CHAPTER 2: PROJECT MOTIVATION

This chapter starts with a brief discussion on the theory of ring road planning before outlining the motivation for this proposed project. The rationale for tolling at a national level is then described and the Unsolicited Proposal Process clarified. The chapter continues with an explanation of relevant legislation and policies within the town planning, transport and environmental contexts of the proposed project.

2.1 RING ROAD THEORY

The consequences of ring roads over the transportation/land use systems are essentially twofold. It is postulated that ring roads address traffic issues, by reducing congestion in central areas of a city through offering an alternative to movements that are not going or coming from the central areas. They thus enable inter-urban traffic to avoid the central city by imposing a circular traffic pattern (Rodrique, 2002).

Cape Town's existing primary freeway system:

- Radiates outwards from the CBD, the N1 following a north-easterly alignment and the N2 a south-easterly alignment;
- Incorporates the N7 which follows a north-south alignment and which terminates at the N1 in the north;
- Incorporates segregated sections of Metropolitan freeways (e.g. the M3, the M5) which follow north-south alignments and which are located south of the N2; and
- Incorporates that part of the Ring Road that already exists, namely the R300, which extends from the N1 in the north, crosses the N2 in the south and which terminates some 6km south-west of the N2/R300 Interchange at Vanguard Drive.

Apart from the N1 to N2 section of the N7 and the existing section of the R300, the remaining freeway sections radiate from the CBD or conversely merge as they approach the CBD. This results in the traffic demands on these routes merging onto a lesser number of routes (i.e. in many instances the freeways merge to form a unitary/common freeway) as they approach the CBD. Essentially, what can best be described as a congestion ring, forms on the freeway system in peak periods, particularly along the N1 and N2 corridors, and which extends eastwards towards the R300 corridor. (Refer to Figure 2.1).

2.2 PROPOSED N21 (R300) CAPE TOWN RING ROAD PROJECT: MOTIVATION

2.2.1 Project Objective

Road traffic in greater Cape Town area is becoming increasingly congested, and for longer periods of time each day (this affects commuters, and business and emergency and public transport vehicles). Further, the situation will get worse because road traffic in the Cape Metropolitan Area is predicted to increase in volume by 3% each year over the next 30 years.

The congestion ring results in serious delays and costs for those motorists who use routes such as the N1 and N2 to access/egress the Cape Town CBD, but also for those motorists whose trip origin or destination is not the CBD but who must pass through this congestion ring to reach their desired destination. Trips in this latter category include those motorists travelling between the northern areas and the southern areas of Cape Town, but depending on exact location, also includes trips between the north-east and south-west, the north and south-east etc.

At the same time, many of the roads are deteriorating, becoming bumpy and cracked, with potholes, and require repair. Each year, government allocates some money from taxes to the various roads department to repair, improve and build new roads, but there is already a funding short fall per year to achieve this (and this is aside from the additional funds required to maintain and expand the public transport networks in the CMA).

If the traverse trips can be accommodated by an alternative option which could offer a higher level of service, then not only would benefits accrue to these "transverse trip" motorists but also to

those motorists who continue to use routes such as the N1 and N2 to access/egress the Cape Town CBD. This can be reasoned since the removal of the traverse trips, many of which "double-load" sections of the freeway network radiating from the CBD, would result in improved operating conditions for the "more captured" N1 and N2 road users.

The objective in developing the proposed road is to attain the above goal.

The proposed road would be upgraded and maintained at an acceptable level of service over the 30-year concession period by the successful tenderer (specified in terms of strict criteria related to available capacity, minimum delay etc.). Due to funding constraints, there is no guarantee that the existing road network would be subject to maintenance and upgrading at the same level. Should the proposed project not go ahead, it is anticipated that the existing road network is likely to become more congested.

2.2.2 Importance Of The Proposed Route

The existing R300 forms an essential link between the N1 and N2, which are the two most important routes for commercial activity in Cape Town. Furthermore, the Philippi industrial area is situated approximately two kilometres north of the existing R300 along Stock Road, and a major transport hub for trains, busses and taxis is being constructed where Stock Road branches off from the R300. A traffic study of the existing R300, found that the predominant use of the route is for business purposes and work commuters. The existing R300 is an important route within the City's road network, and it supports economic activity.

In addition to the existing R300, the proposed road should improve transport efficiency in Cape Town, through linking the West Coast to the South Peninsula, and thus adding capacity to the current road network. It is estimated that upgrading and tolling the R300 would generate savings in network time of R89m in 2003 or increase network speed by approximately 2km per hour. This project combined with the proposed N1/N2 toll project, would generate network benefits to the value of R167m or increase network time by 3km per hour over the entire road network (Refer to Figures 2.2 and 2.3). As a result, users of the Cape Town road network would benefit from the project even if they do not travel on the R300, the N1 or the N2. Refer to Chapter 6 for a detailed description of the proposed route.

2.2.3 Compatibility With The Planned Road Network For The Cape Metropolitan Area

The CCT's future metropolitan road network is contained in the "Moving Ahead – 1997/8 Interim Transport Plan". Extension of the existing R300 north and south as a ring road is supported in this plan. The details of such a route differ only slightly from this proposal. The plan is presented in Figure 2.4.

Both Baden Powell Drive and the False Bay Coastal Arterial are included in the network plan as existing and future roads. In June 2000 the Muizenberg East section of the road transport plan was reassessed, leading to a revised network plan. In this plan, the False Bay Coastal Arterial is removed between Princess Vlei Parkway and Vanguard Drive. The arterial alignment can, however, not be totally removed from the plans until a project level investigation, inclusive of a full EIA, has been undertaken by the CCT for the preferred alignment in which the FBCA would be an alternative to the preferred Baden Powell alignment (CCT letter TT 10 C/200 September 2002) (Appendix 1.F). Furthermore, the decisions regarding roads in this area are based on the assumption that land use in the Philippi Horticultural Area stays as it currently is. Should this area be developed into residential, the False Bay Coastal Arterial may prove to be necessary (CCT Report to Sub-Council 19, September 2003).

The proposed road would conflict with the revised transport plan in the south where the proposed route utilises the proposed False Bay Coastal Arterial (FBCA). The upgrade of Baden Powell Drive as a high order arterial/expressway (realigned behind the coastal primary dune system) is favoured by the City. Baden Powell Drive would have to be upgraded regardless of whether the FBCA was constructed or not (Appendix 1.F) (Martheze, pers. comm.).

In the north at Durbanville, the proposed road corresponds with current planning through the existing road reserve, and it also corresponds to an extent with planning of the proposed Atlantis Freeway going north towards the N7, through the farming area. The proposed Atlantis Freeway would be aligned further north, and could link with the proposed R300 where it comes close to Durbanville. The two roads are therefore not regarded as conflicting in this area (Martheze, pers. comm.).

2.2.4 Current And Projected Traffic Volumes

Daily traffic volumes along the existing R300 are currently of the following order:

N1 to N2	-40 000 vehicles/day
N2 to Vanguard Drive	-25 000 vehicles/day

Over the thirty-year concession period, the daily traffic volumes along the route are anticipated to grow to the following levels, should the entire route be constructed. Refer to Chapter 6:

Northern Section (Sector 3 and 4)	-Up to 75 000 vehicles /day
Central Section (Sector 2)	-In excess of 100 000 vehicles /day
Southern Section (Sector 1)	-Up to 50 000 vehicles /day
Philippi Section (Sector 5)	-Up to 75 000 vehicles/day

2.2.5 Financial And Economic Viability

The current project proposal has been declared financially viable by Price Waterhouse Coopers, the financial advisors for the scheme developer. This viability is based on the traffic projections, cost projections and projected toll tariffs that were supplied by the scheme developer. These indicate that there is a demand for the project, which is derived from anticipated economic growth in the metropole. In addition, the proposed road could potentially aid economic development in the city (Standish, 2002).

The proposed project has the capacity to make a contribution to the GDP (Gross Domestic Product) of the country of about R500m each year during the first three years of construction. By the end of the concession period the contribution to the 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 R17billion by the end of the contract period. The most overwhelming factor making a contribution to GDP after the initial construction phase is the

savings in road user costs. By 2022, these would make up the bulk of the contribution to the GDP (Standish, 2002).

It should be noted that when Build, Operate and Transfer (BOT) projects are developed, return on investment is capped and monitored in terms of the concession contract.

2.2.6 Physical Condition Of The Existing R300

The current road is nearing the end of its design life. SANRAL has appointed a routine road maintenance team to do maintenance work along the existing section of the road. Major rehabilitation action would be required to re-instate the road's riding quality to acceptable levels. The routine maintenance actions are only limited to a holding action, i.e. patching of potholes, fixing of guardrails etc. The road is in urgent need of full-scale rehabilitation that would include rebuilding of the road's formation layers and constructing a new asphalt surface.

2.2.7 Road User Benefits

The upgrading of the section of road would mean that most users would experience positive road user benefits that would outweigh driving on the existing road. Road user benefits would change over time. In earlier years, it would be due to the provision of new infrastructure, and in later years, road user benefits would be due to improved travelling times (in earlier years the benefit of improved travelling times is not significant) (Standish, 2002).

As the user benefits are expected to be greater than the user costs for nearly all sections of the R300, the tolling of the road is seen as a benefit to motorised public transport in the long term because the cost of public transport would be even higher should the road not be upgraded.

2.2.8 Job Creation

There is the potential to generate over 4200 direct and indirect jobs during the construction phase of the project. When construction and upgrading are complete, between 600 and 900 direct and sustainable jobs would be created during the concession period in operation and maintenance. During the construction phase, over 77% of the total direct jobs generated would go to workers at the lower end of the income spectrum. This proportion of the total direct jobs that are created would increase during operation and maintenance, as over 94% of the direct jobs would work towards poverty alleviation through the creation of jobs at unskilled and semiskilled levels.

2.2.9 Emergency Evacuation Route

The proposed Parklands development north of the current Big Bay development at Blouberg has been put on hold by Eskom (Koeberg) due to infringement into safety zones of the nuclear power station, without adequate emergency evacuation routes. This development can only continue once sufficient emergency evacuation routes have been developed by the City. The Blouberg East West Arterial, as part of the Cape Town Ring Road, would improve this situation, to the benefit of planned development in the Blouberg area (Gary Thompson, pers. Comm.).

2.3 RATIONALE FOR TOLLING AT A NATIONAL LEVEL

2.3.1 Fuel Levy Allocation

The fuel levy was historically introduced as a dedicated road fund and was used for that purpose. However, in April 1987 fuel levies were incorporated into the Central Revenue Fund. The country's fiscal system does not earmark any taxes, which fall into a common revenue pool, and are then allocated through the political process. It also precludes revenue targeting. Revenues raised through a particular tax cannot be preserved for a single pre-specified 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, fuel levies are not automatically accrued to the SANRAL. To put this into context, the total amount paid into the national fiscus by road users is in the region of R26 billion per year (derived from the fuel levy, Road Accident Fund Contributions, 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 is far in excess of the R6 billion for example spent by the state in 1998 on building and maintaining national and provincial roads and/or contributed by the State to the cost of metropolitan and municipal roads.

2.3.2 Budget Constraints

The SANRAL is currently responsible for development, maintenance and rehabilitation of approximately 9 400km of national road in South Africa. To this end, the SANRAL receives an annual budget allocation from the National Treasury, but is also empowered to raise finance from the private sector. A vision document, "Horizon Twenty Ten", recently released by SANRAL reports that for 2001 and 2002 their budget allocation was R585m and R900m, respectively. The report states that this funding is only sufficient to maintain about half of the non-toll national road network (5 300km), the remainder of which is falling into disrepair. The document states that with an assumed funding level of R800m a year for the non-toll national road network, the existing system will rapidly deteriorate over the next eight years to a forecast backlog of R8,5 billion (SANRAL, 2002).

Thus the SANRAL sees tolling as a viable alternative funding mechanism to create new road infrastructure and to upgrade and maintain National Routes where this is viable.

2.3.3 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 2.5.

If maintenance is performed as and when required based on technical assessments of the road, the road user will not observe any visible signs of distress on the road (Refer to Figure 2.5). The typical cost of maintenance at this stage is R0.1m per km (Year 2000 Rand Value).

However, if maintenance is not performed when required based on technical assessments and the road is allowed to deteriorate for 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 R0.6m per km (2000 Rand value). By implication therefore, only one sixth of the length of road can then be repaired on the same budget. Should maintenance be delayed for five years, the typical cost per kilometre rises to approximately R1.8m. 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 primarily borne by the road user. When the condition of a road is allowed to deteriorate from good to very poor, each R1.00 'saved' on road maintenance increases vehicle operating costs by R2.00-R3.00. This increases the cost of transport and raises the net costs to the economy as a whole.

2.3.4 Benefits As Noted From Precedent

Refer to Box 1 for a description of the benefits of a toll road as noted from precedent.

BOX 1: TOLLING: BENEFITS AS NOTED FROM PRECEDENT

- Tolls are not new, but they are newly relevant in an era of imbalance between transportation needs and funding resources. Tolls can enable the construction of transportation facilities that would never be built otherwise from alternative funding sources.

- The use of tolls – where their use makes transportation and economic sense (i.e. in corridors with sufficient traffic to support toll financing) allows for better allocation of available funding resources to best fit the overall financial needs of our transportation infrastructure from construction to operation and maintenance.

- Toll financing enables the delivery of a 'value-added' transportation project to the consumer that would otherwise not be available through broad-based taxation of users and non-users.

- Tolls establish a closer relationship between service provider (toll operator) and customers (drivers), promoting higher service levels and greater responsiveness to customers. They 'sell' transportation value in exchange for a toll'. Toll facilities provide valuable benefits for users, for example:
  - Better maintenance produces improved driving conditions.
  - Better roadways translate into maintenance cost savings for drivers.
  - Toll facilities are safer, in part – because they are well maintained.
  - Toll facilities offer other amenities such as service areas, dedicated police patrols, landscaping etc.

- Tolls represent a fair and precise way of paying for transportation facilities, directly linking user benefits with user fees by charging only users in direct relationship to how much they use the facilities. Tolls also allow pricing to reflect users' variable wear and tear on a facility.

- Toll projects often represent a win-win for the motoring public as a whole. Drivers who use the toll facility benefit directly from enhanced roadway capacity provided by a particular toll facility while drivers who choose alternate 'free' routes also benefit from the congestion relief offered by the toll facility. The existence of toll facilities relieves traffic congestion on parallel roadways, particularly where they provide a 'through' route, handling traffic that would otherwise clog up local roadways.

- Public policy toward tolls has changed to reflect the realisation that 'there are no free roads' and that traditional funding sources are becoming inadequate to meet growing transportation needs.

- Recent improvements in technology, most notably the introduction of electronic toll collection (ETC), have increased customer convenience and satisfaction levels.

'Facts and Myths about Tolls' prepared for the International Bridge, Tunnel and Turnpike Association, Washington DC. Linda M. Spock Consulting (2000).