

## **PART B: PROJECT INFORMATION**

Part B of this report comprises four chapters providing relevant project information, as follows:

- **Chapter 3 – General Project Information:** Presents general information on the legislative framework for tolling of national roads, the rationale for tolling, the motivation for the proposed project, and the toll sections. Information on operation and maintenance aspects and the empowerment strategy of the proposed project is also provided;
- **Chapter 4 – Project Description:** Provides a detailed description of the proposed scope of work along the various road sections of the proposed project;
- **Chapter 5 – Consideration of Alternatives:** Provides a summary of the various alternatives considered in the Scoping Study and gives a detailed description of the identified feasible alternatives assessed in the Impact Assessment phase of the EIA; and
- **Chapter 6 – The Affected Environment:** Provides a description of the key characteristics of the biophysical, socio-economic and cultural-historic environment in which the proposed project would be located. Relevant project-related planning, legislative and policy aspects are also discussed.



## CHAPTER 3 GENERAL PROJECT INFORMATION

This chapter provides a description of those aspects that relate to the broad concept of the proposed project, such as the legislative framework and rationale for tolling at a national level. It also provides the motivation for the proposed project. Furthermore, this chapter provides information on toll plazas, a possible range of toll tariffs and tolling methods and the proposed operation, maintenance and empowerment strategies of the proposed project. The detailed scope of work is covered in Chapter 4.

### 3.1 LEGISLATIVE AND POLICY FRAMEWORK FOR TOLLING OF NATIONAL ROADS

#### 3.1.1 SOUTH AFRICAN NATIONAL ROADS AGENCY LIMITED AND NATIONAL ROADS ACT, 1998 (ACT NO. 7 OF 1998)

SANRAL was established in April 1998 in terms of the above Act as an independent statutory company operating along commercial lines at arms length from Government. The purpose of the company is to maintain and develop South Africa's approximately 16 700 km national road network and to manage assets with an estimated value of more than R 6.4 billion (2004). One of the principle tasks of SANRAL is to strategically plan, design, construct, operate, rehabilitate and maintain South Africa's national roads while taking into account the environmental and socio-economic impacts and sustainability associated with its intended actions. The latter aspects have always been recognised as principle factors to be considered in transportation planning and transportation investment decision-making.

In addition to outlining the governance, staffing, functions, powers, responsibilities and financing of SANRAL, the Act gives official policies on the declaration, tolling, use and protection of national roads. The following are of relevance to this project:

- The Minister of Transport may declare any existing road or any route, to be a national road. This will be done on the recommendation of SANRAL and with the agreement of the Premier of the province/s in question (Section 40 of the above Act);
- Land required for road building purposes either outside an existing road reserve or within a new road reserve may be acquired on a "willing seller willing buyer" principle in terms of the above Act. Only the Minister of Transport can expropriate land where it is shown that such land is reasonably required and the Minister is satisfied that on reasonable grounds SANRAL is unable to acquire the land (or the right to use the land temporarily) by agreement with the owner of the land or the holder of any relevant right in respect of the land, as the case may be (Section 41 of the above Act);
- SANRAL may, with the Minister's approval, declare any specified national road or portion thereof as a toll road (Section 27 of the above Act);
- SANRAL may authorise, for a fixed period of time, any person to finance, plan, design, construct, maintain or rehabilitate a national road or portions thereof and to operate, manage and control it as a toll road for this purpose (Section 28 of the above Act);
- The Minister, on the recommendation of SANRAL, determines any increase or reduction to the toll tariff charged on a toll road;
- SANRAL may grant exemption from the payment of a toll to certain users or categories of vehicles; and
- SANRAL may withdraw any of the above exemptions, restrictions or suspensions.

In the declaration of a national road as a toll road, SANRAL is required to undertake the following:

- Indicate the approximate position/s of toll plaza/s contemplated for the proposed toll road; and

- Invite I&APs to comment and make representations on the proposed declaration and the position/s of the toll plaza/s and direct them to furnish their written comment and representations to SANRAL not later than the date mentioned in the Notice of Intent.

In order to comply with section 27(4)(a) of the above Act, interested parties must be invited to comment and make representations within a specified time (a minimum of 30 days is specified). In addition, comments and representations must also be directly requested from each Premier in whose province the intended toll road would be situated, as well as each municipality in whose jurisdiction the intended road would be located. The minimum period for such comment shall be 60 days. Public notices are normally placed in national, provincial and regional newspapers. SANRAL must consider each representation and provide responses in respect of such comments and representations. SANRAL must also indicate the extent to which such concerns have been accommodated in a report that must be submitted to the Minister for consideration.

### **3.1.2 UNSOLICITED PROPOSAL PROCESS**

#### **3.1.2.1 Scheme Development**

In order to constructively engage the private sector SANRAL's predecessor, the South African Roads Board, in September 1997 developed a policy in respect of Unsolicited Proposals. This policy was revised in 1999 (the current version) by SANRAL to take into account the comments received from both national and international institutions. Through the policy the private sector is able to submit unsolicited proposals for the development of national road infrastructure that forms part of the strategic national road network identified by SANRAL. Such unsolicited proposals could ultimately be implemented as toll road concessions such as the N4 Maputo Development Corridor, the N3 Toll Highway and the N4 Platinum Toll Highway. The Unsolicited Proposal Process is shown in Figure 3.1.

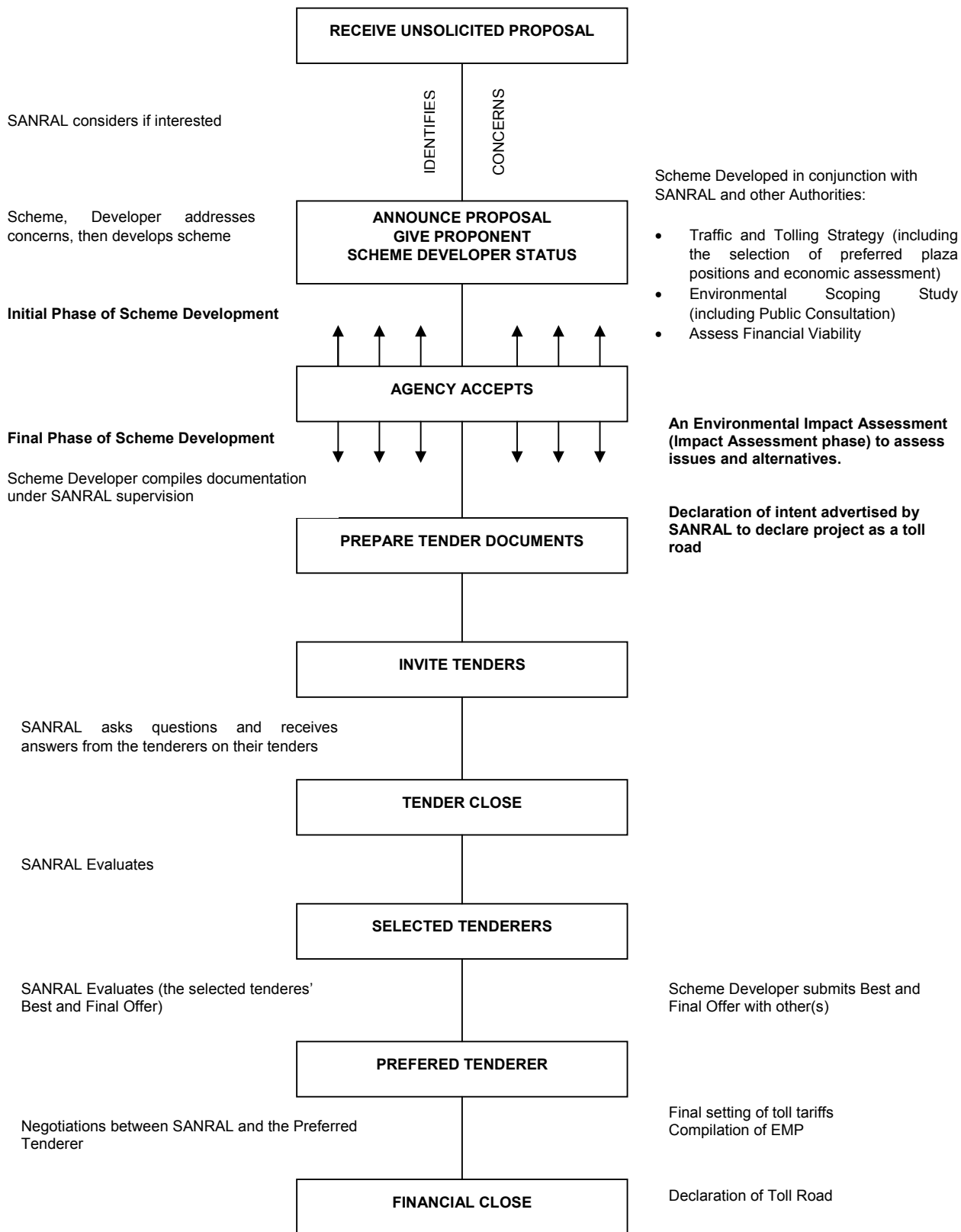
Where a proposal meets the requirements of the policy, i.e. reflects conformance with governmental aims, is in the public interest, avoids the creation of monopolistic practices, does not seek to place onerous conditions upon Government, and reflects environmental, social and economic sustainability, the parties submitting the proposal would be awarded "Scheme Developer" status. The Scheme Developer is given an opportunity to develop its proposed scheme further in order that SANRAL may ascertain the financial, technical and environmental feasibility of the proposal, before it is considered for open tender.

It should be noted that the "Scheme Developer" of this proposed project, the N2 Wild Coast Consortium, has played no part in the current EIA process (refer to Section 1.1).

#### **3.1.2.2 Tender Process**

On successful completion of "Scheme Development", and if a positive RoD is obtained from DEA and upheld by the Minister of Water and Environmental Affairs, SANRAL would call for open, international tenders for the Concession Contract. The "Scheme Developer" would submit a tender with all other interested parties for the right to design, construct, operate, maintain and finance the proposed project. It should be noted that the "Scheme Developer" would not be involved in the tender call or adjudication of tenders.

SANRAL would select the most advantageous tenders, based on best "value for money" and affordability, from whom, including the "Scheme Developer", Best and Final Offers (BAFOs) would be invited. SANRAL would then evaluate the BAFOs and select a "Preferred Tenderer". Upon selection, the "Preferred Tenderer" will negotiate the Concession Contract and raise the necessary finance to achieve financial closure.



**Figure 3.1: Flowchart of the Unsolicited Proposal Process**

The concession period may be 30 years, or such a period as offered by tenderers and found acceptable by SANRAL, inclusive of an Initial Construction Period (normally three years). It should be noted that the EIA and RoD to be issued by DEA would be based on the work to be undertaken during the Initial Construction Period. At the end of the concession period the entire asset reverts back to the State, at no cost to the State.

### **3.1.2.3 Notice of Intent for declaration of a Toll Road**

Before the project can commence, the national Minister of Transport must declare a road a national road and a toll road. The procedures for the Notice of Intent for declaration of a toll road would be followed as set out in Section 3.1.1 above.

### **3.1.2.4 Process leading to Financial Closure**

Prior to financial closure the following will be completed:

- Compilation and approval of an EMP and agreement on mitigation measures;
- Design;
- Other necessary approvals in terms of relevant legislation;
- Negotiations and setting of final discount structures; and
- Agreement on toll tariffs.

## **3.2 RATIONALE FOR TOLLING AT A NATIONAL LEVEL**

### **3.2.1 FUEL LEVY ALLOCATION**

A portion of the fuel levy was historically allocated to a dedicated road fund and was used for that purpose. However, in April 1987 this allocation was terminated. All national road funding was thereafter allocated from Central Revenues. The country's fiscal system treats all tax revenue as fungible and precludes revenue targeting for infrastructure. Revenues raised through a particular tax cannot be preserved for a single pre-specified infrastructure use; instead they go into a central fund and are then allocated across all competing uses via the budgetary process.

Thus, despite widely held public belief, the fuel levy is not allocated automatically to SANRAL. To put this into context, in 2006 the amount paid into the national fiscus by road users was in the region of R 44 billion (derived from the fuel levy, customs and excise duties, VAT on new and second-hand vehicle sales, VAT on vehicle parts and repairs, import duties on vehicles and parts, licence fees and VAT on toll fees). This was far in excess of the approximately R 10.6 billion spent by the state in 2004/05 on building and maintaining national and provincial roads and/or contributed by the State to the cost of metropolitan and municipal roads.

### **3.2.2 BUDGET CONSTRAINTS**

SANRAL is currently responsible for development, maintenance and rehabilitation of some 17 000 km of national roads in South Africa. To this end, SANRAL receives an annual budget allocation from the National Treasury for its non-toll road network. The toll road network is funded with loans through SANRAL's existing debt portfolio, which is secured by state guarantee up to a maximum of R 6 billion, through unsecured loans guaranteed its balance sheet and by equity and private loans raised through its Build-Operate-Transfer (BOT) concession operations (Public-Private-Partnerships). SANRAL's budget

allocation for 2003 and 2004 was R 1.1 billion and R 1.4 billion, respectively. According to SANRAL, this funding was only sufficient to manage about half of the non-toll national road network at that time (11 550 km). It is envisaged that SANRAL would eventually be responsible for a 20 000 km national road network. In addition, the primary road network is old and requires structural strengthening and, thus, major capital investment (more than 60% of the non-toll road network is older than its 20 to 25-year design life).

Also, most of the primary road networks in and around South Africa's major economic centres are operating beyond their operational traffic capacity and require an increase in capacity (widening) and/or additional infrastructure. Some of the routes between these centres also require improvements in capacity. Currently 65% of SANRAL's budget allocation is spent on preserving or maintaining the primary road network while the remainder is spent on upgrading the assets. Inherent in this expenditure is keeping the roads in a safe condition for daily use. With an assumed funding level of R 4.4 billion a year for the non-toll national road network, the existing system will deteriorate over the next eight years to a forecasted backlog of R 9.6 billion.

According to SANRAL, this shortfall can be addressed by toll financing which is, and has been prior to 1994, government policy. SANRAL's vision, strategy and intentions are set out in its two policy documents, namely:

- Declaration of Intent; and
- Horizon Twenty Ten.

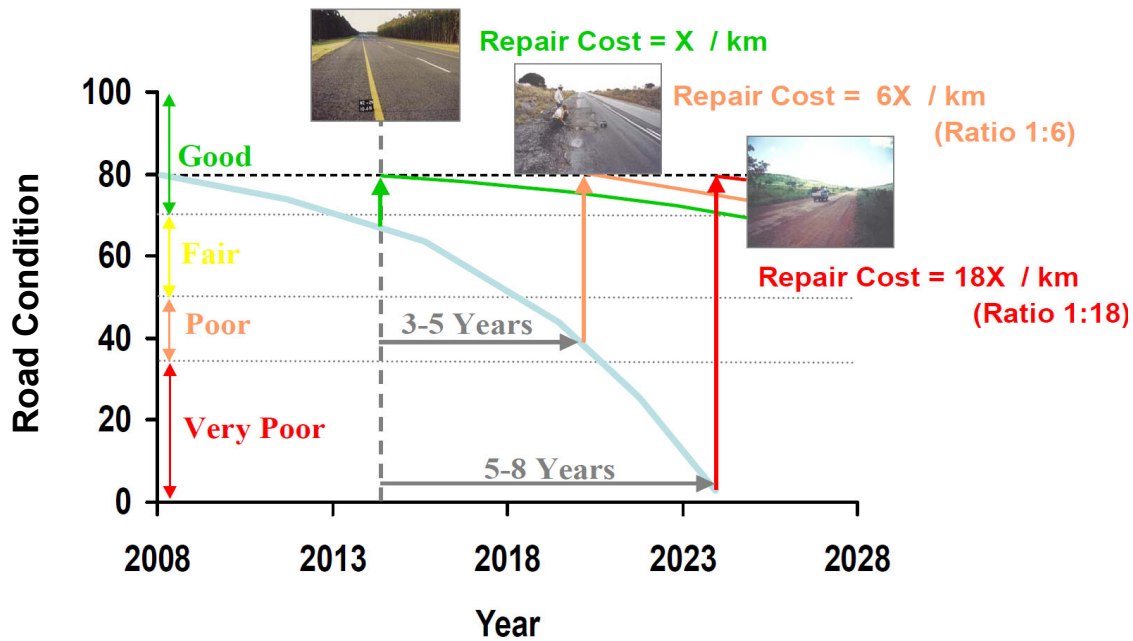
SANRAL's annual reports and financial statements including the above documents are available on <http://www.nra.co.za>. According to SANRAL, South Africa's experience with toll roads goes back many years. The first "modern" toll road constructed in South Africa was the Tsitsikamma toll road near Plettenberg Bay and was completed in 1984. Many toll roads followed, including the Huguenot Tunnel, the N3, the N2 South and North Coast and the more recent Platinum Toll Highway. Thus, SANRAL sees tolling as an appropriate and successful funding mechanism to create new road infrastructure and to upgrade and maintain existing national routes where this is equitable, achievable and feasible. Furthermore, it allows tax-based revenues to be utilized for the non-toll road network and other much-needed social projects.

### **3.2.3 ROAD MAINTENANCE COSTS**

Roads deteriorate over time, primarily due to traffic and environmental influences (i.e. weather, ultra-violet radiation, overloading, etc.). For these reasons, roads have to be maintained throughout their design life in order to ensure that they deliver the performance envisaged. The timing of this maintenance is crucial, as is illustrated in [Figure 3.2](#).

If maintenance is performed as and when required based on technical assessments of the road (as illustrated in [Figure 3.2](#)), the road user will not observe any visible signs of distress on the road. For illustrative purposes, it is assumed that the typical cost of maintenance at this stage is R X million per km.

However, if maintenance is not performed when required based on technical assessments and the road is allowed to deteriorate for, say, a further three years, visible signs of distress on the road surface may become apparent to the road user. Maintenance at this stage of deterioration typically costs approximately R 6X million per km. By implication therefore, only one sixth of the length of road can then be repaired on the same budget.



Please Note: Typical Costs for 11.4m Wide Road in Flat Terrain

**Figure 3.2:** Road conditions over time and increased costs associated with inadequate road maintenance (source: SANRAL)

Should maintenance be delayed for, say, five years, the typical cost per kilometre rises to approximately R 18X million per km. In other words, the cost of maintaining a road becomes 18 times more expensive if delayed by five years and only one eighteenth of the length of road can be maintained on the same budget, resulting in good roads further deteriorating and requiring additional capital for their maintenance.

The cost of inadequate road maintenance is thus primarily borne by the economy and the road user. When the condition of a road is allowed to deteriorate from good to very poor, each R 1.00 not spent on asset preservation (road maintenance) increases vehicle operating costs by R 2.00 to R 3.00. This increases the cost of transport and raises the net costs to the economy as a whole.

### 3.3 MOTIVATION FOR THE PROPOSED N2 WILD COAST TOLL HIGHWAY

#### 3.3.1 NATIONAL AND REGIONAL ECONOMIC CONTEXT

SANRAL has indicated that national road networks link together the main cities and economic regions of a country and thus play an important developmental role in economic growth and social upliftment. National road networks are primarily designed to facilitate the safe and efficient movement of people, goods and services over medium to long distances between economic centres. Trips are undertaken by private vehicles (commuter, business and recreational trips), public transport and commercial heavy vehicles to satisfy the needs and requirements of the unitary economic unit, i.e. the household, in a particular corridor, adjacent regions and the rest of the country. At a regional level, the provincial and local road networks provide the necessary linkages to the local communities thereby providing, with the national network, the required mobility to provide the basic ingredients for socio-economic growth.

According to SANRAL, the former Transkei, particularly the region between the Kei River and the Mthamvuna River, is doubly handicapped in this respect. Not only does it currently have few economically realisable natural resources but the rugged and mountainous terrain has ensured that



access is barely adequate at best and rudimentary at worst. The alignment of the existing N2, for instance, was determined in 1936 (the actual road was substantially completed by 1946) and has remained the only primary access to the area to date. The paved R61, which is the only other primary access, was only completed in the late 1970s and early to middle 1980s. There has been no improvement in provision of access since then. Secondary and local road networks are inadequate where they exist or are non-existent.

The existing N2 and R61 tend to follow “watershed alignments” in order to avoid crossing deeply incised gorges and river valleys on the scale and extent of the “Valley of a Thousand Hills” and the Oribi Gorge in KwaZulu-Natal. Hence, the existing N2 is located up to more than 100 km inland (at Mount Frere) and reaches a height of approximately 1 700 metres above mean sea level at Brookes Nek before it descends to sea level at Port Shepstone. The R61, in turn, is located up to almost 60 km inland (at Flagstaff) and is at a height of about 1 000 m at that point. Access to the coast is poor where it exists at all. Access parallel to the coast is non-existent because of the deeply incised gorges and valleys. For example, in many cases it is only possible to drive between certain locations along the coast by first returning to the R61. This can involve a round trip of about 100 to 120 km, whereas the locations are often only 20 to 30 km apart. Not surprisingly, this region is one of the most impoverished areas in South Africa. The proposed project aims to improve access and linkage to the Wild Coast region while reducing road-user costs and optimising safety and socio-economic benefits.

SANRAL has indicated that the Wild Coast region has been identified as an area for strategic economic development in accordance with Government’s Spatial Development Initiative (SDI) strategy. The Wild Coast SDI identified the provision of a major road, such as the proposed toll road, as an important catalyst for the achievement of its objectives since it would enhance access to the region and would facilitate development of the eco-tourism potential of the area.

The existing N2 south of Mthatha requires major upgrades to fulfil its function as a primary national road between economic centres and to cater for rapidly growing traffic volumes. The existing R61 and N2 between Port Edward and Durban currently require the same upgrading over some of their length although not to the same extent as the other sections forming part of the proposed toll highway. However, the anticipated and current traffic growth along the section between Port Edward and Durban requires that such upgrades would be required sooner rather than later.

According to SANRAL the proposed N2 Wild Coast Toll Highway aims to provide an improved, shorter and safer road link between the Eastern Cape/Western Cape and KwaZulu-Natal. A shorter, more efficient transport route is viewed as an improvement to the national road network and is considered of strategic importance to the region and the country as a whole. It is considered that such a national road or “spine” would provide the necessary linkages and impetus to improve the secondary and local networks while facilitating sustainable economic growth along the entire corridor.

### **3.3.2 SUMMARY OF KEY PROBLEMS ALONG THE EXISTING N2 AND R61 SECTIONS OF THE PROPOSED N2 WILD COAST TOLL HIGHWAY AND POTENTIAL BENEFITS TO THE ROAD USER**

SANRAL has, since 1999, been responsible for management of the existing N2 between East London and Brooks Nek (previously managed by the Eastern Cape provincial authorities). Although long stretches of the existing road have been (e.g. Kei Cuttings) and are being upgraded and rehabilitated (e.g. around Butterworth and Mount Ayliff), much upgrading is still required.

SANRAL has also recently taken over responsibility for management of large sections of the R61 from the Eastern Cape provincial authorities. Although the traffic volumes on the R61 are significantly less than the N2, some of these sections are in a very poor condition.

The key problems currently experienced along the existing N2 and R61 sections of the proposed toll highway and the potential benefits of the proposed project to the road user are provided in Table 3.1. The full extent of the proposed construction activities and road infrastructure improvements are described in detail in Chapter 4.

**Table 3.1: Current problems along the existing N2 and R61 sections of the proposed toll highway and potential benefits of the proposed project to the road user**

ROAD SECTIONS AND CURRENT PROBLEMS	POTENTIAL BENEFITS TO THE ROAD USER
<b>GONUBIE INTERCHANGE TO NGOBOZI (77.9 km; existing N2)</b>	
<ul style="list-style-type: none"> <li>• Extensive deterioration of the pavement (rutting and cracking) on certain sections.</li> <li>• Some capacity problems at steep inclines.</li> <li>• Extensive pot-hole/patching repairs on certain sections.</li> <li>• Few climbing/passing lanes.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved riding quality.</li> <li>• Improved road user safety.</li> <li>• Reduced Vehicle Operating Cost (VOC).</li> </ul>
<b>NGOBOZI TO DUTYWA (52.6 km; existing N2)</b>	
<ul style="list-style-type: none"> <li>• Pedestrian and livestock traffic pose a safety risk in some areas due to proximity of rural settlements.</li> <li>• Conditions at Ndabakazi Intersection are very dangerous due to turning traffic and pedestrians.</li> <li>• Large numbers of vehicles executing turns at intersections in Butterworth.</li> <li>• Large numbers of pedestrians in Butterworth.</li> <li>• Riding quality fair to poor.</li> <li>• Fencing and signage poor.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved capacity.</li> <li>• Improved riding quality.</li> <li>• Improved road user safety.</li> <li>• Reduced VOC.</li> <li>• Reduced travel time.</li> <li>• Improved safety for communities, pedestrians and road users.</li> </ul>
<b>DUTYWA TO MTHATHA (84.7 km; existing N2)</b>	
<ul style="list-style-type: none"> <li>• Riding quality fair to very poor.</li> <li>• Road surface is extensively deformed with frequent potholes/patching repairs in some areas.</li> <li>• Many illegal accesses.</li> <li>• Surface is extensively deformed with widespread cracking over entire length and width between Viedgesville and Mthatha.</li> <li>• Large numbers of vehicles executing turning movements at intersections through Mthatha.</li> <li>• Large numbers of pedestrians in Mthatha.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved capacity.</li> <li>• Improved riding quality.</li> <li>• Improved road user safety.</li> <li>• Reduced VOC.</li> <li>• Reduced travel time.</li> <li>• Improved safety of communities, pedestrians and road users.</li> </ul>
<b>MTHATHA TO NDWALANE (79.5 km; existing R61)</b>	
<ul style="list-style-type: none"> <li>• Section of the route near Mthatha characterised by peri-urban development along the road corridor, which requires the formalisation of access and cross-access.</li> <li>• Road in very poor condition in some sections.</li> <li>• The route passes through an area of geotechnical instability in the mountain pass (Tutor Ndamase Pass).</li> <li>• Culvert failure near Ndwalane in 2001.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved road user safety.</li> <li>• Improved and controlled access.</li> <li>• Increased traffic capacity.</li> <li>• Improved riding quality.</li> <li>• Reduced VOC.</li> <li>• Reduced travel time.</li> </ul>
<b>NDWALANE TO NTAUFUFU RIVER (16.5 km; new road section)</b>	
<ul style="list-style-type: none"> <li>• Existing design speed is 40-50 km/h.</li> </ul>	<ul style="list-style-type: none"> <li>• Much reduced travel time since the proposed new route would be 12 km shorter than the existing pass between Ndwalane and Ntafufu. The alignment and design speed (100-120 km/h) of the proposed new route would also be far superior to the existing pass.</li> <li>• Reduced VOC.</li> <li>• Improved road user safety.</li> </ul>

ROAD SECTIONS AND CURRENT PROBLEMS	POTENTIAL BENEFITS TO THE ROAD USER
<b>NTAFUFU RIVER TO LUSIKISIKI (18 km; existing R61)</b>	
<ul style="list-style-type: none"> <li>• Design speed of existing road 40 km/h over certain sections to minimise initial construction costs.</li> <li>• Pavement deterioration evident.</li> <li>• Patches and cracks.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced VOC.</li> <li>• Reduced travel time.</li> <li>• Improved road user safety.</li> </ul>
<b>LUSIKISIKI TO MTHAMVUNA RIVER (80 km; new road section)</b>	
<ul style="list-style-type: none"> <li>• No access or road link exists.</li> </ul>	<ul style="list-style-type: none"> <li>• Much reduced travel time associated with approximately 80 km shorter route.</li> <li>• Reduced VOC.</li> <li>• Improved road user safety.</li> <li>• Improved access across major river gorges where none currently exists.</li> </ul>
<b>MTHAMVUNA RIVER TO ISIPINGO INTERCHANGE (147.5 km; existing R61 and N2)</b>	
<ul style="list-style-type: none"> <li>• Mthamvuna River to Southbroom section is characterised by frequent access points, which currently serve a number of coastal resorts and the more rural areas of KwaZulu-Natal.</li> <li>• Sub-standard interchange at Adams Road.</li> <li>• Capacity problems during peak periods between Adams Road and Isipingo interchanges.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved road user safety.</li> <li>• Improved access control.</li> <li>• Reduced VOC.</li> <li>• Reduced travel time.</li> <li>• Improved riding quality.</li> <li>• Alleviation of traffic congestion.</li> <li>• Safer access at Adams Road Interchange.</li> </ul>

### 3.3.3 CURRENT AND PREDICTED FUTURE TRAFFIC VOLUMES

When a section of national road is to be upgraded due to increasing traffic flows and road maintenance requirements, SANRAL's policy is that the national road should be designed to carry the future forecasted traffic efficiently and safely for the next 20 or 30 years. According to SANRAL, this is a generally accepted practise applied by national roads authorities in most countries. Historic trends have shown that traffic volumes generally grow in line with Gross Domestic Product (GDP) growth and usually at about one to two percentage points above GDP growth. Thus, for the last 20 years national road traffic has grown between 3% – 5% per annum, which means that one can expect the future traffic to more than double in a 20-year period, and more than triple in a 30-year period. Historical traffic counts on the primary road network confirm this trend<sup>1</sup>. In addition, it needs to be recognised that commercial truck traffic is growing faster than the general light vehicle traffic, which has major implications in terms of road pavement design, maintenance and traffic operations on sustained steep road gradients.

Traffic volumes in the corridor between East London and Durban have grown above the national average since 2001, although there was a general slump and negative growth in traffic volumes during the late 1990's. The current (2005) and predicted future traffic flows for the proposed N2 Wild Coast Toll Highway are shown below in Table 3.2 (and see Figures 3.3 a and b). The predicted future traffic growth is based on the following annual growth rates: 4.5% per annum for the first five years (2005-2010); 4% per annum for the following ten years (2010-2020); 3% per annum for the following ten years (2020-2030); and 2% per annum for the final ten years (2030-2040).

<sup>1</sup> See historical Comprehensive Traffic Observations (CTO) and provincial and local traffic counts on the primary network.

**Table 3.2: The Annual Average Daily Traffic (AADT) counts at traffic monitoring stations on Existing Routes and the proposed N2 Wild Coast Toll Highway (with new roads and new mainline toll plazas) for the current situation (2005) and projected traffic volumes up to 2035**

Route	No	Station Name	Existing Routes (see Figure 3.3a)				Proposed N2 Wild Coast Toll Highway with new roads and new mainline toll plazas (see Figure 3.3b)			
			2005	2015	2025	2035	2005	2015	2025	2035
Existing route 1 (or New Toll Highway)	1	Prospecton	54651	82860	116869	149584	48618	73713	103968	133071
	2	Scottburgh	18662	28295	39908	51079	18567	28151	39705	50819
	3	Sezela	12731	19302	27225	34846	12775	19369	27319	34966
	4	Umtentweni-south	6452	9782	13797	17660	6353	9632	13586	17389
	18	Oribi Ramps	6863	10405	14676	18785	7254	10998	15512	19855
	25	Proposed Mthentu Plaza	no station	no station	no station	no station	1795	2722	3839	4913
	20	Lusikisiki	1265	1918	2705	3462	2509	3804	5365	6867
	26	Lusikisiki (new N2 south)	no station	no station	no station	no station	2166	3284	4632	5929
	22	Libode	1830	2775	3913	5009	3182	4824	6805	8709
	9	Bashee Bridge	3912	5931	8366	10707	4359	6609	9322	11931
	10	Toleni	5165	7831	11045	14137	5587	8471	11948	15292
11	Mooiplaas	4420	6701	9452	12098	4857	7364	10386	13294	
Existing route 2 (or Alternative 1)	12	Kingsway	21020	31870	44950	57533	25084	38032	53641	68657
	13	Umkomaas	2920	4427	6244	7992	3152	4779	6740	8627
	14	Park Rynie	4712	7144	10076	12897	4866	7378	10406	13319
	15	Umtentweni-north	12777	19372	27323	34972	13053	19791	27913	35727
	16	Port Shepstone	12358	18737	26427	33825	12718	19283	27197	34810
	17	Southbroom	17147	25998	36668	46933	17147	25998	36668	46933
	19	Magusheni	2687	4074	5746	7355	2126	3223	4546	5819
	21	Lusikisiki (R61 south)	no station	no station	no station	no station	343	520	733	939
23	Mthatha	2248	3408	4807	6153	2281	3458	4878	6243	
Existing route 3 (or Alternative 2)	24	Ixopo	5047	7652	10793	13814	5194	7875	11107	14216
	5	Harding	3056	4633	6535	8365	2417	3665	5169	6616
	6	Kokstad-north	3473	5266	7427	9506	2834	4297	6060	7757
	7	Kokstad-south	3648	5531	7801	9985	2847	4317	6088	7792
	8	Mount Frere	3727	5651	7970	10201	2926	4436	6257	8009
	9	Bashee Bridge	3912	5931	8366	10707	4359	6609	9322	11931
	10	Toleni	5165	7831	11045	14137	5587	8471	11948	15292
11	Mooiplaas	4420	6701	9452	12098	4857	7364	10386	13294	

### **3.4 TOLL PLAZA LAYOUT AND OPERATION**

The basic mainline toll plaza design would be based on SANRAL's standard requirements, namely the use of a 5 m-width lane comprising of a 3.2 m vehicle lane and a 1.8 m toll island for the tollbooth. A typical mainline toll plaza canopy is 20 m long and as wide as the number of lanes determines. The number of toll lanes for the mainline plazas would vary between six and 18. Support infrastructure would include a control building and store, maintenance and parking areas. The layout of the existing Oribi Toll Plaza is typical of what is planned for the proposed mainline plaza locations (see layouts of proposed mainline toll plazas in Chapter 4).

Payment methods could include cash, credit card and frequent user cards. Electronic tolling methods could be implemented for use in areas where the volumes of traffic are significant; this would provide an efficient system of collecting tolls and eliminate any delays that manual toll collections could cause. Electronic toll collection is a system that detects a particular vehicle through electronic "tagging" as it passes through the toll plaza without stopping, classifies it and deducts the appropriate tolls from the prepaid account of the registered user of the vehicle. This is a highly efficient way of tolling for a number of reasons, including: reduced noise and pollution as vehicles do not have to stop, reduced trip times and ease of implementation of frequent user discounts and targeted discounts to vulnerable industries and communities.

### **3.5 TOLL SECTIONS AND TOLL TARIFFS**

#### **3.5.1 GENERAL OVERVIEW**

In establishing a tolling strategy, tenderers (refer to Section 3.1.2) would likely consider the following:

- The traffic volumes expected along each road section;
- The proposed technical upgrade required;
- The benefits associated with the upgrade with respect to the "do nothing" and other alternatives;
- The willingness to pay (price elasticity) for the utility with respect to the "do nothing" and other alternatives;
- Number of affected local users and likely discounts;
- The location of the toll plazas and associated tolling strategy; and
- The likely impact of the toll rates on traffic diversion.

Each tenderer would submit their proposed tolling strategy, toll tariffs, discounts and proposed escalation over time in relation to the Consumer Price Index (CPI). SANRAL would evaluate these tenders and would, where appropriate, include negotiation of lower toll tariffs and higher discounts. The toll tariffs would then be fixed in the Concession Contract entered into between SANRAL and the Concessionaire. Before tolling could commence, the toll tariffs would need to be approved by the Minister of Transport and thereafter advertised in the Government Gazette.

It is common practice in South Africa to offer discounts to certain user groups. This could be done in a number of ways, including discounts to frequent users, discounts to local or regional users and discounts based on the time of day the road user passes through the plaza. Provision is also made under certain circumstances for exemption from payment. The potential Concessionaire would, to some extent, be responsible for negotiating these discounts. However, SANRAL could also specify applicable discounts to certain user groups before-hand, i.e. in the tender specifications.

The toll strategy and location of the plazas would be such that, as equitably as possible, the motorist would pay only for the extent of the road that is used. Consequently each plaza would have a unique toll applicable to each individual class of vehicle. The applicable toll tariffs would be within the norms currently utilised in South Africa. Typical toll tariffs for existing toll roads throughout South Africa are provided in Table 3.3.

**Table 3.3: Toll road tariffs (Rand) across South Africa (SANRAL, 2009)**

Route	Plaza	Class 1 All light Vehicles	Class 2 2-axle heavy vehicles	Class 3 3 and 4 axle heavy vehicles	Class 4 5 and more-axle heavy vehicles
N1	Huguenot	23,00	60,00	93,00	151,00
N1	Verkeerdelei	33,00	66,00	99,00	136,00
N1	Vaal	38,00	72,00	87,00	116,00
N1	Grasmere: Mainline	12,00	31,00	36,00	48,00
N1	: Ramps	6,00	15,50	18,00	25,00
N1	Carousel: Mainline	33,00	88,00	98,00	113,00
N1	Stormvoël Ramp	5,50	13,50	16,00	19,00
N1	Zambesi Ramp	6,60	16,50	19,00	23,00
N1	Pumulani	7,20	18,00	20,50	25,00
N1	Wallmansthal Ramp	3,20	8,00	10,00	11,50
N1	Murrayhill Ramp	6,60	16,50	19,50	23,00
N1	Hammanskraal Ramp	15,50	53,00	57,00	66,00
N1	Maubane Ramp	14,50	38,00	42,00	49,00
N1	Kranskop: Mainline	26,00	66,00	81,00	108,00
N1	: Ramp	7,00	19,00	23,00	34,00
N1	Nyl: Mainline	33,00	62,00	76,00	101,00
N1	: Ramp	10,00	19,00	23,00	29,00
N1	Sebetiela Ramp	10,00	19,00	25,00	33,00
N1	Capricorn	27,00	70,00	83,00	108,00
N1	Baobab	26,00	66,00	94,00	117,00
N2	Tsitsikamma: Mainline	13,00	33,00	80,00	111,00
N2	: Ramp	13,00	33,00	80,00	111,00
N2	Umtentweni: Ramp	7,50	13,00	18,00	29,00
N2	Tongaat: Mainline	6,50	13,50	18,00	26,00
N2	: Ramps	3,50	7,00	9,00	13,00
N2	Mvoti	8,00	19,50	27,00	40,00
N2	Mtunzini: Mainline	27,00	51,00	61,00	83,00
N2	: Ramp (South)	22,00	42,00	50,00	68,00
N2	: Ramp (North)	5,00	9,50	12,00	18,00
N2	Mandini Ramp	4,50	8,00	10,00	13,00
N2	Dokodweni Ramp	11,00	22,00	26,00	36,00
N2	Oribi: Mainline	17,00	30,00	42,00	68,00
N2	: Ramp (South)	8,00	14,00	20,00	31,00
N2	: Ramp (North)	9,50	16,00	23,00	38,00
N2 (R61)	Izotha Ramp	5,50	9,50	13,00	23,00
N3	Marianhill	7,00	12,00	16,00	24,00
N3	Tugela	43,00	72,00	113,00	156,00
N3	Tugela East	27,00	45,00	66,00	92,00
N3	Bergville Ramp	13,00	15,00	28,00	43,00
N3	Mooi: Mainline	30,00	74,00	104,00	141,00
N3	: Ramps (Treverton & North)	9,00	22,00	31,00	42,00
N3	: Ramp (South)	21,00	52,00	73,00	99,00
N3	Wilge	41,00	70,00	93,00	132,00
N3	De Hoek	29,00	46,00	69,00	100,00
N4	Pelindaba	3,50	6,50	9,00	12,00
N4	Quagga	2,50	5,00	6,50	9,00

Route	Plaza	Class 1 All light Vehicles	Class 2 2-axle heavy vehicles	Class 3 3 and 4 axle heavy vehicles	Class 4 5 and more-axle heavy vehicles
N4	Swartruggens	61,00	153,00	186,00	219,00
N4	Kroondal Ramp	9,00	21,00	23,50	28,00
N4	Marikana	13,00	32,00	36,00	42,00
N4	Buffelspoort Ramp	9,00	21,00	23,50	28,00
N4	Brits	9,00	31,00	34,00	39,00
N4	K99 Ramp	9,00	22,00	25,00	31,00
N4	Doompoort	9,00	22,00	25,00	31,00
N4	Donkerhoek Ramp	7,50	11,00	15,00	29,00
N4	Cullinan Ramp	9,50	15,00	23,00	38,00
N4	Diamond Hill	22,00	31,00	58,00	96,00
N4	Valtaki Ramp	17,00	24,00	35,00	80,00
N4	Ekandustria Ramp	13,00	20,00	28,00	55,00
N4	Middelburg	37,00	80,00	121,00	159,00
N4	Machado	55,00	153,00	222,00	317,00
N4	Nkomazi	42,00	84,00	122,00	176,00
N17	Gosforth: Mainline	7,00	19,00	21,00	29,00
N17	: Ramp (East)	3,50	12,00	13,00	18,00
N17	: Ramp (West)	3,50	8,00	10,50	14,00
N17	Dalpark	6,50	13,50	18,00	25,00
N17	Brakpan Ramp	5,50	11,00	14,50	20,00

### 3.5.2 TOLL SECTIONS OF THE PROPOSED N2 WILD COAST TOLL HIGHWAY

The proposed N2 Wild Coast Toll Highway would include seven mainline toll plazas (four mainline plazas in the Eastern Cape and three in KwaZulu-Natal) and 24 ramp/interchange toll plazas (i.e. 12 sets of ramp plazas), of which one mainline and four sets of ramp toll plazas already exist on the N2 South Coast Toll Road.

Table 3.4 shows the proposed toll sections, the location of the preferred mainline toll plazas, the possible lengths of the toll sections and a range of possible toll tariffs. Alternative mainline plaza locations are identified, where appropriate, in Chapter 4.

**Table 3.4: Toll sections, associated mainline toll plazas and possible range of toll tariffs**

PROPOSED TOLL SECTION	ASSOCIATED MAINLINE TOLL PLAZA	LENGTH OF PROPOSED TOLL SECTION	POSSIBLE RANGE OF TOLL TARIFFS (R) (2006 prices; Class 1 vehicle)		
			Low	High	Mid
East London to Butterworth	Ngobozi	97.8 km	17	46	28
Butterworth to Mthatha	Candu	120.8 km	21	57	35
Mthatha to Ntafufu	Ndwalane	92.3 km	16	43	27
Ntafufu to Southbroom	Mthentu	121.1 km	41	114	70
Southbroom to Hibberdene	Existing Oribi	50.1 km	9	24	15
Hibberdene to Winklespruit	Park Rynie	60.7 km	10	29	18
Winklespruit to Isipingo	Isipingo	16.2 km	3	8	5

**NOTE:** The possible ranges of toll tariffs given above are based on typical tariffs on existing similar toll roads in South Africa and as such are highly speculative. Tariffs are usually based on the length of toll road that is used. These

tariffs also do NOT include regional or local discounts or frequent user discounts. It should be further noted that the possible toll tariff ranges provide some indication only as to what the potential toll tariffs at the various mainline toll plazas could be and are based on 2006 prices. Ramp toll tariffs are determined on a comparable basis. The actual toll tariffs to be levied if the toll highway is put into operation would be subject to a competitive tender process and the declaration of a toll road process, including the negotiation and determining of discounts before it can finally be approved and promulgated by the Minister of Transport.

### **3.6 OPERATION AND MAINTENANCE**

On being awarded the Concession Contract, the Concessionaire would become responsible for the operation and maintenance of the road for the duration of the Concession Contract (normally a 30-year period).

#### **3.6.1 TOLL COLLECTION, PLAZA AND EQUIPMENT MAINTENANCE**

The Concessionaire would be responsible for the structural maintenance of the toll plazas, including all structural, electrical, mechanical aspects and sewerage and water reticulation facilities. In addition, the Concessionaire would be responsible for the landscaping and maintenance of those areas around the plazas, the maintenance of the toll collecting equipment and the emergency call and road management control and monitoring systems.

#### **3.6.2 ROUTE OPERATIONS, SAFETY, TRAFFIC MANAGEMENT AND OVERLOADING CONTROL**

The Concessionaire would be responsible for route operation, safety and traffic management along the concession. This would see the establishment of a highway patrol service that would patrol the length of the road on a daily basis. The patrol would set out to detect any incidents likely to threaten the safety of road users. Incidents would be reported to the relevant authority, or where possible, dealt with by the patrol team. Lack of fencing and illegal livestock along the road would be dealt with safely and expeditiously.

An SOS telephone system, spaced at 4 km-intervals, would be installed and operated 24 hours per day. Route services would be established to assist users of the toll road in case of a breakdown and/or an accident. These services would be responsible for the rendering of first aid support to victims until such time as they can be transported to the nearest medical facility.

Monitoring of overloaded vehicles, which reduce the design life of a road and can cause damage to the road structure, would be undertaken by way of the installation of weigh bridges at appropriate locations across the corridor (i.e. the proposed route and likely alternatives). The Concessionaire would undertake this in partnership with SANRAL and the provincial and local authorities.

Mechanisms for alerting motorists to fog would be installed as part of the proposed project. Further infrastructure would also be provided to facilitate safe pedestrian access across the proposed route, where required.

#### **3.6.3 ROAD MAINTENANCE**

The Concessionaire would take over the responsibility for the routine, periodic and special maintenance of the proposed toll road from SANRAL. Each particular activity relating to maintenance would have set time-frames within which the Concessionaire must address maintenance issues. SANRAL would enforce



these time-frames in order to ensure that a high level of service and maintenance is upheld throughout the concession period.

### 3.7 EMPOWERMENT STRATEGY

A Socio-Economic Development (SED) strategy would be a requirement of the Concession Contract. The SED strategy is aimed at the empowerment of local and previously disadvantaged communities within the project area. It would maximise job opportunities for local people and promote the involvement of local entrepreneurs, particularly Historically Disadvantaged Individuals (HDIs) and Small, Medium and Micro Enterprises (SMMEs) during all phases of the project. The principal elements of the SED strategy are:

- Equity Participation by HDIs;
- Capacity Development and Empowerment of Emerging Entrepreneurs and SMMEs;
- Local Employment;
- Skills Transfer in Civil Engineering; and
- Social Development Programmes encompassing Education, Training and Development.

As an example on the N4 Witbank to Maputo Toll Road Project, over 700 contracts to the value of R216 million were awarded to SMMEs in the Initial Construction Period. The Concessionaire also awarded 26 contracts for operation and maintenance to the value of R12.5 million, representing 52% of the total value of operations and maintenance.

SMMEs and HDIs would be awarded contracts in terms of Design and Construction and Operation and Maintenance work in accordance with Government's Broad Based Black Economic Empowerment initiatives and Sector charters.

The type of training that would be provided includes:

- Construction-related training for employees;
- Toll plaza operation training for employees;
- Basic life skills (Adult Basic Education and Training (ABET), health care, road safety, childcare, first aid, etc.); and
- Job skills (training of supervisors, budgeting, scheduling, tendering, resource allocation, etc.).

Although the actual number of training opportunities that would be provided as part of the proposed project is unknown at present, such opportunities are expected to be substantial. Again using the N4 Witbank to Maputo Toll Road Project as an example, over 15 000 training opportunities were provided.

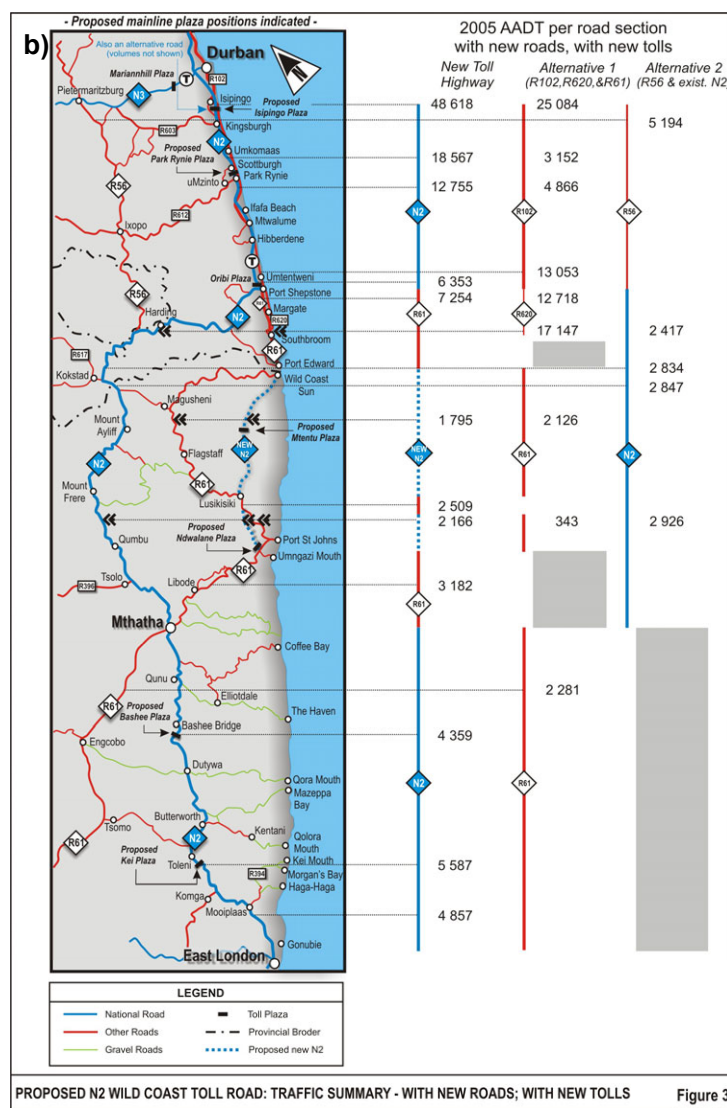
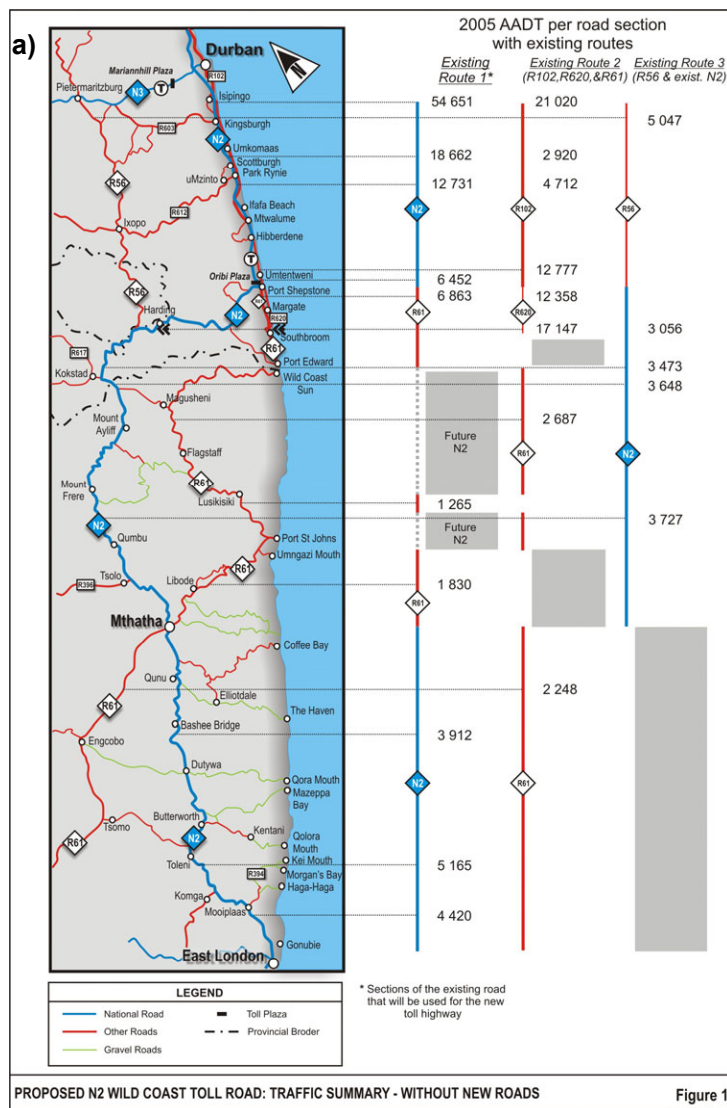


Figure 3.3: Traffic summary (2005) for (a) Existing Routes and (b) proposed N2 Wild Coast Toll Highway with new roads and new mainline toll plazas (source: Tolplan)