for Southern African Frogs, published in 2001. The western leopard toad has a patchy distribution restricted to the south-western Cape. Besides the Cape Flats and Cape Peninsula, it occurs in the Betty's Bay/Kleinmond region and in the region of Stanford and Gansbaai. It breeds in semi-permanent to permanent water bodies such as ponds, dams, vleis, and pools in sluggish rivers. However, it only enters these water bodies during the breeding season and, in fact, is often found far from water. One of the main problems for the species, besides the filling in or drainage of water bodies, is that during the breeding season its migration to breeding sites is restricted by walls and roads and general urban development. During this time many adults in prime breeding condition succumb to road traffic. In the long-term this could seriously threaten the survival of local breeding populations. This, in particular, needs to be taken into account with the development of this road. The most important areas for the leopard toad along the Sector 1 route are the area between the Main Road and Prince George Drive, the area between Prince George Drive and the CFWWTW, and a two-kilometre stretch beyond the CFWWTW (to the east and which crosses Strandfontein Road).

b. Sector 2

A total of 9 amphibians and 28 reptiles (15 snakes, 10 lizards, 3 chelonians) have either been recorded or are likely to occur in this area. However, mainly due to urban development, associated threats and general habitat degradation, this area no longer provides ideal habitat for a number of these species and they therefore only occur in low numbers with poor long-term viability.

No amphibian or reptile is either endemic to this particular area or the region within a 100-kilometre radius of the proposed road area. Amphibian and reptile species in sector 2 have relatively wide distribution ranges in relation to the extent of the road alignment area. The sector 2 area does not appear to support any threatened species.

c. Sector 3

A total of 8 amphibians and 24 reptiles (15 snakes, 7 lizards, 1 land tortoise, 1 terrapin) have either been recorded or are likely to occur in this area. However, the proposed route alignment passes through a landscape modified either by urban development or cultivation. This has generally had a negative effect on amphibians and reptiles by causing habitat loss and degradation, fragmented populations, reduced population numbers and densities, and the loss of certain species. Furthermore, the species in this area have relatively wide distribution ranges, which extend beyond a 100-kilometre radius of the proposed alignment. Consequently, this area does not form a significant part of the respective distribution areas of these species and is of little importance in terms of their overall conservation.

Although there is a breeding site of the threatened Cape Caco frog (*Cacosternum capense*) on Spes Bona farm, no threatened species, habitats or localities are known to be in the area of the proposed alignment.

8.1.9 Mammals

a. Sector 1

Most of the mammal species expected to occur in this sector are common and have a wide distribution range. Brant's climbing mouse (*Dendromus mesomelas*) however, is classified as rare, due to its discontinuous distribution. The preferred habitat of Brant's climbing mouse is in rank vegetation near water. The African wild cat (*Felis lybica*), classified as vulnerable due to interbreeding with the domestic cat. This cat is still widespread and the reason for its status as vulnerable is due to interbreeding with the domestic cat.

Although still widespread, the Cape clawless otter (*Aonyx capensis*) is sensitive to pollution and its habitat is increasingly destroyed by development and agriculture.

The introduced population of Hippopotamus (*Hippopotamus amphibious*) at the Rondevlei Nature Reserve presently moves within the nature reserve. Envisaged future expansions of the reserve would allow movement between the Rondevlei Nature Reserve and the Zeekoevlei Nature Reserve or the CFWWTW. The social structure of the hippo group is of such a nature that most of the calves born have been killed by adult bulls and a plan to introduce more hippos to correct the social structure is far advanced. An increase in hippo numbers and the resultant demand for more feeding areas should lead to increased movement between the various water bodies, which would be separated by the proposed route.

b. Sector 2

This area is practically fully urbanised and the mammal species occurring here at present are those associated with an urban environment.

c. Sector 3

The area from Wellington Road to the N7/Vissershok Interchange passes almost entirely through an area extensively converted to agriculture.

The most important habitat for mammals in this sector are remnants of renosterveld still remaining north of Durbanville and the crossing of the Diep River. Some species of small mammals have however adapted to the agriculturally converted habitats. None of the mammal species expected to occur here are rare or endangered or even scarce and are all well adapted to urbanisation.

8.1.10 Entomology

a. Sector 1

South of the initial stretch of the proposed road between Main Road and Prince George Drive, the Strandveld vegetation, fairly free from aliens, supports 43 of the listed 49 species of butterflies, many of these butterflies also occur in gardens in the build-up areas north of this stretch. Natural food-plants of butterflies present include many grass species, such as *Imperata cylindrica*. The butterfly *Kedestes lenis* is restricted to the road reserve itself.

Beyond Prince George Drive towards and up to Strandfontein Road, south of Zeekoevlei and north of the CFWWTW, the Strandveld vegetation appears impoverished and contains much alien vegetation. Nevertheless, 43 of the listed 49 species of butterflies are found, or expected to be found, in this stretch. Of the 43, *Mylothris agathina* is now absent, but *Kedestes barbarae bunta* as well as *K. lenis* are present. *K. barbarae bunta* is a butterfly with an extremely restricted habitat and is confined to an area south of the proposed road. Its habitat is severely threatened by the invasion of alien vegetation and frequent fires.

The stretch beyond Strandfontein Road towards Vanguard Drive Interchange traverses urban and farming areas, with little natural vegetation remaining. The reduction of suitable natural food-plants is mirrored by the reduced presence of butterflies, the same 28 of the 49 species expected as listed for section 3. All these butterflies are fairly common all along the route of the proposed road. Many, if not most, butterflies are able to utilise as suitable food-plants various cultivated exotics, weeds and grasses found along and adjoining this part of the route.

b. Sector 2

The established road, traverses mainly urban and build-up areas and contains very little undisturbed original vegetation. The reduction in suitable food-plants corresponds with that of the number of species of butterflies. All species of butterflies expected in this area, except *Pelopidas thrax inconspicua*, are present along the entire length of the existing road.

c. Sector 3

Between the N1 and Wellington Road, the proposed route passes through established residential areas. The road reserve is fairly wide and many suitable food-plants, especially grasses, are present. As expected, all of the 27 butterfly species listed are found all along the established as well as proposed part of the entire road. Many suitable host-plants for these insects are also provided in the adjoining suburban gardens.

North of Wellington Road, the planned route runs along an area that has been disturbed for a considerable time by intense farming activities.

Some natural renosterveld vegetation occurs in patches. The small wetland close to the crossing of Malanshoogte Road and the re-aligned route and the Diep River contain riverine vegetation, in places invaded by exotic *Acacias* or *Eucalyptus*. Many of these patches of suitable habitats form important corridors for many animals, including insects. The diversity of suitable habitat and vegetation is also reflected by the high number (34) of butterfly species present. Most of these butterflies are common. Dragonflies are fairly specific as to habitat and those reported here have a distribution well beyond the Western Cape.

8.2 THE SOCIO-ECONOMIC ENVIRONMENT

8.2.1 Archaeology

Overall, the environment through which the entire proposed road runs, is not considered to be archaeologically sensitive. However, there are some items and sites of interest in sectors 1 and 3.

a. Sector 1

A large section of the proposed route between Vrygrond and the Philippi dune mining area is heavily infested with alien vegetation, resulting in low archaeological visibility.

A thin scatter of highly fragmented shellfish remains and two pieces of ostrich eggshell were located on a highly disturbed sand dune alongside Strandfontein Road.

b. Sector 3

The following items were identified:

- A few Middle Stone Age tools were located in the road reserve between De Bron Road and De Villiers Road (Durbanville). The road reserve between De Bron Road and the proposed Wellington Interchange (R302) is severely altered and modified.

- A modern farm shed is located about 250m south of De Bron Road, alongside the Kuils River.
- Relatively large numbers of Early and Middle Stone Age tools were located between the proposed Wellington Interchange and the N7 (Highway Section 7). The route crosses mainly agricultural lands that have been altered and modified as a result of intensive farming practices. The tools were all found in a severely disturbed context and have been assigned low importance ratings.
- Eight farm homesteads occur between the Wellington Interchange (R302) and the N7, of which six are considered to be historically significant. The proposed road corridor, however, is sited a considerable distance from the farm homesteads, most of which are also completely or partially surrounded by large stands of Bluegum trees, thus minimising the visual impact of the proposed road even further.
- Fragmented shellfish remains were located between the West Coast Road and Otto du Plessis Drive.
- The proposed Bloubergstrand East-West Arterial crosses the southern portion of the farm Bloubergsvlei, site of the historic Battle of Blaauwberg (1806). A large number of military graves occur in the area, whose precise locations are unknown.

8.2.2 Social Fabric

The proposed road cuts through a broad spectrum of metropolitan social environments, some of which are home to middle class residents, and some of which accommodate some of the poorest communities in the Cape Peninsula. The route runs through or passes alongside large areas of the Cape Flats. The existing R300 is used extensively by residents of Sector 1 and 2 areas. The Rondevlei and Zeekoevlei areas, which would be bisected by the proposed highway, are open space and environmental resources for these communities.

Note that the demographic data in this chapter is taken from the 1996 census, as the social impact assessment was completed before the results of the 2001 census were available.

a. Sector 1

The main localities along this section of the proposed road are:

- Kirstenhof
- Lavender Hill
- Pelican Park
- Zeekoevlei
- Lakeside
- Marina Da Gama
- Muizenberg
- Vrygrond
- Zerilda Park
- Woodlands
- Weltevreden Valley
- Westridge
- Rocklands
- Strandfontein
- Montagu's Gift

Sector 1 of this development has a high population density (166 030 residents).

Levels of employment are low, with 35% of the 'other' (White, Asian or Indian), 39% of the coloured and 40% of the African populations being unemployed. The vast majority of residents (81%) are in the coloured category. The dependency ratios are relatively high (2.2 for 'other', 2.37 for coloured and 3.4 for African). A significant majority of residents have a monthly income below R1000 (52% of the 'other', 69% of the coloured and 80% of the African population). Employment mobility is limited, with 76% of the coloured and 54% of the African population having qualifications less than matric.

A relatively high percentage of residents are living in informal dwellings, especially in Pelican Park and Vrygrond, where 50% of residents live in shacks.

A feature of the social fabric of sector 1 is the high crime level, aggravated by gangsterism, territorialism and racial divisions. There are 122 reported gangs in the Mitchell's Plain police station area, which covers 18 suburbs from Strandfontein to Mandalay (which falls into the existing R300 section).

Other social conditions, are high levels of teenage pregnancy, woman and child abuse and negative health conditions.

The following areas are particularly vulnerable:

- Weltevreden Valley is an informal settlement area, consisting of Hyde Park, London Village and Colorado Park. The majority of residents are African, of whom 88% earn an income below R1000 a month. The dependency ratio is 6, which is exceptionally high.
- Vrygrond consists entirely of informal dwellings. The area has a 50% coloured and 50% African population. The majority (51%) of the African population are unemployed. Vrygrond is the target of racism from the Seawind community.
- Lavender Hill consists mostly of coloured residents, of whom 49% are unemployed. The vast majority earn an income of less than R1000 a month. There are two significant gangs in Lavender Hill.
- Pelican Park has an 'other' (mostly Indian) majority. Unemployment levels are high amongst this category here (44%), as is the dependency ratio (32%). The majority of residents (52%) have an income below R1000 per month.
- Rocklands is the area with the highest density and the highest dependency ratios amongst the coloured population along this phase. The vast majority earn an income below R1000 a month.
- Strandfontein has a high crime rate.
- The social fabric of Muizenberg is becoming more vulnerable and volatile as the area degrades. South of the Lavender Hill Sports Field (north side of Muizenberg) and in other parts of Muizenberg, communities of African immigrants have high incidences of unemployment, overcrowding, drug and other substance abuse, making them festering spots for crime.
- The Zeekoevlei, Rondevlei and Zandvlei nature reserves along sector 1 are an important social resource for the surrounding communities. Apart from being important recreational centres and giving residents access to a natural environment, these nature reserves are also the home of significant environmental education programmes.

Economic Activity Along Sector 1: The proposed route initially runs through more middle and higher income areas of Westlake ending in lower income residential areas. The route starts in the vicinity of the Westlake office and industrial park adjacent to the Westlake golfcourse. It crosses Main Road, where a few small businesses are located, and passes through residential areas to the north of Zandvlei until Prince George Drive. The route then passes to the north of Capricorn industrial park, which was established in the mid 1990s initially targeting high technology industries. Growth at the park has been slower than was hoped for with poor access being one of the reasons for this. The route then passes through the settling ponds of the CFWWTW, to the south of Zeekoevlei and Rondevlei. Both these vleis and the areas surrounding them are important areas for conservation, recreation and environmental education. The route then passes between the Strandfontein residential area and the southern boundary of Philippi, then, through mostly vacant lands, currently being used for sand mining in parts. The sector ends by skirting around the eastern boundary of the PHA.

b. Sector 2

The main localities along this proposed route are:

- Bongweni
- Iwezi Park
- Tembani
- Mandalay

- Lentegeur
- Philippi Non Urban
- Browns Farm
- Belhar
- Delft
- Bellville Industria
- Glen Haven
- Labiance
- Bentwood Park
- Diepwater
- Driftsands
- Hagley
- Kuilsrivier
- Mfuleni
- Sarepta

This area has the highest population density along the entire road (249 878 residents in 1996). The social profile of the area is similar to that of sector 1. Unemployment levels are high, with 34% of the 'other', 40% of the coloured and 71% of the African population being unemployed. Dependency ratios are high (2.3 for 'other', 2.9 for coloured and 3.5 for African residents). The vast majority of residents, 52% of 'other', 71% of coloured and 84% of African residents earn an income below R1000 a month. Employment mobility is limited by lack of education, with 52% of the other, and 70% of African and coloured residents having qualifications below matric level. This is the area along the road with the highest percentage of informal houses, with 6% of the coloured and 76% of the African residents residing in shacks. Since the 1996 census, informal settlements have sprung up in Belhar, Delft and the N2/R300 crossing.

Apart from the factors mentioned under sector 1, the following crime factors are significant: incidences of the stoning of cars on the R300/N2 intersection and territorial taxi wars (Delft, Belhar and Khayelitsha).

The R300 provides vital access to work, social networks and amenities to the communities of Mitchells Plain. In addition, the communities of Delft, Khayelitsha, Belhar and Blue Downs make extensive use of the R300 to get to work, family, shops, etc. Many residents of the Cape Flats area were relocated to their current area during the time of the Group Areas Act, and still rely heavily on public transport for access to family, places of worship and other areas of cultural or religious significance.

The existing R300 is used by a large number of taxis, which serve as the main form of transport for lower income groups from the surrounding communities.

Economic Activity Along The Sector 2: The accessibility that the route offers has played a role in the establishment of numerous industrial and retail area. The existing R300 starts at the intersection of Vanguard Drive and the N2. The Philippi industrial area is situated approximately two kilometres north of the R300 along Stock Road. A major transport hub for trains, buses and taxis is at an advanced stage of construction, where Stock Road branches off from the R300. It passes through the residential areas at Weltevreden Valley, Woodlands, Philippi and Mandalay. The R300 then passes Driftsands, Wesbank, Delft, Belhar and then runs between the Kuils River residential area and Bellville South Industrial/Sack's Circle industrial area.

After crossing Van Riebeeck Road/Strand Street, the R300 passes Access City south of Stikland. Van Riebeeck Road is the main retail spine for Kuils River and leads to Blackheath industrial area further to the south-east, but still relatively close to the R300. Strand Street is also a commercial spine and heads to the north-east before becoming Voortrekker Road after approximately three kilometres.

The R300 passes Stikland industrial area (west). The Brackenfell industrial area is also relatively close by, just over two kilometres to the east. The R300 runs through areas before ending at the Stellenberg Interchange.

c. Sector 3 (Section 6) And Sector 4

Section 6 and sector 4 fall mainly within the Tygerberg municipal area. The main suburbs along these sections of the proposed road are:

- Belhar
- Durbanville
- Eversdal
- La Rochelle
- Morning Star
- Oak Glen
- Stellenberg
- Vredeklouf

The communities here are situated in suburbs on the urban fringe, some of which have a semi-rural character. The vast majority (90%) of the inhabitants are classified as "other" (white, Asian or Indian) in the 1996 census data, 29% of which are unemployed. All residents in this category have formal housing. These factors indicate relatively high levels of livelihood security. However, levels of income are low amongst residents in this category, with 47% earning a monthly income of less than R1000. For class "other", residents in the lower income levels, who are mainly situated in the suburbs of Durbanville and Eversdal, access to formal housing and the value of their properties are likely to be an important source of livelihood security.

On the other end of the scale, a relatively large percentage of residents in the category "other" have high levels of livelihood security, with 27% earning an income above R6000. Education levels are high, with 34% having matric and 30% a tertiary education. Matriculation and tertiary qualifications significantly improve the employment mobility of residents.

Of the remaining 10% of the population in the sectors 3 and 4 area, 8% are defined as coloured and 2% as African. A large percentage of the overall population in sectors 3 and 4 (62%) is female. This may be because the majority of African and coloured residents are women employed in domestic service. Levels of employment are high (81% of the coloured population, 87% of the African population), but the majority (71% of the coloured population, 69% of the African population) earn a monthly income of less than R1000. Education levels are relatively low, with 69% of the coloured and 60% of the African population being without matric. The livelihood security of African and coloured women who are employed in domestic service would depend on their continued employment and the provision of accommodation by their employers. Few coloured (6%) and African (3%) residents live in informal dwellings, which are mostly situated in the suburb of Morningstar.

The 1996 census data indicates low dependency ratios for African (1,6) and coloured (1,7) residents. This information could be interpreted as indicating that the livelihood security of residents in these categories would not affect those of many others. However, this definition is based solely on the amount of employed and unemployed residents in the specific enumerator area. Most domestic servants are likely to have children and other dependents (up to ten people) in other suburbs.

Economic Activity Along The Sector 4 And Sector 3 (Section 6): This section of the route would follow the existing road reserve starting at the Stellenberg Interchange and would be bordered by residential areas and some open lands.

d. Sector 3 (Sections 7 And 8)

The main localities along this section of the proposed road are farmlands. Other places included are:

- Melkbosstrand
- Philadelphia

- Atlantis Industrial
- Malmesbury NU (7 Enumerator Areas)

e. Section 7

This area consists mostly of private land, owned by six farmers and three development companies. The population density is relatively low (total population 8108). The population consists mainly of farmers (34% in the category 'other') and farm workers (49% coloured and 17% African residents).

The farms in this area are mostly long standing family farms. The farm Welgegund, for instance, has been in the Loubser family for 130 years, and the current farmer is the fifth generation Loubser on the farm. These old family farms have established homesteads for farmers and farm workers, as well as significant other infrastructure, such as dairies and factories.

Census data (1996) indicates that the level of income amongst the 'other' population group is low, with 50% earning an income of less than R1000 a month. The livelihood security of farm residents in all three categories is likely to depend on that of their access to farm infrastructure and accommodation rather than on cash income.

These are high intensity farming areas. The productive value of vineyards in this area has been estimated at R50 000 per hectare, and that of wheat and cattle farming slightly less. Every hectare of arable land contributes to the feasibility of these farming enterprises.

The focus on farming activity means that levels of employment are relatively high in this area (73% of 'other', 75% of coloured and 70% of African residents are employed). The low levels of schooling amongst coloured and African residents (96% of whom do not have matric) indicates that their work and livelihood security depends on their continued employment by farmers in the area. Levels of income are low (88% of coloured and 78% of African residents earn less than R1000 per month), but the majority have formal accommodation on farms (92% of coloured and 73% of African residents).

The high percentage of men (63%) amongst the African population indicates that male African workers are living without their families, whereas coloured workers are living with their families (as indicated by the even gender distribution in this category). The farms also provide employment for seasonal workers, some of whom travel to the farms from Bellville South and Kraaifontein, and some of whom are subcontracted by companies in the area that provide seasonal work force.

f. Section 8

The population of this area is relatively small (total 9179). The majority of residents are in the category 'other' (67%) and residing in Melkbosstrand, a holiday resort town on the coast.

The most vulnerable communities in this phase are those residing in the Malmesbury non-urban enumerator area. In this area, 45% of people in the category 'other', and 37% of the coloured population, are unemployed. The level of income is low, with 87% of the coloured population and 75% of the African population earning an income below R1000. The majority of informal dwellings in sector 3 are located in this area (7% of the coloured and 3% of the African population live in shacks).

Melkbosstrand residents also have low-income levels, with 47% of the 'other' population (which comprises the majority of people in Melkbosstrand) earning an income below R1000 per month. Amongst the African community, 22% of people are unemployed. There are a small number of informal dwellings (2% of the coloured population live in shacks).

Economic Activity Along Sector 3 (Sections 7 And 8): The dominant economic activity along this section of the route is farming. There are 6 relatively large commercial farms along the section. Farmers are involved in the production of wheat and grapes and in the rearing of cattle and sheep. There is also a dairy where lucerne is grown. The farms have been established for

generations and while they are relatively capital intensive, they still provide significant employment opportunities.

Bordering on the western side of the N7 between the Melkbosstrand and Bloubergstrand East-West Arterial alternatives is Morningstar, a relatively small community of approximately 42 occupied smallholdings situated to the north of the Vissershok landfill site. Most of the people residing in the area are attracted to its semi-rural character and associated tranquillity. There is a particular focus on equestrian activities in the area.

g. Sector 5 (Cape Flats Freeway Extension) (CFFE)

The PHA is the main environment through which the Philippi Link Road would run. This area consists of 14000 hectares of horticultural land. The planning consensus is that the PHA should be preserved as it represents a strategic asset providing affordable fresh vegetables for the Cape Metropolitan Area (CMA). The road also runs through the residential areas of Grassy Park and Parkwood.

A socio-economic data in the South Peninsula sub-regional plan shows the Parkwood and Montague's Gift community in the vicinity of the road corridor to be under stress. These suburbs are bounded by Klip Road in the south and Hyde Road and the proposed rail corridor in the north.

The population and housing densities for the area are more than double that for the South Peninsula as a whole. Dependency level is about average for the South Peninsula. Parkwood has an average of five persons per dwelling versus four on average for the South Peninsula. Unemployment is higher (19%) in the Parkwood area than the average (12%) for the South Peninsula. About 29% of households in Parkwood had less than R1000/month income in 1996. This is slightly worse than average (27%) for the South Peninsula, but not as bad as Lavender Hill (41%) and Retreat (45%). Grassy Park and Lotus River to the south of Klip Road show better social indicators.

Gang activity is a problem, particularly in double storey council-owned rented accommodation such as that found in the Parkwood Estate. It is for this reason that the community favour single dwelling residential housing development of vacant land.

The PHA has a much lower population density than the adjacent residential areas of Grassy Park and Mitchells Plain.

The majority are employed in low skill agricultural occupations, with a fifth more skilled agricultural occupations. Other smaller sources of employment include crafts, machine operators, service workers and a small group of managers, professionals and technicians.

Unemployment in the area is low compared with adjacent suburbs, while the proportion of people who have completed secondary education is lower than adjacent suburbs.

In the 1996 census, two thirds of residents indicated that they were in the 'colour' population group, with the remainder split between 'white' and 'black' and a very small Indian minority. The larger horticultural farms are predominantly 'white' owned.

Half the population live in houses on separate stands, while a fifth live in informal dwellings and the remainder in rooms on other property or semi-detached houses. These informal dwellings, which lack basic services, contribute to reported high levels of illness, particularly tuberculosis. Access to healthcare is limited to mobile clinics on farms.

There is no local police station in the PHA and farm security is negatively impacted by the amount of through traffic and lack of street lighting. A shortage of educational, community and facilities for the aged in the PHA is reported.

Economic Activity Along The Route: The Philippi route passes between Princess Vlei and Rondevlei. It then heads north along Prince George Drive, proceeds through residential areas and ends by passing through the northern portion of the Philippi agricultural area.

8.2.3 The Proposed False Bay Ecology Park (FBEP)

The area known as the False Bay Ecology Park (FBEP) is similar to that which was proposed to be promulgated as the False Bay Coastal Park Protected Natural Environment. The concept was first proposed in the "Greening of the City: Open Space and Recreation Plan for Cape Town" in 1982. The FBEP encapsulates the vision of a regional environment, leisure and recreation facility as proposed in the Greening of the City report. The Protected Natural Environment was not supported by the City, due to potential impacts on essential services (like the CFWWTW) in the area.

The FBEP includes the Rondevlei Nature Reserve, Zeekoevlei Nature Reserve and surrounding land, the land strip between Rondevlei and Zeekoevlei Nature Reserves, the CFWWTW, the Coastal Park landfill site and a coastal strip, effectively from Sunrise Circle to Strandfontein. Areas of core botanical importance to the east (in Pelican Park) and to the west (in Capricorn) are envisaged as probable future extensions. The issue of land for housing and conservation in Pelican Park still needs to be resolved.

The proposed park is important from a biodiversity point of view and has been identified as a key node and anchor area in the Biodiversity Network for the city. It is an area where ecological corridors intersect, which is vital for the movement of species and ecological processes. A number of rare and endangered plants occur here, and the wetland system (including the maturation ponds of the CFWWTW is considered to be the 5th most important wetland bird habitat in Southern Africa (it has status as an Important Birding Area of Africa). The proposed park would also offer socio-economic opportunities through environmental education and training and eco-tourism which would be aimed at the disadvantaged communities living in close proximity to the area. The Cape Flats Development Association (CAFDA) is a key element in the vision for the park.

The vision for the FBEP is that it should become one of the leading centres of conservation, environmental education and eco-tourism in the country. Objectives include:

- To conserve and enhance biodiversity;
- To provide and promote environmental education;
- To create recreational and tourism nodes and opportunities;
- To create job opportunities; and
- To achieve financial self-sufficiency of component areas, as appropriate.

A Development and Action Plan was compiled in 2001 to address plans of action, phasing and cost estimates. This document was amended in late 2002. A provisional steering committee was established to contribute to the achievement of the vision and objectives of the FBEP. At this stage, it is not the intention to seek protected area status. Should such status be sought, it may be in the City's transportation interest to exclude the road corridors from the designated protected area and/or include appropriate directives in the proposed park's founding agreement (Reports to sub-councils, March, May and September 2003).

In terms of the proposed road, the recommendations and concerns contained in the abovementioned documents would need to be addressed. Mitigation measures may need to be implemented, in order to minimise impacts on the proposed coastal park.