

CHAPTER 10: SOCIAL IMPACT ASSESSMENT PER SECTOR	9
10.1 ALL SECTORS	9
10.1.1 Archaeology And Heritage.....	9
10.1.2 Economic	9
a. Macroeconomic Impacts	9
Assessment	9
During Construction:	9
Short term:.....	9
Medium term:	10
Long term:	10
Mitigation	10
10.1.3 Noise	10
a. Noise Levels During Construction.....	10
Assessment	10
Mitigation	10
Design	10
Construction	10
10.1.4 Social.....	10
10.1.5 Tourism	10
a. Increased Safety And Security.....	10
Assessment	10
Mitigation	10
b. Creating Access To Nodes For Tourism Development.....	10
Assessment	11
Mitigation	11
c. Toll Fees On Different Types Of Tourists	11
Assessment	11
Mitigation	11
Operation.....	11
10.1.6 Visual.....	11
a. Light Pollution From Road Structures	11
Assessment	11
Mitigation	11
Design	11
b. Visual Impact On Road Reserves And Open Space Surrounding Road Structures.....	12
Assessment	12
Mitigation	12
Construction	12
c. Visual Impact From Interchanges/Intersections With Grade Separation And Toll Plazas	12
Assessment	12
Mitigation	12
Design	12
d. Visual Impact From Mainline Toll Plazas	12
Assessment	12
Mitigation	13
Design	13
Construction	13
10.2 SECTOR 1	13
10.2.1 Archaeology And Heritage.....	13
a. Potential Archaeological Discoveries.....	13
Assessment	13
Mitigation	13
Construction	13
b. Impact On Sense Of Place Of Historical Dwellings	13
Assessment	14
During Construction.....	14
During Operation	14
Mitigation	14
10.2.2 Economic	14
a. Impact On Wetlands In The South And The Proposed False Bay Ecology Park (FBEP).....	14
Assessment	14
Mitigation	14
b. Impact On Business: Accessibility	14

	Assessment	15
	During Construction:	15
	During Operation:	15
	Mitigation	15
	Operation	15
10.2.3	Noise	15
a.	Noise Impact Along Section 1: Simon Van Der Stel (M3) To Prince George Drive	15
	Assessment	15
	Mitigation	15
	Design	15
	Operation	15
b.	Noise Impact Along Section 2: Prince George Drive To Vanguard Drive	15
	Assessment	15
	Mitigation	15
	Design	15
10.2.4	Social	15
a.	Impact On Sense Of Place Of Conservation Areas	15
	Assessment	16
	Mitigation	16
	Design	16
b.	Impact On Environmental Education Programmes	16
	Assessment	16
	Mitigation	16
	Design	16
c.	Impact On Tourist Related Employment Opportunities At The Proposed FBEP	16
	Assessment	16
	Mitigation	16
	Operation	16
d.	Potential Increase In Crime	17
	Assessment	17
	Mitigation	17
	Design	17
	Construction	17
	Construction and Operation	17
e.	Division Of Communities And Barrier Between Residential Areas And Amenities	17
	Assessment	17
	Mitigation	17
	Design	17
f.	Unsafe Road Crossings	17
	Assessment	18
	Mitigation	18
	Design	18
g.	Unpleasant Living Conditions	18
	Assessment	18
	Mitigation	18
	Design	18
h.	Discouragement Of Crime	18
	Assessment	18
	Mitigation	18
10.2.5	Tourism	18
a.	Facilitation Of Tourist Flows	18
	Assessment	18
	Mitigation	18
	Design	18
b.	Dilemma Of Access To The Proposed FBEP	19
	Assessment	19
	Mitigation	19
	Operation	19
c.	Impact On Bird Viewing	19
	Assessment	19
	Mitigation	19
	Design	19
10.2.6	Visual	19
a.	Visual Impact On Quality Of Outdoor Experience	19

Assessment	19
Mitigation	19
Design	19
Construction	19
b. Visual Impact On Adjacent Houses	20
Assessment	20
Mitigation	20
Construction	20
c. Light Intrusion Into Residences	20
Assessment	20
Mitigation	20
Design	20
d. Scars Created Through Dunes	20
Assessment	20
Mitigation	20
Construction	20
e. Limited Visual Absorption	20
Assessment	21
Mitigation	21
Construction	21
f. Change Of Landscape Character	21
Assessment	21
Mitigation	21
Design	21
Construction	21
g. Visual Impact On Residential Area East Of Proposed Main/Steenberg Road Intersection	21
Assessment	21
Mitigation	21
h. Visual Impact On And Light Pollution Affecting Houses At Prince George Drive Interchange	21
Assessment	21
Mitigation	22
Design	22
i. Impact Of Mainline Toll Plaza On Strandfontein Residents	22
Assessment	22
Mitigation	22
Design And Construction	22
j. Visual Impact From Grade Separation At Vanguard Drive Interchange	22
Assessment	22
Mitigation	22
Design And Construction	22
10.3 SECTOR 2	22
10.3.1 Archaeology And Heritage	22
10.3.2 Economic	22
a. Impact On Low Income Commuters	22
Assessment	23
Short Term:	23
Medium Term:	23
Long Term:	23
Mitigation	23
b. Impact On Business: Increased Road User Costs	23
Assessment	23
During Construction:	23
Short Term:	23
Medium Term:	23
Long Term:	23
Mitigation	23
Operation	23
c. Impact On Business: The Willingness Of Customers To Visit Businesses	24
i. Impact On Access City At Van Riebeeck Interchange	24
Assessment	24
During Construction:	24
During Operation:	24
ii. Impact On Business In Stikland, Bellville South, Brackenfell, Blackheath And Philippi	24
Assessment	24

	During Construction:	24
	During Operation:	24
iii.	Impact On Business In Westlake And Capricorn Park	24
	Assessment	24
	During Construction:	24
	During Operation:	24
	Mitigation for i, ii and iii	25
10.3.4	Noise	25
a.	Noise Impact Along Vanguard Drive To The N1 (Existing R300).....	25
	Assessment	25
	Mitigation	25
	Design	25
10.3.5	Social.....	25
a.	Impact On Taxis And Hence Increased Cost Of Road Use For Vulnerable Communities.....	25
	Assessment	25
	Mitigation	25
b.	Unsafe Pedestrian Crossings.....	25
	Assessment	25
	Mitigation	25
	Design	25
	Operation	25
c.	Increased Crime.....	25
	Assessment	26
	Mitigation	26
	Design	26
	Construction and Operation.....	26
d.	Exacerbating Inequality	26
	Assessment	26
	Mitigation	26
	Construction	26
	Design	26
10.3.6	Tourism	26
10.3.7	Visual.....	26
a.	Visual Impact From Toll Plaza At Mitchell's Plain Interchange	26
	Assessment	26
	Mitigation	26
	Design	26
b.	Visual Impact From Toll Plazas At The Swartklip Interchange	26
	Assessment	27
	Mitigation	27
c.	Visual Impact From Toll Plaza At The Hindle Interchange.....	27
	Assessment	27
	Mitigation	27
	Construction	27
d.	Visual Impact From Toll Plaza At The Stellenbosch Interchange.....	27
	Assessment	27
	Mitigation	27
	Construction	27
e.	Visual Impact From Toll Plaza At The Van Riebeeck Interchange	27
	Assessment	27
	Mitigation	27
	Construction	27
f.	Visual Impact From Mainline Toll Plaza Between Stellenbosch And Van Riebeeck Interchange.....	27
	Assessment	28
	Mitigation	28
	Design	28
	Construction	28
10.4	SECTOR 3.....	28
10.4.1	Archaeology And Heritage.....	28
a.	Likelihood Of Archaeological/Historical Remains In Section 6.....	28
	Assessment	28
	Mitigation	28
b.	Likelihood Of Archaeological/Historical Remains In Section 7.....	28
	Assessment	28

	Mitigation	28
	Design	28
10.4.2	Economic	29
a.	Section 7: Financial Impact On Farms (Excluding Lochlynne)	29
	Assessment	29
	Mitigation	29
	Design	29
b.	Section 7: Financial Impact On Lochlynne Farm	29
	Assessment	29
	Mitigation	29
	Design	29
c.	Impact On The Willingness Of Customers To Visit Business In Blouberg	29
	Assessment	29
	During Construction:	29
	During Operation:	29
	Mitigation	29
	Operation	29
10.4.3	Noise	29
a.	Noise Along Section 6: N1 To Wellington Road	29
	Assessment	30
	Mitigation	30
	Design	30
b.	Noise Levels Along Sections 7 And 8: Wellington Road To R27	30
	Assessment	30
	Mitigation	30
	Design	30
10.4.4	Social	30
a.	Section 6: Impact On Sense Of Place	30
	Assessment	30
	Mitigation	30
	Construction	30
b.	Section 6: Potential Devaluation Of Property	30
	Assessment	31
	Mitigation	31
	Construction	31
c.	Section 7: Reduced Value Of Property	31
	Assessment	31
	Mitigation	31
	Design	31
d.	Section 7: Resulting Urbanisation, Change Of Lifestyle, Loss Of Privacy And Rural Atmosphere	31
	Assessment	31
	Mitigation	31
	Construction	31
e.	Section 7: Increased Access To The Peninsula	31
	Assessment	31
	Mitigation	31
f.	Section 7: Decrease In Farm Safety	31
	Assessment	31
	Mitigation	32
	Operation	32
g.	Section 7: Loss Of Investment And Long-Term Income: Lochlynne	32
	Assessment	32
	Mitigation	32
	Design	32
h.	Section 7: Impact On Living Environment: Sondagsfontein	32
	Assessment	32
	Mitigation	32
	Design	32
i.	Section 7: Loss Of Access Roads: Sondagsfontein	32
	Assessment	32
	Mitigation	32
	Design	32
j.	Section 7: Loss Of Farmland: Phisantekraal	32
	Assessment	33

	Mitigation	33
	Design	33
k.	Section 8: Impact On Sense Of Place	33
	Assessment	33
	Mitigation	33
10.4.5	Tourism	33
a.	Facilitation Of Tourist Flows	33
	Assessment	33
	Mitigation	33
10.4.6	Visual.....	33
a.	Impact On Visual Character Of Wetlands	33
	Assessment	33
	Mitigation	33
	Construction	33
	Design	33
b.	Visual Impact On Continuity Of Kuils River Open Space System	34
	Assessment	34
	Mitigation	34
	Construction	34
	Design	34
c.	Visual Impact On Adjacent Residential Areas	34
	Assessment	34
	Mitigation	34
	Construction	34
d.	Impact On Visual Character Of "Suburbia"	34
	Assessment	34
	Mitigation	34
	Construction	34
e.	Light Pollution/Intrusion.....	34
	Assessment	34
	Mitigation	34
	Design	34
f.	Low Visual Absorption Due To Maintenance.....	35
	Assessment	35
	Mitigation	35
	Design	35
	Construction	35
g.	Visual Impact On Residences At The Stellenberg Interchange	35
	Assessment	35
	Mitigation	35
	Construction	35
h.	Visual Impact On Residences At The De Villiers Interchange	35
	Assessment	35
	Mitigation	35
	Design	35
	Construction	35
i.	Visual Impact On Residences At The Wellington Road Interchange	36
	Assessment	36
	Mitigation	36
	Design	36
	Construction	36
j.	Visual Impact On Rural Landscape	36
	Assessment	36
	Mitigation	36
	Design	36
	Construction	36
k.	Visual Impact From Alignment On Exposed Landforms	36
	Assessment	36
	Mitigation	36
	Design	36
l.	Loss Of Scenic Value Of Diep River	37
	Assessment	37
	Mitigation	37
	Design	37

m.	Greater Visual Impact On High Lying Areas	37
	Assessment	37
	Mitigation	37
	Design	37
n.	Visual Impact On Scenic Route At N7 Intersection.....	37
	Assessment	37
	Mitigation	37
	Design	37
o.	Visual Impact From N7 Mainline Toll Plaza.....	37
	Assessment	37
	Mitigation	37
	Construction and Operation.....	37
p.	Anticipated Changes In Landscape Character Through Agricultural Landscape	38
	Assessment	38
	Mitigation	38
	Design	38
10.5	SECTOR 4.....	38
10.5.1	Archaeology And Heritage.....	38
10.5.2	Economic	38
10.5.3	Noise	38
a.	Noise Levels At The Stellenberg Interchange	38
	Assessment	38
	Mitigation	39
	Design	39
10.5.4	Social.....	39
10.5.5	Tourism	39
10.5.6	Visual.....	39
a.	Visual Impacts Of Stellenberg Interchange	39
	Assessment	39
	Mitigation	39
	Construction	39
10.6	SECTOR 5.....	39
10.6.1	Archaeology And Heritage.....	39
10.6.2	Social.....	39
10.6.3	Economic	39
a.	Traffic Volumes.....	40
	Assessment	40
	Short Term.....	40
	Medium Term	40
	Long Term.....	40
	Mitigation	40
	Operation	40
10.6.4	Noise	40
10.6.5	Tourism	40
10.6.6	Visual.....	40
a.	Visual Impact From The Vanguard Drive Interchange	40
	Assessment	40
	Mitigation	40
	Design	40
b.	Visual Impact From The Strandfontein Interchange.....	40
	Assessment	41
	Mitigation	41
	Design	41
c.	Visual Impact From Structures Sited Within Agricultural Land	41
	Assessment	41
	Mitigation	41
d.	Visual Impact From The Proposed De Wet Road Bridge	41
	Assessment	41
	Mitigation	41
10.7	CUMULATIVE IMPACTS	41
10.7.1	Archaeology And Heritage.....	41
10.7.2	Economic	41
a.	The Comparative Macroeconomic Effect	42

10.7.3	Noise	42
10.7.4	Social.....	42
10.7.5	Tourism	43
10.7.6	Visual.....	43
10.8	NO GO OPTION	43
10.8.1	Archaeology And Heritage.....	43
10.8.2	Economic	44
a.	Impact On Road Users:	44
b.	Impact On Sensitive Business:.....	44
c.	Impact On Other Business:	44
d.	Impact On Tourism:	44
e.	Impact On Rail Transport:.....	44
10.8.3	Noise	44
10.8.4	Social.....	44
10.8.5	Tourism	45
10.8.6	Visual.....	45

CHAPTER 10: SOCIAL IMPACT ASSESSMENT PER SECTOR

This chapter describes and assesses the key potential impacts of the proposed road as deduced by the social specialist investigations, namely archaeology and heritage, economic, noise, social, tourism and visual. Furthermore, as an extension to the social impact assessment, a study was commissioned to understand the most desirable locations for the placing of pedestrian crossings along the proposed route. These investigations, and their approaches are described in the relevant specialist reports contained in Volume 4.

Mitigation measures are also proposed which would ameliorate negative impacts or enhance potential positive impacts. These recommended mitigation measures are included in the EMP for implementation by the proponent. An assessment of the significance of each impact is also shown (Please refer to Appendix 1.E for this assessment methodology).

Note that this chapter is divided into two parts: it begins by listing the potential impacts which could affect all sectors, then goes on to describe the potential impacts per sector for each aspect investigated.

Sector 5, also known as the Cape Flats Freeway Extension (CFFE) and sector 3, section 8, also known as the East-West Bloubergstrand Arterial, are not assessed in this chapter apart from the issues relating to tolling. The other potential impacts of these proposed roads are assessed in the Cape Flats Freeway Extension between Vanguard Drive and Prince George Drive: Environmental Impact Assessment (Draft) completed by Jeffares and Green Inc. (1998) and in the Blouberg East-West Arterial: Environmental Scoping Report for City of Cape Town Blouberg Administration by Erica van den Honert Environmental Consulting cc (April 2001).

At the end of this chapter, the identified cumulative impacts of this proposal are discussed. Following this, the impacts that would occur should the proposal not be realised (that is, the no-go option) are examined.

It should be noted that this chapter summarises the impacts, and the details of the assessment should be accessed in the individual specialist reports.

10.1 ALL SECTORS

10.1.1 Archaeology And Heritage

No significant impacts relevant to all sectors were identified.

10.1.2 Economic

a. *Macroeconomic Impacts*

The economic impact assessment investigated whether the proposed project may or may not have positive benefits for the regional and the national economies.

The proposed road would have a positive effect on the GDP, and would create jobs during the construction and operation phase. In addition this project would contribute positively to the GGP.

Assessment

During Construction:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	L	H	Positive	M	H	H
With Mitigation	Not applicable						

Short term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	L	M	Positive	M	M	H
With Mitigation	Not applicable						

Medium term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Positive	M	M	M
With Mitigation	Not applicable						

Long term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Positive	H	M	M
With Mitigation	Not applicable						

Mitigation

No mitigation deemed necessary.

10.1.3 Noise

a. Noise Levels During Construction

The noise could exceed the legal limit, especially where the road passes through residential areas, such as Durbanville, the areas around the existing R300, Montagu's Gift and Lakeside.

The noise impact during construction would be expected to be localised within an area of approximately 200m from the edge of the road, if no noise mitigation measures were to be applied. The duration of the impact would be short, lasting for as long as the construction period of a specific road section.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	L	M	Negative	M	H	M
With Mitigation	L	L	L	Negative	L	H	L

Mitigation

Design

- The design and construction of the noise barriers should be executed properly so that they offer the desired noise reduction (i.e. legal limit). For better efficiency, the noise barriers should be placed as close as possible to the noise source.
- Reduction of speed limits at critical areas.

Construction

- Minimisation of the noise emission levels of the utilised construction equipment.
- Application of noise reduction work programmes, especially when situated close to residential areas.

10.1.4 Social

No impacts relevant to all sectors were identified.

10.1.5 Tourism

a. Increased Safety And Security

Tourists would likely value the positive security and safety aspects generally associated with toll roads as an enhancing factor for its use.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	H	Positive	M	H	M
With Mitigation	Not applicable						

Mitigation

No mitigation deemed necessary.

b. Creating Access To Nodes For Tourism Development

The proposed road could "open-up" the nodes to tourism thereby enhancing the infrastructure and accessibility to attractions in the nodes. This may in turn lead to increased tourist flows which, as

a consequence, could have positive effects on the economies of the different nodes (e.g. job creation, further tourism and related development, etc.).

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Positive	M	H	M
With Mitigation	Not applicable						

Mitigation

No mitigation deemed necessary.

c. Toll Fees On Different Types Of Tourists

Several potential user groups from a tourism perspective can be identified, i.e. local leisure self-drive tourists resident in the CMA; leisure self-drive tourists from the rest of the province, beyond the CMA; tour operators, international self-drive tourists and domestic tourists from elsewhere in South Africa. Tolling will have different impacts for each of these segments.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Negative	M	H	M
With Mitigation	L	M	L	Negative	L	L	L

NOTE: If a structured toll fee system was implemented, it would certainly mitigate the status from negative to more positive. However, the tourist would still have a choice whether or not to use the road and accept the toll fee structure.

Mitigation

Operation

Offer frequent user discounts.

10.1.6 Visual

a. Light Pollution From Road Structures

Light pollution from light masts located along the roadway could have an adverse effect on residential properties in close proximity to the proposed road as well as on nature and rural areas. This would be more concentrated at toll booths and mainline plazas.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	L	H	M	Negative	M	H	H

Mitigation

Design

- With respect to light fittings and posts, the following needs to be taken into account at the detailed design stage:
 - Not to 'overlight' with respect to light spread (i.e. focus lighting on the proposed road and not unnecessarily onto adjacent areas).
 - Consider the level/intensity of light emission;
 - Height of poles (i.e. aim for a minimum height which would curb wider light spread). This would imply shorter spacing of poles;
 - Light fitting specifications should be adhered to prevent light pollution, for example glass design to minimise spread of light in all directions, that is, the use of a more conical shape as opposed to a round shape;
 - Lamp specifications should be adhered to so as to minimise light pollution in terms of light levels/intensity for example, exploring staggering light levels, that is higher levels at peak traffic periods and dimming by an acceptable percentage between peak periods which would mean an additional energy saving factor.

b. Visual Impact On Road Reserves And Open Space Surrounding Road Structures

This class of road necessitates a wide roadway and adjacent road reserves as well as large open space areas at interchanges, all resulting in a visual impact on adjacent areas, especially if these areas are residential, rural and nature areas.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Construction

- Include generic landscape guidelines for the entire route as well as area specific landscape plans in the EMP. These are to address rehabilitation of the road reserve and any associated areas disturbed during construction.
- Specify the use of locally indigenous plants and appropriate tall tree species for screening. Also refer to the rehabilitation requirements recommended by the botanist.

c. Visual Impact From Interchanges/Intersections With Grade Separation And Toll Plazas

All interchanges/intersections with grade separation could have a negative visual impact due to elevated positioning. In addition, grade separation adjacent to residential areas could also have an impact on privacy. All toll plazas (due to their layout, built structures, lighting and other infrastructure) could have a visual impact.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- Design and placement guidelines for structures and infrastructure (i.e. signage, communication, lighting etc.) to consider:
 - Using materials that blend into the landscape;
 - Avoiding positioning on ridgelines;
 - Massing (i.e. cluster activities where possible);
 - Using appropriate buffer zones between residential uses and structures from adjacent uses, especially residential;
 - Promoting modest scale, height and form of simple rectangular nature;
 - Designing structures to be as 'transparent' as possible to 'melt'/integrate into the landscape;
 - Keeping lighting to a minimum (keeping safety considerations in mind) and considering light fittings and post specifications to minimise light pollution and intrusion especially into private properties adjacent;
 - Planting of tall trees in gardens and road reserves; and
 - Keeping signage and other infrastructural elements uniform as far as possible.

d. Visual Impact From Mainline Toll Plazas

Visual impact due to large scale layouts, built structures, lighting and other infrastructure, associated with mainline toll plazas.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- Placement adjacent to/in close proximity of existing development should be considered rather than placement in a natural (un-built) landscape;
- Landscaping of medians/islands leading up to mainline toll plaza.
- Refer to mitigation for interchanges/intersections with grade separation and toll plazas.

Construction

- In accordance with landscape guidelines and plans, plant appropriate trees, so as to screen structures and thereby increase surrounding visual absorption capacity.

10.2 SECTOR 1

10.2.1 Archaeology And Heritage

a. *Potential Archaeological Discoveries*

Archaeological and fossil material may lie exposed and even buried beneath aeolian sands along the proposed route.

Stone Age, historical and palaeontological (fossil) sites may be uncovered or exposed in this Sector during vegetation clearing operations, levelling and rehabilitation (including landscaping and reshaping) of dunes, bulk earthworks and excavations.

Human burials may also be uncovered or exposed in this sector during bulk earthworks and excavations.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	M
With Mitigation	L	L	M	Positive	L	H	L

Mitigation

Construction

- The proposed route (Highway Section 2) should be searched for archaeological remains once the route has been identified and cleared of vegetation.
- The Environmental Control Officer (ECO) is to be briefed by a professional archaeologist in terms of what to look out for, particularly during vegetation clearing operations and preparation of the site for construction purposes.
- An archaeologist should be available for consultation throughout the construction;
- Contractors, staff and plant operators should be briefed on what to look out for, particularly during vegetation clearing operations and earthworks.
- Heritage remains uncovered during vegetation clearing and earthworks should not be disturbed until verified by a professional archaeologist.
- Burial remains should be treated sensitively at all times.
- Should any human remains be exposed or uncovered during earthworks, these should immediately be reported to a professional archaeologist, or the relevant delegated authority.
- Future proposed borrow pits and quarry sites servicing sector 1 should be inspected for archaeological and palaeontological remains and monitored during construction.
- Trenching and excavations should be inspected by a qualified palaeontologist at regular intervals.
- The EMP should detail reporting procedures to manage the discovery of any heritage artefacts during construction. This would include, for example, the recovery or exposure of human burials during construction activities.

b. *Impact On Sense Of Place Of Historical Dwellings*

Two stone cottages and one tin (corrugated) house were originally part of Frogmore Estate Farm, which served as provision houses between Cape Town and Simon's Town. The dwellings are older than 100 years and are considered to be conservation worthy.

Assessment

During Construction

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Negative	L	H	L
With Mitigation	L	L	L	Negative	L	H	L

During Operation

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Negative	L	H	L
With Mitigation	L	L	L	Negative	L	H	M

Mitigation

- Implement visual mitigation measures, as appropriate landscaping would screen the proposed road as much as possible.

10.2.2 Economic

a. *Impact On Wetlands In The South And The Proposed False Bay Ecology Park (FBEP)*

The monetary value of the economic benefits of the proposed project outweighs the estimated monetary value of the wetlands that would be affected by the proposed alignment of the R300.

However, it is not clear that a monetary comparison of costs and benefits is, in this instance, an appropriate comparison. The societal benefits of a road project are very different to the societal benefits of a wetland area.

The proposed FBEP complicates the issue. In the absence of the proposed FBEP, the conclusion that could be drawn is that the proposed alignment is generally acceptable. Should the proposed FBEP go ahead, then it is clear that the proposed project would impact on it. What cannot be determined is the degree of the impact and whether the proposed alignment constitutes a 'fatal flaw' to the proposed FBEP. The key issue is whether the proposed FBEP and the proposed road can co-exist.

The decision about the proposed alignment is a strategic decision that must be taken at a political level. It is important to emphasise that while a comparison of the net benefits of the road with possible environmental losses is an important aspect to be considered in decision-making, it is obviously not the only basis upon which to judge the desirability of the project. Ultimately, a strategic policy decision is needed requiring political decision-makers to prioritise among the conflicting needs of transport and nature conservation/recreation. The economic impact assessment informs such a strategic decision but cannot make the decision.

The Proposed Road could potentially impact on the viability of the proposed FBEP.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Impact on land values of wetlands in current state	L	H	L	Negative	M	H	M
Impact on proposed FBEP	M	H	M	Negative	H	L	M-

Mitigation

Until a decision is taken on the proposed FBEP, mitigation is deemed not possible at this stage.

b. *Impact On Business: Accessibility*

In terms of possible positive impacts on customer bases, the extension of the R300 to Capricorn Park and Westlake could increase the market reach of businesses along the existing R300, as customers from further afield would be provided with easier access.

Assessment

During Construction:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Positive	L	M	M
With Mitigation	L	L	L	Positive	L	M	M

During Operation:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Positive	M	M	M
With Mitigation	L	H	M	Positive	M	M	M

Mitigation

Operation

- Minimise operational cost increases and loss of customers by allowing for the sliding scale of frequent user discounts and allowing generous discounts in the early years of the proposed tolling.

10.2.3 Noise

a. *Noise Impact Along Section 1: Simon Van Der Stel (M3) To Prince George Drive*

In close proximity to the road, the noise level is expected to exceed the regulated limit.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	M
With Mitigation	L	H	L	Negative	L	H	L

Mitigation

Design

- The introduction of noise reduction measures, for example, 1.8m-high noise barriers would be recommended as well as the use of low noise asphalt.
- Reducing the speed limit could also be considered.

Operation

- Regulate the speed limit.

b. *Noise Impact Along Section 2: Prince George Drive To Vanguard Drive*

The impact of the road on the noise levels in the areas in close proximity to the road was found to be significant.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Negative	H	H	M
With Mitigation	L	H	L	Negative	L	H	L

Mitigation

Design

Refer to the mitigation: Noise along Sector 1: Simon van der Stel to Prince George Drive.

10.2.4 Social

a. *Impact On Sense Of Place Of Conservation Areas*

There could be an impact on the sense of place of conservation areas of Zeekoevlei, Zandvlei and Rondevlei in the urban township. Furthermore, the proposed road could create a barrier between the reserve at Zandvlei and the communities living to the north. It should however be noted that this area has been dedicated as road reserve.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Negative	H	H	H
With Mitigation	M	H	M	Negative	H	H	H

Mitigation

Design

- If space allows, a berm would limit noise and visual impact on the nature conservation areas from this impact.

b. Impact On Environmental Education Programmes

The sector 1 development would impact on the nature of the environmental education programmes offered at Rondevlei and Zandvlei Nature Reserves.

In terms of Zandvlei, the proposed road alignment would run 100m from the environmental education centre, and would impede access to the centre, that may cause it to close. This impact needs to be seen in light of the fact that Zandvlei has been using this dedicated road reserve for environmental education purposes.

In terms of Rondevlei, the proposed alignment would separate the natural and man-made environments that are visited for environmental education purposes.

Groups would no longer be able to walk to the various ecological sites without crossing or seeing a road. It should however be noted that the current programme takes into account the urban environment such as the near by landfill site and CFWWTW. Should the development be conducted sensitively, this road could be integrated into this environmental education programme.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	H	M	Negative	M	H	H

Mitigation

Design

- Overhead footbridges or underpasses should be constructed to allow access to the parks. Footbridges are the safer, and therefore the preferred option. Refer to the social assessment for a summary of the investigation into pedestrian desire lines.

c. Impact On Tourist Related Employment Opportunities At The Proposed FBEP

If the development of the road leads to a decrease in the potential number of tourists visiting the proposed park, the feasibility of the training and employment of local tour guides for Rondevlei Nature Reserve could be undermined. A possible mitigation factor would be the creation of employment opportunities for local residents due to a significant increase in tourism to the coast, once the road is built.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Negative	M	M	M
With Mitigation	M	L	L	Negative	L	M	M

Mitigation

Operation

- Although in a different employment sector, the creation of employment through the construction, maintenance and operation of the proposed road could be viewed as in-kind mitigation for the loss of potential tourism employment opportunities. Employment should be sourced locally to maximise this mitigation.

d. Potential Increase In Crime

Safety measures such as regular patrols and the use of closed circuit television would be implemented during the operational phase of the project.

The sector 1 development would provide further access to suburbs, which have experienced less crime to an extent, due to lack of access (e.g. Lakeside). On the other hand, new access routes do allow police to move more freely in pursuit of criminals.

In addition, the building of the road could aggravate divisions between communities, which could aggravate community conflicts.

A temporary workforce (during the construction of the proposed road) could reactivate drug and other gang related crime.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Negative	M	M	M
With Mitigation	M	M	L	Positive	L	M	M

Mitigation

Design

- The tender document should provide clear requirements regarding minimum safety standards on the proposed road.

Construction

- Information sharing with affected communities during construction should be undertaken to minimise volatility.
- No workers' camps should be established.
- Source employment from local communities.

Construction and Operation

- The Mitchell's Plain police station should be consulted during the construction and operation phases in order to advise the developers and plan for the effective management of crime.
- Note that safety measures such as regular patrols and the use of closed circuit television would be implemented during the operational phase of the project.

e. Division Of Communities And Barrier Between Residential Areas And Amenities

The proposed road would separate certain users from schools, mosques and churches, particularly in Vrygrond. Capricorn Park, on the northern side of the proposed road, is the shopping centre for some of the communities on the southern side of the road. The road would form a barrier for these poorer communities who do not have access to cars. It should be noted that this space is dedicated road reserve.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Negative	L	H	H
With Mitigation	L	H	L	Negative	L	H	H

Mitigation

Design

- The separation of communities from amenities can be partly mitigated through the construction of pedestrian bridges and pedestrian walkways. Refer to the social assessment for a summary of the investigation into pedestrian desire lines.

f. Unsafe Road Crossings

Unsafe road crossings, particularly for school children, as the proposed road traverses densely populated suburbs (Vrygrond and Lakeside).

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	H	Negative	H	H	H
With Mitigation	L	M	M	Negative	M	H	H

Mitigation

Design

- Pedestrian bridges should be constructed to ensure the safe crossing of the road. This is essential in densely populated areas.
- The tender document should stipulate that sites for pedestrian bridges should be identified in consultation with affected communities. This would ensure that bridges are placed most effectively and are least likely to become sites for criminal activity. Refer to the social assessment for a summary of the investigation into pedestrian desire lines.

g. Unpleasant Living Conditions

In terms of living conditions, the building of the proposed road could attract a greater amount of people to the amenities in the south (e.g. beaches). This could result in an increase in traffic volumes and noise levels, creating unpleasant living conditions for local residents (e.g. Lakeside).

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	M
With Mitigation	L	M	L	Negative	M	M	M

Mitigation

Design

- Implement the noise and visual mitigation measures.

h. Discouragement Of Crime

A positive impact of the development could be that the land now vacant (the current road reserve), which is to be used for the development of the proposed road, would no longer be available for criminal hideouts. Increased lighting could also discourage criminal activity.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Positive	M	H	M
With Mitigation	L	M	M	Positive	M	H	M

Mitigation

No mitigation is deemed necessary.

10.2.5 Tourism

a. Facilitation Of Tourist Flows

The proposed road could serve as an alternative route for tourists to reach their destinations in the South Peninsula as a consequence of congestion on the M5 and M3 routes during peak hours. In addition, a tourist would also be able to fit more into an itinerary if the proposed road was included in route planning for visiting attractions in sector 1. The proposed road (Westlake link) could assist in the dispersion of tourists to various other attractions and destinations in the area and overcome congestion which may occur on existing routes.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Positive	M	H	M
With Mitigation	Not applicable						

Mitigation

Design

- Tourists could be encouraged to use the road as an alternative route through appropriate signage.

b. Dilemma Of Access To The Proposed FBEP

The proposed road would enhance tourist flows in the direction of the proposed FBEP. Access to the proposed park would be via minor roads to the north and the south.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Negative	H	H	H
With Mitigation	L	M	L	Negative	L	M	M

Mitigation

Operation

- Should the proposed park come to fruition during the concession period, assist in the creation of access to it.

c. Impact On Bird Viewing

The southern alignment of the proposed road could affect the viewing of birdlife, which is concentrated in the southern areas of the proposed FBEP. This may affect the numbers of visitors who would travel to sector 1 to view the birdlife, due to the proposed road affecting the experience of current and potential visitors.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	M	M	Negative	H	M	H
With Mitigation	H	L	L	Negative	M	M	H

Mitigation

Design

- Minimal disturbance of birdlife so as not to discourage birders, through the implementation of recommendations discussed in the avifauna, noise and visual assessments.
- Aid the implementation of bird hides at the CFWWTW, as proposed in the FBEP action plan.

10.2.6 Visual

a. Visual Impact On Quality Of Outdoor Experience

Adjacent to the Zeekoevlei, Zandvlei and Capricorn (a portion of Capricorn Park) nature reserves, there would be a visual impact of the freeway type road (in terms of traffic volume and speed as well as light pollution from street lights and vehicle headlights) on conservation related uses e.g. bird watching etc., and ultimately on the quality of outdoor experience.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- The road should be aligned on the edge of areas which have a low visual absorption capacity - the proposed road through the Zandvlei surrounds should therefore be as far north as possible.
- The alignment of the proposed road at Zeekoevlei should go on the CFWWTW side of the dune rather than the Zeekoevlei side, screening the road from the vlei as far as possible.
- Lighting should be minimised so as to prevent light pollution/intrusion.

Construction

- Landscaping of road reserves should address the rehabilitation of the road reserves and open spaces, with locally indigenous plants and appropriate tall tree species where screening would be required.

b. Visual Impact On Adjacent Houses

The proposed road would be situated adjacent to the following residential areas: Steenberg (Frogmore Estate), Sheraton Park, Coniston Park, Sea Winds, Lavendar Hill and Strandfontein. A visual impact would result on the residential houses directly adjacent to the proposed road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	H	Negative	H	H	H
With Mitigation	L	M	M	Negative	M	H	H

Mitigation

Construction

- Landscaping would screen houses from the proposed road and should include:
 - Planting earth berms in selected areas;
 - Planting appropriate tall trees within the road reserve.

c. Light Intrusion Into Residences

Light pollution/intrusion from street lighting/masts would especially have an effect on adjacent residences.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	H	M	Negative	M	H	H

Mitigation

Design

- Light pollution/intrusion could be mitigated through the:
 - Use of reflectors on side positioned street lights to direct light onto the proposed road and away from residences;
 - Planting of tall trees in the road reserve;
 - Implementation of noise barriers on the freeway, which would additionally provide a visual barrier;
 - Stringent specification control of lighting, especially through nature reserves or the proposed FBEP.
- At the detailed design stage the design of light fittings and posts needs to be taken into account.

d. Scars Created Through Dunes

There would be a visual impact from scars created when cutting through the north-south orientated dunes to build the proposed road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Negative	M	H	H
With Mitigation	M	M	L	Negative	L	H	H

Mitigation

Construction

- Dunes should be landscaped (i.e. re-shaped and re-vegetated) to mitigate this impact.
- Landscaping should be done so as to emulate natural adjacent dunes or dunes found in the area (in terms of scale, slope gradient and vegetative cover).

e. Limited Visual Absorption

There would be a visual impact to adjacent landowners as the proposed road traverses low fynbos vegetation in this sector, which offers limited visual absorption especially for structures with grade separation.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Negative	M	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Construction

- The EMP should address, in consultation with specialists, rehabilitation of the road reserves through the planting of taller locally indigenous plants and appropriate tall tree species to increase visual absorption capacity.

f. *Change Of Landscape Character*

Visual impact on landscape character, which is currently characterised by agricultural fields, vleis and low fynbos vegetation, due to their limited visual absorption capacity.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Negative	M	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Design

- The proposed road should be aligned on the edge of these areas which have a low visual absorption capacity (this has been done).
- Road structures should be placed in close proximity to existing built areas.
- Minimise lighting so as to prevent light pollution/intrusion (Refer to the mitigation for light pollution from road structures).

Construction

- Mitigate visual exposure of the area from the road with screening vegetation such as indigenous hedge planting and/or an avenue of taller appropriate non-indigenous trees.

g. *Visual Impact On Residential Area East Of Proposed Main/Steenberg Road Intersection*

At the proposed Main/Steenberg Road intersection (which would be untolled and grade separated), a visual impact would result on the residential area east of the proposed intersection as primary traffic routes of Main Road and Steenberg Road were previously screened by the built edge along Main Road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	H
With Mitigation	L	L	L	Negative	L	H	H

Mitigation

- Plant screening trees to screen the intersection from these residential areas to the east.
- Refer to mitigation measures proposed in all Sectors: Interchanges/Intersections with grade separation and toll plazas.

h. *Visual Impact On And Light Pollution Affecting Houses At Prince George Drive Interchange*

A visual impact would occur as a result of structures with grade separation as well as due to use, for example, toll plazas, as this implies at times the stacking of stationary traffic (that is, the increase in the duration of exposure and a reduction in privacy of adjacent properties). Light pollution/intrusion from road lamp posts as well as headlights would affect adjacent residences, especially from elevated points.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	H	Negative	M	H	H
With Mitigation	L	M	M	Negative	L	H	H

Mitigation

Design

Refer to mitigation measures proposed in all Sectors: Interchanges/Intersections with grade separation and toll plazas.

i. Impact Of Mainline Toll Plaza On Strandfontein Residents

Regionally, the visual impact of the mainline toll plaza to the east of the Strandfontein residential area would be greater if it were being placed within an unbuilt landscape as opposed to in close proximity to the Strandfontein residential area (locally however, the visual impact would be higher on adjacent residences).

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	H	Negative	M	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design And Construction

- During the detailed design stage of the mainline toll plaza the following mitigation measures should be considered:
 - Placement of the structure adjacent to/in close proximity of existing development rather than the placement of the structure in a natural (unbuilt) landscape;
 - Positioning the mainline toll plaza adjacent to existing tall tree breaks, avenues, etc. which would provide visual absorption;
 - Planting of appropriate tall trees, so as to screen structures and thereby increase surrounding visual absorption capacity;
 - Landscaping of medians/islands leading up to mainline toll plaza;
- Signage and other infrastructure, e.g. communication, leading up to and at plazas to be kept to a minimum;
- Armco and other traffic safety barriers (e.g. metal drums, etc.) to be considered in terms of visual impact such as uniformity, maintenance condition, location, etc.

j. Visual Impact From Grade Separation At Vanguard Drive Interchange

There would be a visual impact of the further development of the Vanguard Drive interchange (which would be untolled and with grade separation) due to the proposed grade separation.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Design And Construction

- Refer to mitigation in all Sectors: for Interchanges/Intersections with grade separations and toll plazas.

10.3 SECTOR 2

10.3.1 Archaeology And Heritage

No archaeological remains were found in sector 2 and thus no issues were identified.

10.3.2 Economic

a. Impact On Low Income Commuters

There are some users who would be financially vulnerable to tolling. It is recognised that these users are isolated only to drivers who currently use the R300. Other drivers who are attracted to the R300 might be financially vulnerable but, because they are choosing to use the R300, appreciate the benefits against the costs.

Assessment

Short Term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	H	Negative	M	M	H
With Mitigation	L	L	M	Negative	L	M	H

Medium Term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	L	Positive	L	M	M
With Mitigation	L	M	L	Positive	L	M	M

Long Term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Positive	M	M	M
With Mitigation	L	H	M	Positive	M	M	M

Mitigation

Introduce substantial discounts for frequent road users. Allowing for a sliding scale of frequent discounts where the scale is dependent on the trip frequency. Hence more trips receive a bigger discount. There should also be bigger discounts in the early years of the proposed tolling that then taper off as the years progress. For example, there may be a frequent user discount of x% for more than 50 monthly trips in 2006 with this reducing to y% by, for example 2008, and z% after 2010.

b. Impact On Business: Increased Road User Costs

The construction industry is likely to be most sensitive to changes in road transport costs followed by the agriculture and manufacturing industries.

Philippi would be particularly sensitive due to its reliance on the agricultural sector (16.3% of businesses). Philippi also has the second highest proportion of businesses in the construction sector (13.9%) adding to the area's potential vulnerability. Blackheath has the highest proportion of businesses in the construction and manufacturing sectors at 15% and 29.7% respectively, making it relatively vulnerable. Bellville South and Stikland also have strong presences in the manufacturing sector at 28% and 28.6% of all businesses respectively.

Assessment

During Construction:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Negative	L	H	H
With Mitigation	L	L	L	Negative	L	H	H

Short Term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	L	H	Negative	M	M	M
With Mitigation	M	L	M	Negative	M	M	M

Medium Term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	L	Positive	L	M	M
With Mitigation	M	M	L	Positive	L	M	M

Long Term:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	L	Positive	M	M	M
With Mitigation	M	H	L	Positive	M	M	M

Mitigation

Operation

- The proposed mitigation measure is to introduce discounts for frequent road users.

- In addition, specific industries may need a sliding scale of frequent user discounts where there will be a bigger discount in the early years of the proposed tolling that then taper off as the years progress.

c. Impact On Business: The Willingness Of Customers To Visit Businesses

A certain degree of discomfort may be felt by certain types of businesses that rely on customers from outside of the local area reaching them via the R300.

i. Impact On Access City At Van Riebeeck Interchange

Increased transport costs in the short term could deter customers. In addition, it is likely that there would be some impact on traffic during construction although this is likely to be limited, as additional lanes would be added before the existing road is upgraded.

Assessment

During Construction:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Negative	L	M	M
With Mitigation	L	L	L	Negative	L	M	M

During Operation:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	M	M
With Mitigation	L	M	M	Negative	M	M	M

ii. Impact On Business In Stikland, Bellville South, Brackenfell, Blackheath And Philippi

The majority of businesses nearby the R300 are in the Stikland, Bellville South, Brackenfell, Blackheath and Philippi industrial areas. While there are a few factory shops in these industrial areas, they are not retail areas and the majority of businesses are fairly large industries whose customer bases are likely to remain largely unaffected. It is likely that there would be some impact on traffic during construction although this is likely to be limited, as additional lanes would be added before the existing road is upgraded.

Assessment

During Construction:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	L	L	Negative	L	M	M
With Mitigation	M	L	L	Negative	L	M	M

During Operation:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	L	Negative	L	M	M
With Mitigation	M	M	L	Negative	L	M	M

iii. Impact On Business In Westlake And Capricorn Park

In terms of possible positive impacts on customer bases, the extension of the R300 to Blouberg and Westlake could increase the market reach of businesses along the existing R300, as customers from further a-field would be provided with easier access.

Assessment

During Construction:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Positive	L	M	M
With Mitigation	L	L	L	Positive	L	M	M

During Operation:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Positive	M	M	M
With Mitigation	L	H	M	Positive	M	M	M

Mitigation for i, ii and iii

Minimise operational cost increases and loss of customers by allowing for the sliding scale frequent user discounts and allowing generous discounts in the early years of the proposed tolling.

10.3.4 Noise

a. Noise Impact Along Vanguard Drive To The N1 (Existing R300)

The noise levels along the existing R300 were found to be in excess of the noise limit of 65dBA. The noise measurements indicated the peak and off-peak levels as being 73dBA and 69dBA respectively.

The upgrading of the proposed road may have an additional impact on the noise levels in this area, other than that normally expected due to the annual traffic increase.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	H	L	Negative	M	H	M

Mitigation

Design

- A noise barrier must be built so as to reduce the noise levels to keep within the legal limit.

10.3.5 Social

a. Impact On Taxis And Hence Increased Cost Of Road Use For Vulnerable Communities

The tolling of the existing R300 would necessitate an increase in taxi fares. The economic sensitivity of this area could lead to taxis becoming unaffordable to local users.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	M

Mitigation

- Discounts should be offered to taxis in order to reduce the potential increase in taxi fares.

b. Unsafe Pedestrian Crossings

Communities in this area have to walk long distances and cross the R300 to access public transport. Existing pedestrian access and security is inadequate.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	H	Negative	H	H	H
With Mitigation	L	H	M	Positive	M	H	H

Mitigation

Design

- Additional pedestrian bridges and walkways should be constructed to ensure the safe crossing of the road.

Operation

- Maintenance of fencing to prevent people from crossing the road unsafely.

c. Increased Crime

The high levels of crime and numbers of gangsters in the area could lead to theft, hijackings and stoning of vehicles on the proposed road. This could be aggravated by the availability of cash at tollgates.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Negative	M	H	M
With Mitigation	M	M	L	Negative	L	H	M

Mitigation

Design

- The installation of proper lighting on the R300 could decrease traffic accidents and crime levels along the road.
- Measures such as emergency telephones and automatic billing at tollgates should be considered to discourage crime.

Construction and Operation

- The Mitchell's Plain police station should be consulted during the construction and operation phases in order to advise the developers and plan for the effective management of crime.

d. Exacerbating Inequality

The proposed road could result in costing previously disadvantaged communities more, which would exacerbate inequality.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Negative	M	H	M
With Mitigation	M	M	L	Negative	L	H	M

Mitigation

Construction

- This impact can be partly mitigated by ensuring that the tolling of the road does not lead to increased travel costs for local communities,
- Tender documents should stipulate a local labour preference policy and give a minimum quota for local labour to be employed; and
- Ensuring that the use of current transport avenues could continue without interruption.
- Offering discounts to frequent users and taxis.

Design

- The developers should consider ways of investing in community upliftment programmes.

10.3.6 Tourism

No impacts are applicable to this sector of the proposed road.

10.3.7 Visual

a. Visual Impact From Toll Plaza At Mitchell's Plain Interchange

The visual impact of the proposed toll plaza at the Mitchell's Plain interchange (which would be tolled and positioned at a lower level than the R300, at an off ramp) would be limited due to its lower level positioning.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	L	Negative	L	H	H
With Mitigation	L	L	L	Negative	L	H	H

Mitigation

Design

Refer to mitigation for All Sectors: Interchanges/Intersections with grade separation and toll plazas.

b. Visual Impact From Toll Plazas At The Swartklip Interchange

The visual impact of the toll plaza at the Swartklip interchange (which would be tolled and positioned at grade) would be limited due to the existing structures with grade separation.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Appropriate tall trees should be planted so as to screen structures and increase the surrounding visual absorption capacity.

c. *Visual Impact From Toll Plaza At The Hindle Interchange*

The visual impact of the toll plaza at the Hindle interchange (which would be tolled and positioned at a higher level than the R300) would be greater due to grade separation and the resultant elevated view.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Construction

- Appropriate tall trees should be planted so as to screen structures and increase the surrounding visual absorption capacity.

d. *Visual Impact From Toll Plaza At The Stellenbosch Interchange*

The visual impact of the toll plaza at the Stellenbosch interchange (which would be tolled and at a lower level than the R300) would be limited due to the lower level positioning of the proposed structure.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	M	Negative	L	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Construction

Appropriate tall trees should be planted so as to screen structures and thereby increase the surrounding visual absorption capacity.

e. *Visual Impact From Toll Plaza At The Van Riebeeck Interchange*

- The visual impact of the toll plaza at the Van Riebeeck interchange (which would be tolled and at a lower level than the R300) would be limited due to the lower level positioning of the proposed structure.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	M	Negative	L	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Construction

- Appropriate tall trees should be planted so as to screen structures and thereby increase the surrounding visual absorption capacity.

f. *Visual Impact From Mainline Toll Plaza Between Stellenbosch And Van Riebeeck Interchange*

- The visual impact of the mainline toll plaza between the Stellenbosch and van Riebeeck interchanges would decrease, if it were placed in close proximity to the existing tree breaks.

- The visual impact would be greater if the mainline toll plaza is to be placed just north of the existing dune. A high visual impact would occur on residential houses directly adjacent to the proposed road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- Refer to mitigation in Sector 1: Impact of mainline toll plaza on Strandfontein residents.

Construction

- Planting of appropriate tall trees, so as to screen structures and thereby increase surrounding visual absorption capacity;
- Landscaping of medians/islands leading up to mainline toll plaza.

10.4 SECTOR 3

Note that the potential impacts of Sector 3 Section 8 are assessed in the Bloubergstrand East/West Arterial Road Final Environmental Scoping Report for City of Cape Town Blaauwberg Administration by Erica van den Honert Environmental Consulting cc (April 2001).

Alternatives were considered for Section 7, Sector 3. These are discussed in Chapter 5: Project Alternatives. The assessment of the alternatives are in Appendix 1.H. This chapter documents the assessment for the preferred alignment.

10.4.1 Archaeology And Heritage

a. *Likelihood Of Archaeological/Historical Remains In Section 6*

It is predicted that the construction of the proposed road in this section would not likely involve the discovery of archaeological and historical remains.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Positive	L	H	L
With Mitigation	L	L	L	Positive	L	H	L

Mitigation

Refer to Sector 1 Mitigation: Potential Archaeological Discoveries.

b. *Likelihood Of Archaeological/Historical Remains In Section 7*

It is predicted that the construction of the proposed road in this section would not likely involve the discovery of archaeological and historical remains.

Note that although not a declared National Monument, the Mamre Road is considered to be conservation-worthy.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	M
With Mitigation	L	L	L	Negative	L	H	M

Mitigation

Design

- A buffer of 50m should be established between the blue-gum tree-lined Mamre/Darling Road, and the proposed road.

10.4.2 Economic

a. **Section 7: Financial Impact On Farms (Excluding Lochlynnne)**

This alignment would affect the farms of Phisantekraal, Sondagsfontein and Kuiperskraal/Welgegund resulting in a financial impact.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	H	Negative	H	H	H
With Mitigation	L	H	L	Negative	M	M	H

Mitigation

Design

- Full compensation should be paid to the farmers for all land that is acquired.

b. **Section 7: Financial Impact On Lochlynnne Farm**

In discussion with the farmer it was stated that the building of this road would cause the liquidation of the farm. This is due to the possible loss of interest by the investor Distell. The assessment however focuses on the viability of Lochlynnne should the road be constructed.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	H	Negative	H	M	M
With Mitigation	L	H	L	Negative	M	M	H

Mitigation

Design

- Full compensation should be paid to the farmer for all land that is acquired.

c. **Impact On The Willingness Of Customers To Visit Business In Blouberg**

In terms of possible positive impacts on customer bases, the extension of the R300 to Bloubergstrand could increase the market reach of businesses along the existing R300, as customers from further afield would be provided with easier access.

Assessment

During Construction:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	L	L	Positive	L	M	M
With Mitigation	L	L	L	Positive	L	M	M

During Operation:

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Positive	M	M	M
With Mitigation	L	H	M	Positive	M	M	M

Mitigation

Operation

- Minimise operational cost increases and loss of customers by allowing for the sliding scale frequent user discounts and considering higher discounts in the early years of the proposed tolling.

10.4.3 Noise

a. **Noise Along Section 6: N1 To Wellington Road**

Without noise barriers, within the first 10 years of operation, the noise in this area is expected to increase between 5 – 10dBA. Very few residences would be experiencing noise levels above the legal limit.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	M
With Mitigation	L	H	L	Negative	L	H	L

Mitigation

Design

- In light of the increase of 5 – 10dBA, the noise specialist, in following the SABS Code of Practice 0210:1996, has said that a noise barrier of 1,8m would reduce the impact on surrounding communities. However, it is only a legal requirement to reduce noise should the legal limit of 65dBA be exceeded.

b. Noise Levels Along Sections 7 And 8: Wellington Road To R27

It was established that very few residences would experience ambient noise levels above the legislated limit. However, in the year 2005, some parts of the two communities were found to be within a zone of between 5dBA and 10dBA noise increase.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Negative	M	H	M
With Mitigation	L	H	L	Negative	L	H	L

Mitigation

Design

- Maintain a maximum distance between the road and potentially affected residences.
- According to the SABS Code of Practice 0210:1996, noise barriers, approximately 680m in length and at least 1.8m high, should be constructed to lessen the noise impacts on both these communities. However, it should be noted that this is only required should the limit of 65dBA be exceeded.

10.4.4 Social

a. Section 6: Impact On Sense Of Place

The concern is that the development of a major road through this area would detract from the semi-rural character of the area, and thus its sense of place, due to increased traffic noise and pollution. The nature of the Brackenfell Golf Academy, for example, would significantly alter should the proposed road be built. This impact however has to be viewed in light of the fact that this area was reserved for a road in 1976.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	M	Negative	M	H	M
With Mitigation	L	M	L	Negative	M	H	M

Mitigation

Construction

- Visual impact should be minimised by planting and landscaping to screen the road, and by providing noise and visual absorption capacity to try and maintain the semi-rural character to a degree.
- It is recommended that mitigation measures from the noise and visual assessments are also implemented.

b. Section 6: Potential Devaluation Of Property

Formal housing provides an important source of financial/livelihood security for homeowners.

The development of the road could negatively affect the property prices in these areas, and thus lessen the value of this source of security. This impact of property values on livelihood security is a concern particularly to lower income earners in Durbanville and Eversdal.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M-	Negative	M	H	H
With Mitigation	Not applicable						

Mitigation

Construction

- It is recommended that mitigation measures from the noise and visual assessments are implemented.

c. Section 7: Reduced Value Of Property

Land is a significant asset that contributes to the sustainability of this social environment. The presence of the proposed road would reduce the value of farms. The loss of arable land could lead to reduced productivity and income.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	M	M	Negative	M	H	H
With mitigation	L	L	M	Negative	L	H	H

Mitigation

Design

- Access to farm areas should be provided.
- Farmers should be compensated for the acquisition of land.

d. Section 7: Resulting Urbanisation, Change Of Lifestyle, Loss Of Privacy And Rural Atmosphere

The proposed road may encourage urban sprawl, which could lead to a degree of loss of privacy; a loss of rural atmosphere and it could alter the rural lifestyle of the farmers and farm workers.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	H	M	Negative	M	H	H
With mitigation	L	M	M	Negative	M	M	M

Mitigation

Construction

- Visual and noise impacts on residents should be mitigated, as suggested in the noise and visual assessments.

e. Section 7: Increased Access To The Peninsula

The positive contribution of the proposed road to residents in the area is the possibility of increased access to the peninsula.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	H	M	Positive	M	H	H
With mitigation	Not applicable						

Mitigation

No mitigation deemed necessary.

f. Section 7: Decrease In Farm Safety

Farmers are concerned about farm murders and theft, as the presence of the road provides access to farms by potential criminals.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	M	M	Negative	M	H	H
With mitigation	L	M	L	Negative	L	H	H

Mitigation

Operation

- This section of the road should be patrolled.

g. Section 7: Loss Of Investment And Long-Term Income: Lochlynnne

The development could reduce the value of this farm to the degree that the current investor Distell could cease to contribute financially to the project. Profits are only expected in years to come; the farm is not financially viable yet without investor support. If this project was to be ceased or the farm was to be purchased, dividends would go to Distell. The owner could lose his long-term investment and source of income. There could be a loss of jobs for the farm manager and other farm labourers.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	H	H	Negative	H	H	H
With mitigation	L	M	M	Negative	M	H	H

Mitigation

Design

- Alternative employment (such as being employed to build the proposed road) would limit the negative impact.

h. Section 7: Impact On Living Environment: Sondagsfontein

Significant sound and visual impacts on the inhabitants of Sondagsfontein homestead would result.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	H	M	Negative	M	H	H
With mitigation	L	H	M	Negative	M	H	H

Mitigation

Design

- The sound and visual impacts of the development could be mitigated to some extent through landscaping, road contouring and surface design.
- The proposed road should not be aligned closer than 200m from the homestead.

i. Section 7: Loss Of Access Roads: Sondagsfontein

This route would lead to the loss of the access roads that Sondagsfontein has to Adderley Road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	H	M	Negative	M	H	H
With mitigation	L	L	L	Negative	L	H	H

Mitigation

Design

- Alternative access roads to Sondagsfontein would have to be built at the cost of the developer.

j. Section 7: Loss Of Farmland: Phisantekraal

This would lead to the loss of prime sauvignon blanc and chardonnay vineyards on the farm Phisantekraal.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without mitigation	L	M	H	Negative	M	H	H
With mitigation	L	L	L	Negative	L	H	H

Mitigation

Design

- The alignment should avoid these vineyards (this has been acknowledged during design).

k. Section 8: Impact On Sense Of Place

The building of toll plazas could lead to the loss of a sense of place and the rural atmosphere of the farming areas along this road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	L	Negative	L	H	M
With Mitigation	L	M	L	Negative	L	H	M

Mitigation

Measures suggested in the visual impact assessment, such as the planting of clumps of trees, would decrease the impact of the toll plazas on the sense of place in this environment.

10.4.5 Tourism

a. Facilitation Of Tourist Flows

The proposed road would facilitate the movement of tourists to existing and planned tourist attractions in this sector. Improved access to Table View beachfront and Bloubergstrand from the N1 freeway, in particular, would be facilitated from the north and southeast by the use of the proposed road. Tour operators consider this as a positive justification for using the road, particularly during peak traffic and high tourist season.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Positive	M	H	M
With Mitigation	Not applicable						

Mitigation

No mitigation deemed necessary.

10.4.6 Visual

a. Impact On Visual Character Of Wetlands

The proposed alignment lies within the Kuils River and Mosselbank River valleys and the road corridor is characterised by numerous wetlands and reedbeds. The proposed road would impact on the visual character of the wetland.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Construction

- The portion of section 6 between the lower end of Fairtrees Road and the N1/R300 interchange should be rehabilitated with Renosterveld.

Design

- The road should be kept as far from the Kuils River as possible with the gradients of the cut and fill slopes being as close to the existing natural gradients as possible.

b. Visual Impact On Continuity Of Kuils River Open Space System

The proposed road would also impact on the continuity of Kuils River Open Space System.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	M	H	Negative	H	H	H
With Mitigation	H	L	M	Negative	M	H	H

Mitigation

Construction

- The portion of section 6 between the lower end of Fairtrees Road and the N1/R300 interchange should be rehabilitated with Renosterveld.

Design

- The road should be kept as far from the Kuils River as possible with the gradients of the cut and fill slopes being as close to the existing natural gradients as possible.

c. Visual Impact On Adjacent Residential Areas

The residents directly adjacent to the corridor would be exposed to views of the road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	H	Negative	H	H	H
With Mitigation	L	H	M	Negative	M	H	H

Mitigation

Construction

- Refer to mitigation Sector 1: Visual impact on adjacent houses.

d. Impact On Visual Character Of "Suburbia"

There would be an impact on the visual character of 'suburbia' due to an increase in traffic through the area.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Construction

Mitigation of visual impact of light pollution/intrusion through:

- Use of reflectors on side positioned street lights to direct light onto road and away from residences;
- Planting of tall trees in gardens or in road reserve;
- Implementation of noise barriers on the freeway, which would provide a visual barrier.

e. Light Pollution/Intrusion

Light intrusion into properties would occur due to the lighting of the proposed road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	H
With Mitigation	L	L	L	Negative	L	H	H

Mitigation

Design

- Refer to mitigation Sector 1: Light pollution from road structures.

f. Low Visual Absorption Due To Maintenance

Open space maintenance would involve the regular cutting of vegetation in the proposed road corridor. The cutting of this vegetation offers little visual absorption, thus visual impact would increase.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	M	Negative	M	H	H
With Mitigation	L	M	L	Negative	L	H	H

Mitigation

Design

- Minimise lighting so as to prevent light pollution/intrusion.

Construction

- Mitigate visual exposure of the area from the proposed road with screening vegetation in accordance with the EMP (indigenous hedge planting and/or an avenue of taller appropriate trees).

g. Visual Impact On Residences At The Stellenberg Interchange

The new road would begin as the extension of the existing R300 at the Stellenberg interchange. Houses on the eastern and western ridgelines would be exposed to views onto and from the interchange extension.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Construction

- Windrows and clumps of tall trees should be planted to supplement the existing clumps to the east of the interchange so as to 'soften' the structure and increase visual absorption into the landscape.

h. Visual Impact On Residences At The De Villiers Interchange

The proposed De Villiers interchange would be tolled and grade separated. The houses on the eastern and western ridgelines would be exposed to the interchange. The grade separation would increase this visual impact. The interchange would also increase the exposure (allowing invasion of privacy) of adjacent properties and light intrusion would result due to lighting of the interchange.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	M	H	Negative	M	H	H
With Mitigation	L	L	M	Negative	L	H	H

Mitigation

Design

- Windrows and clumps of tall trees should be planted (or existing ones extended) at the interchange to screen the road and visually absorb this grade separated interchange into the landscape.

Construction

- Refer to mitigation Sector 1: Interchanges/Intersections with grade separation and toll plazas.

i. Visual Impact On Residences At The Wellington Road Interchange

The proposed structure at the Wellington interchange would be tolled with grade separation, and sited in an area on the urban edge. Visual impact would increase due to the close proximity of the rural landscape just beyond, which, due to its low vegetation, offers little visual absorption. The impact would also increase due to the grade separation on a relatively flat topography. The interchange with grade separation would increase the exposure (allowing invasion of privacy) of adjacent properties and light intrusion would occur due to the lighting of the interchange.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

Refer to mitigation Sector 1: Interchanges/intersections with grade separation and toll plazas.

Construction

- Windrows and clumps of large trees, should be planted (or existing extended) at the intersections to screen the road to absorb it visually into the landscape and reduce light intrusion.

j. Visual Impact On Rural Landscape

The new road runs predominantly through a rural landscape with a strong 'sense of rural place'. A number of historical farmsteads occur in the vicinity of the proposed road alignment. These homesteads have a strong 'sense of rural place' and represent scenic features. A visual impact would occur due to the siting of proposed road in this landscape, which has a low visual absorption capacity. Negative impacts would result on this area's 'sense of place' and on the value of homesteads as scenic features.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	H	H	Negative	H	H	H
With Mitigation	H	M	M	Negative	M	H	H

Mitigation

Design

- Consider the value of the homesteads as scenic features and align the proposed road as far as possible from the homesteads, especially the historically significant homesteads and buildings.

Construction

- Screen the proposed road in order to minimise the impact on the rural 'sense of place'.

k. Visual Impact From Alignment On Exposed Landforms

The proposed road passes through a landscape made up of various exposed landforms such as spurs, steep slopes, ridges, convex slopes and hills such as the Tygerberg Hills. The visual impact would be greatest if the proposed road is aligned on these exposed landforms.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	M	H	Negative	H	H	H
With Mitigation	H	M	M	Negative	M	H	H

Mitigation

Design

- If possible, avoid the exposed landforms or ensure that cut and fill slopes are created so as to emulate the existing adjacent slope gradients.

I. Loss Of Scenic Value Of Diep River

The proposed route crosses some of the many drainage lines and wetlands of the Diep River corridor. These water courses and water bodies have much scenic value. There would be a visual impact on the character of this riverine/wetland area.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- The proposed road should cross the streams at the narrowest points possible.

m. Greater Visual Impact On High Lying Areas

The proposed road alignment undulates, descending to the floor of the Diep River Valley, climbing gently out of the valley. It then descends towards the coast. The visual impact would be greatest on the higher lying areas as opposed to within the valleys.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	M	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- The ridgelines and higher lying areas within this section should be avoided.

n. Visual Impact On Scenic Route At N7 Intersection

The proposed route intersects with the N7, a scenic route, with proposed grade separation. A visual impact would result due to the grade separation.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- The proposed road should pass under the N7 rather than over it.
- In addition, refer to mitigation: Sector 1: Interchanges/intersections with grade separation and toll plazas.

o. Visual Impact From N7 Mainline Toll Plaza

The siting of a mainline toll plaza is proposed for west of the N7 interchange. A visual impact would result due to the siting of the plaza within an unbuilt area.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Construction and Operation

- Exotic invasive vegetation currently provides visual absorption and should be gradually replaced with non-invasive tall tree species so as to provide visual screening.

p. Anticipated Changes In Landscape Character Through Agricultural Landscape

This route ascends and descends over a distance of 3km through rolling hills of highly cultivated agricultural land, wheatfields and vineyards. Farm dams and scattered farmsteads, contribute to form a characteristic rural landscape of high scenic value.

The low seasonal vegetation cover enhance the undulating topography and create ever-textural and colour variations, but offer very little capacity to absorb interventions. The Eskom power line transverses the road alignment at mid-point, detracting from a scenic resource of high quality.

The Zone of Visual Influence (ZVI) falls within two viewshed areas divided by the north-south ridgeline running through Lochlynn farmstead.

From the western side viewshed, this route would be visible from Durbanville northern residential edge and farmsteads including Phisantekraal, Diemersdal and Meerendal. East of the ridgeline, the ZVI is more contained with limited visibility from Lochlynn and Sondagsfontein farmsteads.

The north-western half of the route would be visible from houses along the northern Durbanville urban edge and the surrounding farmstead. The visual impact would be moderate to low due to approximately 2 kilometre-view-distances from the road.

The eastern half of the road extending from Lochlynn Ridge to the Adderley Road crossing at Sondagsfontein would be higher but of sufficient distance (+400 metres) to have a moderate impact.

The Adderley Road crossing would have a much larger field of impact being located on the ridgeline. Highest visibility would be from Lochlynn, Sondagsfontein and Adderley Road.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Negative	H	M	M
With Mitigation	M	H	M	Negative	H	M	M

Mitigation

Design

- De-emphasise the route by using low-level indigenous shrubs for the re-vegetation of road reserves.
- Special consideration is to be given to the bridge crossing at Adderley Road, i.e. cross Adderley Road further west at an elevation lower than the natural ridgeline.
- View the bridge as a focal design element in the rural landscape.

10.5 SECTOR 4

10.5.1 Archaeology And Heritage

No archaeological remains were located in Sector 4 and thus no issues were identified.

10.5.2 Economic

No sector-specific potential impacts were identified for this sector.

10.5.3 Noise

a. Noise Levels At The Stellenberg Interchange

The noise levels were found to be in excess of the noise limit of 65dBA. The noise measurements indicated the peak and off-peak levels as being 73dBA and 69dBA respectively. It is not anticipated that this section of the proposed road would have any additional impact on the areas' noise levels, other than that normally expected due to the annual traffic increase.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	L	H	L	Negative	L	H	M

Mitigation

Design

- Mitigation measures include noise barriers as well as porous asphalt. The latter could bring about an additional noise reduction of between 3dBA and 5dBA.

10.5.4 Social

No specific potential impacts were identified for this sector.

10.5.5 Tourism

No specific potential impacts were identified for this sector.

10.5.6 Visual

a. *Visual Impacts Of Stellenberg Interchange*

The Stellenberg interchange would be extended and untolled. Houses on the eastern and western ridgelines would be exposed to views onto and from the interchange extension, that is, on the same level. There would also be a visual impact from the N1, which is a scenic corridor.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Construction

- Windrows and clumps of tall trees should be planted to supplement the existing clumps to the east of the interchange so as to 'soften' the structure and increase visual absorption into the landscape.

10.6 SECTOR 5

Note that potential impacts of this sector of the proposed road are assessed in the Cape Flats Freeway Extension between Vanguard Drive and Prince George Drive: Environmental Impact Assessment (Draft) completed by Jeffares and Green Inc. (1998) and in the Cape Flats Freeway Extension Between Vanguard Drive and Prince George Drive: Supplementary Environmental Impact Report (2001), which was completed by Philip Rosenthal Environmental Engineering. Only the issues relating to tolling and changes to the proposed road design (vertical alignment) are assessed.

10.6.1 Archaeology And Heritage

No impacts were identified in relation to tolling and design.

10.6.2 Social

No impacts were identified in relation to tolling and design.

10.6.3. Economic

Sector 5 is a greenfields section of the proposed project. At the moment, road users are making use of the existing road network. Should the proposed project go ahead, it would give road users the option of using sector 5 or continuing to make use of the existing road network. The choice that road users would make is dependent upon the relative costs of using the existing road network compared to the cost of using sector 5 including any tolls that would have to be paid.

A rational road user would choose the least cost alternative. Hence, if the cost of using sector 5 is greater than the cost of using the existing road network, then road users would continue to use the existing network. If, on the other hand, sector 5 costs less to use than the existing road network (because of, for example, shorter travel distances and less congestion), then road users would use sector 5. The conclusion that can be drawn is that the construction of sector 5 would be a positive contribution to road users, as only road users who benefit from this sector would make use of it.

a. Traffic Volumes

It can be expected that as traffic volumes increase over time on the existing road network and, in the absence of major increases in carrying capacity, more and more road users would find that sector 5 is relatively cheaper to use than the existing road network and traffic volumes would increase on this sector as a result of voluntary consumer choices.

Assessment

Short Term

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	L	L	Positive	L	H	H
With Mitigation	M	L	M	Positive	M	H	H

Medium Term

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	M	M	Positive	M	H	H
With Mitigation	M	M	M	Positive	M	H	H

Long Term

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	M	Positive	H	H	H
With Mitigation	M	H	M	Positive	H	H	H

Mitigation

Operation

- As road users would make voluntary choices, mitigation measures would probably not be needed. However, if frequent user discounts are put in place, these would probably also apply to sector 5. Such discounts would reduce the cost of using sector 5 and this would draw more traffic to this sector.

10.6.4 Noise

No impacts were identified in terms of tolling or road design.

10.6.5 Tourism

No impacts were identified in terms of tolling or road design.

10.6.6 Visual

a. Visual Impact From The Vanguard Drive Interchange

The Vanguard Drive Interchange would be tolled with grade separation. The highest impact would be on the residential houses directly adjacent to the intersection. This impact would be emphasised by the grade separation. Furthermore, the light pollution / intrusion from road lamp posts would especially have an effect on adjacent residences at elevated points.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- Refer to mitigation: Sector 1: Interchanges/intersections with grade separation and toll plazas.

b. Visual Impact From The Strandfontein Interchange

The Strandfontein interchange would be tolled with grade separation. A visual impact due to grade separation and the siting of the proposed road in close proximity to north-south dune system would also result in a visual impact. Light pollution/intrusion from road lamp posts would also especially have an effect on adjacent residences at elevated points.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	M	H	H	Negative	H	H	H
With Mitigation	M	M	M	Negative	M	H	H

Mitigation

Design

- Refer to mitigation Sector 1: Interchanges/Intersections with grade separation and toll plazas.

c. Visual Impact From Structures Sited Within Agricultural Land

A mainline toll plaza is proposed to be sited between the Vanguard Drive and the Strandfontein Road interchanges. A visual impact would result from the siting of the structure within an area of low visual absorption capacity, that is, within agricultural lands.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	H	H	H	Negative	H	H	H
With Mitigation	H	H	M	Negative	H	H	H

Mitigation

Refer to Section 1 mitigation: Impact of Mainline Toll Plaza on Strandfontein residents.

d. Visual Impact From The Proposed De Wet Road Bridge

- It is proposed that the De Wet Road bridge would cross the freeway. A visual impact would result through exposure and a reduction in privacy of adjacent properties. Visual impact from light intrusion from road lighting.

Assessment

	Extent	Duration	Intensity	Status	Significance	Confidence	Probability
Without Mitigation	L	H	H	Negative	H	H	H
With Mitigation	L	M	M	Negative	M	H	H

Mitigation

At the detailed design stage, mitigatory screening (through planting and boundary walls) should be considered to prevent the overlooking of properties adjacent to the De Wet Road bridge.

10.7 CUMULATIVE IMPACTS

Overall, the proposed road would improve people's mobility from north to south and south to north in the Cape Town metropole. Negative impacts with regard to the proposed road tend to occur in pockets, that is, impacts are more negative in some places than others. The following section describes the cumulative impacts of the aspects investigated thus far.

10.7.1 Archaeology And Heritage

The cumulative impact of the proposed road on significant archaeological sites is likely to be moderate to low negative. With regard to historical resources, such as the farm homesteads in sector 3, the cumulative impact of the proposed project is also likely to be low negative.

10.7.2 Economic

The economic assessment draws the overall conclusion that the proposed upgrading, extension and tolling of the R300 would be a positive force in the Western Cape and that the cumulative impacts are generally positive rather than negative.

It was found that the cumulative impact of the upgrading and tolling of the N1/N2 and R300 would be positive. In other words, upgrading and tolling add less to road user costs than driving on the roads without upgrading. This is particularly true in later years with increased traffic congestion and lack of road capacity without upgrading.

After taking account of all multiplier effects, it is estimated that the proposed project would make an annual contribution to GGP of between R170m and R200m for the three years they are under construction. In the years after construction, the toll road would add to GGP. This contribution is expected to be nearly R94m by 2012, over R200m by 2022 and R320m by 2032. GGP is important not just because it is income, but also because income has the capacity to add to wealth. Based on these projections, the toll road would add over R6 billion to provincial GGP by the end of the contract period.

There are many other macroeconomic effects that would flow from the construction and operation of the proposed road. These include the generation of income tax, company tax, other capital expenditure and indirect household income. Over R50m in income taxes would be generated annually during the initial construction and upgrading of the proposed project. As the contribution of construction tapers off, so the contribution of road user savings makes its presence felt. By 2022 over R110m in income tax would be generated. This rises to over R180m by the end of the contract period.

Similarly, there is an annual R250m contribution to indirect household income during the initial construction phase. After this time, the demand effects of savings in road user costs could stimulate indirect household income by over R500m by the end of the contract period. Overall, the proposed project has the capacity to add a cumulative total of R8 billion by the year 2037.

a. *The Comparative Macroeconomic Effect*

In terms of the overall contribution of the proposed road to South African GDP and the Western Cape GGP, it should be appreciated that while the proposed road would make a macroeconomic contribution at a national level, the effect relative to the entire economy is modest. Nevertheless, there is a quantifiable effect. The contribution to South African GDP is 0.06% in 2003, dropping slightly to 0.05% in 2005. During the later years, when the ongoing capital expenditure amounts reduce and the proposed road is in full operation, the contribution to GDP would be in the order of about 0.03%. In the case of the Western Cape, the proposed road would increase GGP by about 0.1% during construction. The contribution to the Western Cape GGP would level off at between 0.04% and 0.07% after the initial construction period.

The proposed project has the capacity to make a contribution to GDP of about R500m each year during the first three years of construction. By the end of the concession period, the contribution to GDP could be as high as R940m with most of this stimulus coming from road user benefits. The proposed project has the capacity to make a cumulative contribution to GDP of over R17 billion by the end of the contract period.

There is the potential to generate over 2,100 jobs annually during the initial construction phase. Subsequent maintenance and occasional increases in road capacity would continue to generate a limited number of direct jobs in construction. After construction and upgrading are complete, between 600 and 900 direct and sustainable jobs would be created in the concession company and in operation and maintenance.

As with the contribution to GDP, the major contributor to jobs after construction are the potential savings in road user costs and their resultant impact on demand. These in turn lead to increased spending and the generation of indirect jobs. The proposed project has the potential to generate between 2,000 and 5,000 direct and indirect jobs over the concession period.

10.7.3 Noise

Property value depreciation could be one of the socio-economic impacts due to the noise increases along the route, through the years, as the traffic increases. However, proper design of barriers and regular noise monitoring would ensure compliance with regulations. The cumulative impact during the operation should be taken into consideration and proper actions instigated.

10.7.4 Social

This development sets a precedent for further development potential, increased urbanisation on the urban fringe and cumulative loss of rural atmosphere and privacy on the farms. In the long-term, this could contribute to the loss of the social and economic environment for farmers and

farm workers. In order to mitigate this, authorities must ensure that the road development does not lead to rapid change in land use in the area. This decision should be specified in the area structure plans.

The reduction of farmland and the potential loss of farm enterprises in sector 3 would impact negatively on the Durbanville wine and crop industries. These industries provide the main source of income for this section of the development, and form part of larger economic systems that create employment.

10.7.5 Tourism

The cumulative impact of the proposed road on tourism is understood as positive. In the main, it would provide an alternative route for tourists and facilitate their movement to destinations along the coast.

10.7.6 Visual

By virtue of the nature of the proposed developments for example, a new high traffic roadway, tolled interchanges with grade separation, mainline toll plaza developments etc., the visual impact would be negative.

A possible positive impact would be from a road user point of view, in terms of investigating the scenic drive potential of appropriate proposed sections, such as:

- That which passes nature areas e.g. Zandvlei, Zeekoevlei (the proposed FBEP) – sector 1, sections 1 and 2 etc.; and
- The northern greenfields section through farmlands towards the west coast – sector 3, sections 7 and 8.

This opportunity would enhance tourism through visual accessibility, especially in the case of the proposed FBEP.

It is, however, important to note that to facilitate a positive visual impact, stringent mitigation measures are to be implemented in terms of:

- Road reserve planting;
- Boundary treatment/visual permeability, noise attenuation (not to disrupt the 'sense of place' which forms part of the visual experience);
- Lighting etc.

However, as appropriate landscaping (i.e. planting and earthworks) of the road reserve is integral to visual impact mitigation, by virtue of the organic nature of planting and taking good maintenance and management for granted, over time, an increase in the visual absorption capacity of the surrounding landscape will be evident, thus reducing the visual impact.

10.8 NO GO OPTION

The following section describes the impacts of the aspects investigated, if the proposed road was not to be built at all.

10.8.1 Archaeology And Heritage

Archaeological impacts would most likely be low if construction of the proposed road does not go ahead.

However, the implementation of the proposed project would present opportunities for heritage specialists. These would include:

- The opportunity to identify and record previously unknown archaeological and palaeontological sites;
- The opportunity to identify measures to protect and maintain any valuable archaeological, palaeontological and historical sites that may exist in the proposed routes; and
- The opportunity to undertake research on previously unknown archaeological and palaeontological sites.

10.8.2 Economic

The existing R300 will soon be at the end of its design life. In the 'do-nothing' alternative, the road would become further damaged and increasingly congested. In the face of financial constraints, SANRAL only has sufficient funding available to maintain these roads, for example, at a Present Serviceability Index of 2.5 with no capacity increases. The consequence of this is that the cost of using these roads would not only increase, but would increase by more than the cost of driving on an upgraded toll road.

The 'no-go' alternative has a number of dimensions. These are:

a. *Impact On Road Users:*

- Financially, in the long-term, it would cost most road users more in the 'do nothing' alternative than if the proposed project goes ahead. Less affluent and regular users of this road may face some financial hardship as a result of the tolled road, but they would face even greater hardship if the road is not upgraded.

b. *Impact On Sensitive Business:*

- There are sensitive businesses in the Western Cape that can little afford any increase in costs. The tolled roads would increase their costs by less than if the road is not upgraded.

c. *Impact On Other Business:*

- It is very likely that the proposed project would boost business in areas like Westlake, Capricorn Park and Bloubergstrand. This stimulus would not occur in the absence of the project.

d. *Impact On Tourism:*

- It has been indicated in the tourism assessment that the proposed project could boost the tourist experience of Cape Town, as it would allow for more flexible travel arrangements.

e. *Impact On Rail Transport:*

- It is possible that the 'do nothing' alternative could stimulate the use of rail transport. The degree to which this would happen depends on the relative cost of using rail as opposed to using the existing road network and the perceptions of using rail for public transport.

In consequence, this alternative could hamper prospects for economic growth in the Western Cape. It would reduce people's spending power, force firms into financial hardship, reduce tourism spending and probably undermine investment.

10.8.3 Noise

If the 'no-go' option is chosen, the following could result:

- The existing R300 would become more congested since the tolling is expected to reduce the projected traffic that was estimated without the tolling.
- Other main roads and alternative routes would have more traffic since there would be no connecting route from Muizenberg to Bloubergstrand. These alternative routes would have higher noise levels and would be affecting greater areas and more people than the noise levels that there would have been with the proposed ring road in operation.

10.8.4 Social

Since public finances are not available to ensure the maintenance of current road standards on the existing R300, it is likely that the quality of this road would gradually deteriorate if this project were not to go ahead. Decreased quality of the road would lead to an increase in hidden travel costs for road users, such as the cost of vehicle maintenance, and the travel time involved in journeys.

If the project were not to go ahead, the integrity of the Zandvlei and Rondevlei nature conservation areas would not be compromised. These areas serve as significant open space and natural resources for the surrounding urban townships.

The 'no-go' option would not lead to additional security measures in sectors 1 and 2, where crime levels are high.

Farms that would be affected by the development are currently financially viable and are not likely to cease or significantly alter their operations if the no-go option were to be followed. It is more likely that operations are to be increased. Employment and housing opportunities would remain stable.

Gradual increases in urbanisation is expected. A number of farmers are planning semi-rural housing developments on their properties.

10.8.5 Tourism

As roads in the CMA become more congested over time, the impact on tourism would be in relation to increased tourism travel times to their destinations. This could lead to unpleasant visitor experiences.

10.8.6 Visual

If the proposed road does not get built, the status quo in terms of visual aspects would prevail.