

# TOWARDS A POLICY ON THE IMPOSITION OF ROAD TOLLS IN THE CITY OF CAPE TOWN

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## ABSTRACT

This paper outlines the policy on the imposition of road tolls in the City of Cape Town. The policy is based on a thorough investigation in which the benefits of raising revenue for road construction and maintenance by means of road tolls are weighed against the disadvantages. This means of raising the necessary revenue is contrasted with the alternative funding sources available. The legal context is explored and commented upon as well as the background regarding the present under-funding of the transport system despite the substantial revenue collected by provincial and national spheres of government from vehicle license fees and the levy on fuel respectively.

The principles of road pricing and user charging are outlined. Road tolling can be applied for two distinctly different purposes. Firstly, it can be used as a charge to manage the demand for use of a particular road link or on a number of road links leading to concentrations of employment, and then constitutes a “user charge”. Secondly, it can be imposed to finance the construction and maintenance of a particular road link. The two unsolicited toll road bids impacting on Cape Town, which are presently being developed by private sector consortia for consideration by the South African National Roads Agency Limited, belong in the second category.

The paper concludes that, in Cape Town, the disadvantages of the imposition of road tolls for the purpose of raising early finance for the construction, operation and maintenance of specific routes outweigh the benefits. It is proposed that route specific tolling should preferably be used exclusively for travel demand management and the creation of recreational/tourist attractions within the City. If sufficient funding cannot be raised from vehicle licence fees, levies on vehicle fuel and other user charges to provide a satisfactory level of service and safety on the transport system, then road pricing primarily to ration road space should be introduced in the form of a “shadow toll” collected at service stations located within the City. That will be far more cost efficient and more equitable than route specific tolling and would result in fewer adverse effects.

## 1. INTRODUCTION

Sustained economic development and improvement in the quality of life requires the provision, management and proper maintenance of a transport network that meets the needs of the full range of desirable human activities in Cape Town. In order to achieve this, it is evident that additional expenditure is required in order to maintain and adequately improve the City of Cape Town’s transport system.

While road tolling has been proposed by both the National and Provincial spheres of government as one of the alternative means of funding, the City of Cape Town considers that the adoption of a policy on road tolling within its boundaries should be preceded by a thorough investigation in which the perceived benefits of that funding arrangement are weighed against the disbenefits.

The National Government has identified transport as one of the five main priorities for South Africa, while the vital role of transport is emphasised in a World Bank publication entitled: "Development in Practice: Sustainable Transport: Priorities for Policy Reform": This states that "Transport is central to development. Without physical access to jobs, health, education and other amenities, the quality of life suffers; without physical access to resources and markets, growth stagnates and poverty reduction cannot be sustained..." Unfortunately, insufficient funds are being allocated in all three spheres of government to improve metropolitan transport to satisfactory levels of service and safety.

An emerging policy towards the funding of public facilities and services that is gaining wide acceptance is that it should preferably be based on the "user pays" principle. Thus one of the better methods of financing roads is the imposition of a charge on users of these facilities, which have traditionally been regarded as public goods to be provided free of charge. A user charge, which is roughly proportional to the impact of the users on roads, is an additional levy (or a "shadow toll") on the sale of liquid fuel for transport purposes. That could be regarded as road-use pricing because more fuel per kilometre is used in congested conditions than in free flow conditions, although it is doubtful whether it rations the use of road space, as a proper user charge should do. Heavy vehicles, which have a greater adverse impact on traffic flow as well as on the road pavement structure, also use more fuel per kilometre than light vehicles. (In South Africa the present fuel levy totalling about R1 per litre is regarded as a tax and is used by national government for general expenditure. Less than 50% of the amount collected is currently spent on transport.)

There are many applications of the use of toll systems on roads, road tunnels and road bridges throughout the world. Such facilities have restricted access and payment is usually made at a tollgate or a toll booth in a toll plaza in the form of cash, a previously purchased ticket, a stored value read/write card which is read by remote sensing or vehicle registration numbers are read by camera and the owners are sent computer generated accounts or the costs are deducted from their bank accounts.

The income stream derived from a toll road can be used to repay the capital construction costs (in part or in full), as well as the operating costs, including administration, toll collection costs, investors' profits and maintenance of the facilities. When the toll road is privately funded, its financial viability will depend on the total cost of financing and on the actual net revenues from toll collection. Often the toll charges would then be set so as to maximise the net revenue. If the toll fee is set too high, motorists will tend to use the alternative routes, which are usually available in urban areas. However, the principle behind toll roads has always been that they should achieve savings and add value for the motorists and commuters that use them.

Tolls are often regarded as a form of road user charge that can be applied for two distinctly different purposes. Firstly, they can be used as a means of managing the demand for use of a particular road link or on a number of road links leading to concentrations of employment, in which event they are properly user charges. For that purpose, it is required that vehicles display prepaid tokens (or carry smart/read/write cards) to enter a defined area during certain hours of the day. Monitors on those road links record the registrations of all vehicles which *do not display* the necessary prepaid tokens or which *do not carry* the smart cards. Accounts are sent to the owners of those vehicles, which do not comply with those regulations. Secondly, they can be used to help finance the construction and maintenance of a particular road link.

In the City of Cape Town there is an increasing travel demand resulting from a growing population and car ownership. The manifestation of that growing demand has resulted in increasing travel times between many origin/destination pairs, especially during peak periods, which are becoming longer while the off peak utilisation measured in volume to capacity ratios, is also growing. The congestion causes increased transport costs, increased pollution and loss of productive time. Notwithstanding the congestion, investment in new transport infrastructure has not grown in real terms over the past fifteen years except for the R192 million (plus interest) of special funding granted by the national government for the 1996/97, 1997/98 and 1998/99 financial years for the Priority Olympic Development Projects. The insufficient allocation of public funds to provide transport facilities has also an adverse effect on marginalized communities due to lack of ability to provide access to less-privileged areas.

It is widely recognised that in order to be able to maintain and improve on the existing levels of service for public transport users and private, business and goods vehicle users, it will be increasingly necessary to raise new finance for the construction, operation and maintenance of transport facilities from users of the facilities. It has also been fairly widely accepted that the “user pays” principle should be applied insofar as possible and politically acceptable. That principle is based on the user paying for the benefits obtained through the use of the facility.

Additional multiplier benefits will result from the provision of new transport facilities and both direct and indirect employment opportunities will be created, while accessibility for tourists and opportunities for new land-use developments will be improved.

The purpose of developing a policy on road tolling for the City of Cape Town is to facilitate informed response to any unilateral attempts to provide tolled roads within the municipal boundary, as well as to ensure informed action to increase the utilization of public transport and reduce peak period delays on the major road network.

## **2. THE RATIONALE FOR TOLL ROADS IN THE CITY OF CAPE TOWN**

### 2.1 Road Tolls or levies used as a means of travel demand management: -

In terms of Section 21 (1)(a) of the Urban Transport Act 78 of 1977 as assigned on 1 October 1995 to the Provinces, it is already within the power of any of the Metropolitan Local Councils comprising the Cape Metropolitan Transport Area or the Cape Metropolitan Council to impose levies, in their areas of jurisdiction, as determined or approved by the Premier of the Western Cape Province on specified classes of motor vehicles entering specified portions of the Cape Metropolitan Transport Area. The amounts received by the authority imposing and collecting these levies (or toll fees) must be paid into the Cape Metropolitan Transport Fund once in a month in terms of Section 21 (2)(a) of the Urban Transport Act. This legislation enables these levies (or toll fees) to be used as a means of attempting to manage the demand for travel as described above.

These levies should be imposed only if the income derived therefrom will exceed the cost of collection and/or if the imposition of these levies reduces the generalised cost (including the cost of the levies to the motorists) of transport in the Cape Metropolitan Transport Area. This form of road pricing or congestion charging can be used to reduce peak hour travel demand on certain routes by a few percent, which could reduce delays substantially.

If the goal is to use the imposition of this kind of road user charge to increase the utilisation of public transport, then the transport authorities must ensure adequate comfort, safety, capacity and frequency of those public transport services, which provide the alternative to the private road use, which will become subject to the levies.

In order to ensure that these policies lead to sustainable provision of transport facilities and services, the transport authorities must ensure that the overall transport and environmental costs of travel demand management and “public transport first” strategies will be less than the status quo costs.

Toll Roads as a means of financing the construction and/or maintenance of a particular road link

The use of Toll Roads as a means of financing the construction and/or maintenance of a particular road link will ensure that road facilities are provided and maintained so as to meet the desired and recommended engineering standard. It is a well-known fact that if maintenance of roads is delayed for too long, the increase in cost of restoring these facilities to good condition could be as much as ten times the cost of maintaining them timeously. The vehicle operating cost also increases substantially.

In the past, legislation provided for only the National Department of Transport to build and operate toll roads. The new Constitution allows provinces to utilise toll roads, but specific provincial legislation must be enacted. To this end the Western Cape Toll Roads Act, 1999 (Act 11 of 1999) was promulgated. The Western Cape Toll Roads Policy followed this in April 2001,

### **3. CONSIDERATIONS UNDERLYING THE ADOPTION OF A TOLL ROAD POLICY FOR THE CITY OF CAPE TOWN**

#### 3.1 Economic theory of charging for road use

##### 3.1.1 Congestion Charges (Taxes)

Economic theory supports charging for the use of a public road only when the charge will eliminate traffic congestion through its effect of rationing the use of road to those who have the highest need to travel at the time when the congestion will otherwise occur.

#### 3.2 Pragmatic justification for road tolling

##### 3.2.1 Practical motivation

Toll road schemes in practice should be based on their advantages for obtaining funds for roadworks more speedily than otherwise, only when that necessity outweighs the many drawbacks.

##### 3.2.2 User-pays principle

The notion that the imposition of road tolls conforms to a *user-pays principle* whereby road users through their payments determine the road facilities required, is not valid and cannot be advanced in the support of the unsolicited toll road schemes.

##### 3.2.3 Procurement of funds

The procurement of funds for roadworks through toll road schemes is far more costly for road users than the use of public funds obtained through taxation or the imposition of a fuel levy (or shadow toll), although that may enable the funds to be obtained sooner. Depending on their credit rating, the cost of finance could vary for public or private borrowing institutions/entities.

If the road authority is prevented from borrowing large amounts for whatever reason, it may contract the private sector to raise the required capital to implement the scheme and to maintain and operate the road over the contract period of say 25 or 30 years. The concessionaire can then be repaid by means of directly tolling the users or by regular payments from the Road Authority in the form of a “shadow toll” from other sources of income. These sources could include a levy on fuel and/or vehicle licence fees, business levies and sales tax etc.

This latter means of funding has been used for the M-45 Expressway near Madrid in Spain. This 36,2 km long six-lane freeway equipped with ten multi-level interchanges cost over US\$400 million and was opened to traffic in March 2001. There are no toll plazas (and thus no diverted traffic away from the freeway) as vehicles are counted by loops in the roadway in order to calculate usage in terms of vehicle/kms. The contract between the Community of Madrid and the concessionaires specifies a ceiling on the number of vehicles to be billed. The resulting figures are then multiplied by the unit price charged by the concessionaire in order to obtain the shadow toll fee billed to the administration.

The advantage of this kind of scheme is that payment for costly transport infrastructure can be spread throughout the concession period to the private consortium, which carries the full load of the debt in its company accounts. Thus the road authority can deliver essential transport projects as and when they are justified. The users are not delayed at toll plazas and there is no need for expensive electronic fare collection systems. Some savings are thus achieved and there is a minimisation of the inequitable effect of route-specific tolling. (World Highways/Routes Du Monde May 2002)

#### 3.2.4 Dedication of funds

Toll road schemes enable the revenue collected to be dedicated to expenditure on the scheme and so avoid political intervention in its allocation. It is unlikely, however, that the metropolitan authorities could ignore the additional costs of the imposition of tolls for the use of some local roads when deciding on the levels of other taxation. Toll financing of certain road projects may thus adversely influence the allocation of public funds for other road purposes.

#### 3.2.5 Privatisation of roads

The concessioning of toll roads in terms of BOT-contracts does not constitute privatisation of roads, but rather *privatisation of the financing of roadworks* and requires the public authority to balance the interest of road users against the profit motives of the concessionaires.

#### 3.2.6 Foreign investment

As toll roads schemes are regarded as lucrative businesses for investors and really constitute regulated monopolies, they readily attract foreign investment, but it is doubtful whether the fruits of such investment have local multiplier effects, as it is unlikely that the profits are invested locally.

### 3.3 Disbenefits of toll roads for local authorities

#### 3.3.1 Institutional drawbacks

- The finance of a road project by the imposition of road tolls commits a road authority responsible for the scheme to ensure that the scheme remains viable until the end of its lifetime - if the scheme fails, taxpayers or local ratepayers may have to bear the financial burden of all the outlay cost.
- Although funds for road development can be raised far sooner through toll road schemes than by reliance on public revenue, far less will be available for that purpose over the long term if road tolls must be taken into account together with other taxation when the amount of public revenue needed is decided.

#### 3.3.2 Distortion in resource utilization

- The economic justification for toll road schemes should be determined through cost-benefit analysis in which the present value of the net benefits of providing the improvements, without resorting to any toll road scheme, are compared with the net benefits of the scheme, taking into account that the improvements may be completed sooner through the scheme.

- The consequent marginal increase in the net benefits attributable to their realization sooner than otherwise should then be compared with the increase in the costs to road users if the toll scheme were to be implemented.
- The economic justification for the project as determined without the toll road scheme, should also be compared with the economic justification for the scheme taking all its costs into account and, if both are adequately viable, the economic justification for the earlier completion of the project in accordance with toll road scheme, as reflected in the marginal analysis, should provide the criterion for deciding whether the toll road scheme should proceed.
- When projecting the stream of costs in the analysis of the project without the toll road scheme, improvements likely to be carried out with public funds in any event should be included.
- When comparing the net present benefits of projects without tolling and with tolling, it should be borne in mind that it is in the financial interest of private toll scheme developers to undertake roadworks to the extent of what tolls road users would be willing to bear, while lesser roadworks without toll-financing may be adequate. (See also consideration (1)).

### 3.3.3 Inequity

- Inequity occurs when, as an outcome of a toll road scheme, road users are burdened with additional cash expense without choice. This may occur when an existing road is tolled or a new toll road added to the network precludes trip makers from following pre-existing routes.
- Road users obliged against their choice to use toll roads which according to theoretical calculations reduce their imputed trip costs commensurately more than the toll charge, are not spared inequity if that charge exceeds their out-of-pocket or cash savings.
- Serious inequity is likely to occur when only a few of the existing roads used by commuters in the metropolitan network are tolled, as the burden of their additional cash expense will be arbitrarily imposed.
- It is unlikely that an equitable method exists for tolling selected metropolitan roads in current use and consideration should thus be given to limiting toll road schemes to new roads which otherwise would not be built (or closed roads which otherwise would not be opened) provided the use of the existing network is not disrupted.
- The willingness of well-off road users to bear road tolls in return for perceived benefits which appeal to them (for example, such as safety from rock-throwing or hi-jacking), does not justify the inequity of imposing those tolls, or the alternative expense resulting from severance of access, on others less well-off who may not perceive those benefits as material to themselves.

### 3.3.4 Effect on land-use and environment

- The tolling of the major metropolitan roads leading towards the CBD of the CCT and the major transverse route may separate the metropolitan area into inner and outer areas in which the effect is to promote densification in the inner area and dispersal of development in the outer area as people attempt to avoid paying road tolls. Furthermore, the tolling strategy could lead to the unnecessary duplication of certain routes in order to capture traffic that would otherwise have used alternative arterial routes. This may have additional adverse effects on sensitive environments.

### 3.3.5 Public transport

- If the main purpose of tolling major roads in the metropolitan area is to raise the funds, which will enable the capacities of those roads to be expanded, then those funds cannot be easily used to improve the public transport system, which could reduce the demand for those road capacity increases.
- Whether toll road schemes, which will have enduring land-use effects, will hinder the improvement of public transport (so indispensable to sustainable development in the long run) also needs consideration.

### 3.3.6 Debt risk

- The risk of the debt incurred to finance a toll road scheme is largely dependent upon the realism with which the tillable traffic has been forecast, and careful consideration needs to be given to the forecast when predicting the financial viability of a scheme. When doing so, it should be borne in mind that the only urban toll road scheme in South Africa, the (N17), has not been a financial success, mainly because of the choice of untolled routes available to road users.

### 3.4 Economic justification for toll road schemes

- The cost savings which result from road improvements in the form of reductions in the risk of accidents, travel time and vehicle operating costs (other than fuel costs) are resource savings imputed for the purpose of economic evaluation and should not be used to justify the amount of a toll, which requires a cash outlay i.e. resource savings benefit the economy while the out-of-pocket expense of road tolls are experienced directly by individual road users and affect their personal welfare.
- Consideration should thus be given when imposing road tolls to ensuring that *all* road users are willing to pay the tolls and so rate their benefits as being worthwhile, which implies that toll road schemes are more likely to benefit those who can readily afford the tolls and disadvantage those who cannot – see also 3.1.3 (g and l).
- As road tolls imposed in BOT-schemes must necessarily cover not only the cost of loans to finance the improvement to the road, but the costs of developing the scheme, building and equipping toll plazas, collecting tolls, maintaining the road, managing and operating the scheme, and the profits of the developers, it should be considered whether the resort to such schemes in order to build and improve roads really affords users value for their money.

### 3.5 Provision of alternative routes

South African law does not require an alternative route when a road is to be tolled. Although the cost of maintaining two routes when one could suffice may seem to result in a waste of resources, the practical elimination of a choice of alternative routes when roads are tolled is undoubtedly inequitable. Consideration should, therefore, always be given to ensuring that existing mobility is not inhibited by a lack of choice of routes when a toll road is opened.

### 3.6 Socio-economic considerations

#### 3.6.1 Income redistribution

- As the benefits of metropolitan toll roads schemes will be greatest for those whose time is highly valued and whose death or injury on road accidents incurs a high-risk premium, it follows that the toll revenue required to improve a road will benefit the well-off more than the poor in terms of the imputed savings - consideration thus needs to be given to income-redistribution effects of toll roads, which tend to be the reverse of the re-distribution effects of non-tolled roads.
- In view of the much higher expense to road users of providing roads through toll financing and the incentive for BOT-developers to incorporate spending on the scheme to the limit of what the toll payers are likely to bear, in order to raise their return, careful consideration should be given to the actual need for the roadworks envisaged.
- As toll financing is not in the public interest if funds are available or could be forthcoming from traditional revenue sources, such sources should be fully explored before resorting to toll road schemes.
- The claim that toll-financing is a means of releasing public funds for spending on other purposes than roadworks confutes the contention that an enormous backlog of such works exists, especially as the backlog applies to many roads which are unlikely to be tolled – consideration thus needs to be given to the real consequences for the road network if toll-financing deflects public funds intended for roadworks to other purposes.

### 3.6.2 Employment benefits

- When considering the employment benefits of toll road schemes, care should be taken not to count successive temporary employment as additional permanent jobs, nor should the deflating effect of subsequent unemployment be overlooked when estimating the multiplier effect of spending on schemes. The employment of administrative staff to collect tolls does not create wealth nor does this save the travelling public money.

### 3.6.3 Socio-economic sustainability

- Although the National Environmental Management Act 1998, requires that development must be socially, economically and environmentally sustainable in order to be acceptable, no criteria are given for social and economic sustainability – consideration should thus be given to the extent to which inequitable income re-distribution stemming from toll road schemes renders the schemes socially unsustainable, while the economic sustainability should be determined through cost-benefit analysis, the documentation of which should be publicly available in the EIA's.

## 3.7 Existing toll roads in South Africa

Three basic categories of toll roads exist in South Africa at present.

- *State Toll Roads*

Ten State toll roads totalling about 1000km are currently managed by private undertakings on behalf of SANRAL. The value of the assets employed in these routes was about R4, 4 billion in 2000. Funds for the improvement of these existing State toll roads are borrowed as required in the capital market and are allocated to specific routes on the principle that the net revenue from tolls after the cost of management, operation and maintenance must be sufficient to repay the debt and interest charged.

- *BOT Concessions*

Build, Operate and Transfer (BOT) agreements with private undertakings cover the N3 Toll Road in Natal over a distance of 373km, the N4 Maputo Development Corridor as well as the N4 Platinum Highway Development, which is partly still under construction. These toll roads are financed by concessionaires (usually a consortium) through the investment of their own funds and loans from banks and other financial institutions. These institutions often insist that the net revenue from tolls after deductions for managing, operating and maintaining the roads must exceed the annual cost of servicing the loans by about 30% or more. Concessionaires may also seek some relief of risk from the road authorities.

Consideration should be given to measures whereby the metropolitan authorities must be consulted when discounts on toll fees are granted, in order that the income redistributive effects are taken into account in the implementation of local social policy.

In view of the enduring effect of national toll road schemes within the metropolitan area on the welfare of local road users, it may be advisable for the metropolitan authorities to have insight of the financial models of BOT-contracts to be concluded for national or provincial toll roads within the metropolis.

- *Proposed Toll Road Schemes*

Seven unsolicited toll road proposals have to date been given Scheme Developer Status by SANRAL since December 1999. In addition to the two which impact on the City of Cape Town, the others are the N2 Garden Route between George and Port Elizabeth (297km), the John Ross Highway between Empangeni and Richards Bay, the N2 Wild Coast Toll Road between East London and Durban and the Super Highways Scheme of toll roads between Johannesburg and Pretoria.



Various Consortia are proceeding with the necessary investigations including Scoping Studies, EIA's and are in dialogue with Interested and Affected Parties. Public opinions, suggestions and recommendations must be obtained and addressed by the scheme proposers to the satisfaction of SANRAL and the Minister of Transport.

The City of Cape Town is clearly more than just an Interested and Affected Party in respect of the two unsolicited toll road schemes, which impact within the municipal boundary. If the proposed schemes conflict with the City's policies and plans and the Minister of Transport or SANRAL choose to overrule any objections the City may lodge, implementation of these schemes may be found to be in conflict with the Constitution as well as other legislation.

### 3.8 Proposed toll road schemes within and close to the City of Cape Town

Chapman's Peak Drive is to be reopened as a toll road in terms of a 30- year concession agreement. Frequent users will be afforded a discount. It has been estimated that less than 30% of potential traffic may be diverted from using Chapman's Peak Drive owing to it being tolled. Tourist and recreational traffic will benefit from the reopening of the route and the safety improvements being made but motorists wishing to access picnic sites from the Hout Bay side will have to pay a toll fee once the scheme is introduced.

An important issue concerning toll road schemes within and close to the City of Cape Town is the Fire, Emergency Services and Disaster Management considerations. It is essential that Disaster and Emergency Management Plans be prepared and approved by all the relevant authorities. The contractual, financial and legal obligations and responsibilities in connection therewith must be clearly identified prior to the awarding of the toll road contracts. Access for emergency services onto or across toll roads to attend to accidents and other emergencies on or beyond the toll roads must be permitted with minimal obstruction, additional cost or delay.

Other important issues are:

- That there will inevitably be some cross-subsidization between individual toll road schemes and between sections of the schemes inside and outside the City
- That long stretches of the existing roads will be tolled, although the current users are unlikely to perceive benefits for themselves stemming from the tolls paid, nor are there to be any savings in resource costs, except where traffic congestion may be reduced.
- That many regular users of the existing roads, which are proposed to be tolled, will not derive any benefit from the proposed major improvements such as new sections of road and tunnels.
- That the tolls collected from many of the road users will thus be disproportionate to the benefits they receive and will thus be tantamount to a selective tax with an unfair incidence in relation to the purpose it serves
- That more specifically, it will be inequitable to require commuters using road transport in the metropolitan area to contribute to funds required for road improvements outside that area on sections of road they may not use.
- That the flow of traffic on sections of the roads varies greatly, which implies that it will be difficult to avoid imposing tolls, which are inequitable for the distances, travelled by some users and not commensurate with any benefits they derive.
- That the imposition of tolls for commuters accustomed to using the existing N1 and N2 will be difficult to justify if commuters using other major routes in the metropolitan area are not subjected to tolling, especially when the toll-payers do not receive commensurate out-of-pocket savings in return.

- That the tolling of the R300 (N21), N1 and N2 will have social and economic consequences for a substantial number of households in the metropolitan area and, as no alternative routes at equivalent cost are available for many of the journeys undertaken, tolling will reduce their mobility; thus some decline in social and economic activity will be inevitable, especially among low-income groups.
- That trip-making for economic purposes, especially daily trips to deliver supplies and undertake services, will become more expensive to those communities served by the roads and raise their costs-of-living relative to the costs-of-living in other communities in the metropolitan area.
- That the communities served by the roads can well query the inequity of having to pay tolls, as well as the taxes, which enable untolled roads serving other communities to be improved and maintained.
- That the transport aspects of the Integrated Metropolitan Environmental Management Policy (IEMP) adopted by the City must be adhered to. This focussed on the need to provide and promote an improved public transport alternative to the further development and improvement of capacity of the major road network. It appears that the environmental impact assessments required by SANRAL do not require a full evaluation of the alternatives to the provision of a toll road nor is the economic impact of the tolling strategy likely to be a core issue in the current environmental impact assessments. These are potentially serious shortcomings of the process. Although the National Environmental Management Act No.107 of 1998 (NEMA) requires that development must be socially, economically and environmentally sustainable in order to be acceptable, current and past approaches to EIA's on toll road proposals have and will continue to exclude the impact of tolling on the receiving environment. In addition, the consideration and assessment of the alternative method of acquiring the necessary funds for improving existing networks are not addressed. In terms of existing environmental legislation, both NEMA and the Environmental Conservation Act No 73 of 1989 (ECA) and the regulations governing EIA's, these exclusions represent fatal flaws in the approach to the EIA's.
- That toll plazas are likely to impact adversely on the environment owing to the additional land requirement, increased noise and air pollution and visual intrusion when compared with a conventional road.
- That, issues of equity, sustainability and foregone development opportunities especially for previously disadvantaged communities need to be taken into consideration. Evaluations need to consider the direct and indirect impact on current users, potential users, the environment and the efficiency of the transport network as a whole. Given that our economy is not resource rich, the City needs to seek the most cost efficient and sustainable solution that will free up maximum public and private sector productive energy and resources. While tolling may appear to offer short-term access to cash, its overall impact may limit both public and private resource flow. Tolling specific routes, especially where there is no convenient alternative route, may severely limit the mobility of poorer individuals and small business entrepreneurs.

#### **4. JUSTIFICATION FOR TRAVEL DEMAND MANAGEMENT TOLLING**

From international and local experience it is clear that it will not be cost effective nor will it be affordable to attempt to provide sufficient road capacity to cope with peak hour travel demands at high levels of service throughout the City of Cape Town. The solution to the problem of increasing peak period travel delays and increasing environmental costs of transport is multifaceted but must include a form of congestion charging in spite of the likely adverse impact on poorer motorists.

It is advisable that the City of Cape Town should consider following the example of Singapore in respect of tolling vehicles entering a cordon around the Central City Area during the peak morning and evening periods. This initiative will have to be supported by a vigorous and adequately funded program to improve the public transport serving the Central City Area as an alternative to paying the travel demand management road tolls.

This public transport alternative must be affordable for the poor and be attractive to the choice user who can be diverted from using their private vehicles on congested roads during peak periods.

Each proposal will require careful analysis prior to implementation in order to avoid any adverse unintended consequences.

## **5. FINANCIAL IMPLICATIONS**

All three road-tolling schemes located within or close to the City of Cape Town presently being considered by the province or SANRAL involve improvements to and realignments of existing roads. The Penway scheme for the R300 route also involves extensions to an existing route. This means that certain sections of these public roads are effectively being privatized for 30 years in order to capture sufficient affordable toll income to render the projects commercially viable.

The total cost of building, operating and maintaining these privatized routes will be more than if they were built, operated and maintained by the public authorities (owing to the costs of tolling, unnecessary infrastructure and private profit).

The proposed initial toll charges on Chapman's Peak Drive were published in the Cape Town newspapers on the 18<sup>th</sup> September 2002. For example, frequent car users will have to pay R7 per trip to use the 11km long improved route. Occasional car users will have to pay R18 per trip. If a "shadow toll" of say 50c per litre (on top of the approximately R1 per litre fuel levy which the toll payers must also pay in addition to the toll charge) were to be imposed, these car users would pay only 50c extra per trip to use the improved road. The proposed toll charges on the R300, N1 and N2 routes have not yet been made public.

If a "shadow toll" of 50c per litre were to be charged at fuel sales points in the City of Cape Town, over R700m per year would be collected. If this additional income were to be used to maintain, improve and extend the transport network, in cash as well as interest and redemption payments, the City could supplement the existing sources of income for transport to enable adequate facilities to be provided. It would not be necessary to toll roads for other purposes than travel demand management.

Public investment in desirable and economically justified transport improvements will result in substantial benefits to the local economy and create much needed employment opportunities. The converse is unfortunately also true.

## **6. CONCLUSIONS FROM THE MAIN ARGUMENTS ON THE IMPOSITION OF ROAD TOLLS IN THE CITY OF CAPE TOWN**

### 6.1 Imposition of road tolls

Road tolls imposed by SANRAL or by Province on certain sections of some major roads within the municipal boundaries for the purpose of financing the construction, operation and maintenance thereof, will probably result in the earlier provision of some essential major road network improvements than if conventional funding sources were to be sought. In some cases traffic could be attracted away from non-tolled routes, especially where there is a travel cost or time advantage involved.

However, the application of these route specific tolls will result in the following adverse impacts: -

- More traffic will be diverted to less desirable through routes, mostly municipal roads, than to the tolled routes.

- Elements of the toll road schemes will either be built or not built owing to the need to maximize the net toll income. This is likely to lead to sub-optimal infrastructure provision for which both users and non-users will pay.
- Investment priorities of SANRAL, Province and the City are not always well aligned. This can only be resolved by the creation of one Transport Authority for the City of Cape Town. Long-term toll road contracts, which are signed prior to this occurring, could be prejudicial.
- Isolated toll road schemes and internal cross-subsidization will result in inequitable road user charging.
- The procurement of funds for roadworks through toll road schemes is far more costly (up to about 35% higher) for road users than if they paid therefore by a levy on fuel, a shadow toll or by other means of taxation.
- Existing law does not permit income from toll roads managed by SANRAL to be used to improve public transport alternatives to those roads.
- In order to raise sufficient funds without imposing excessive toll charges, it appears that the higher traffic volumes within the city boundaries are to be captured by means of applications by SANRAL to declare municipal and provincial routes as national roads in order to toll them.

If the main reason for consideration of road tolling is to raise capital for the implementation and maintenance of particular routes, then the best way of procuring the schemes will be by requesting tenders from private concessionaire consortia to fund and provide the facilities and to repay them in terms of a contract over an extended period. The road authority, which owns the infrastructure, pays the concessionaire the tolls that would have been paid by the users had the road been privately financed and tolled directly. These payments are made in accordance with the usage in terms of vehicle/km multiplied by the unit price tendered and charged by the concessionaire. A ceiling is agreed between the road owner/authority and the concessionaire on the number of vehicles for which to be billed and payment is made from other income sources available to the roads authority such as a fuel levy, vehicle licence fees, value added tax, business levies or rates income etc. This innovative financing method has the advantage that payment by the road authority is spread over the contract period and the debt is carried on the books of the concessionaires. Road users are not diverted from their routes of choice by toll plazas because none are required. Only vehicle counting loops are required to be installed as part of these schemes.

#### 6.2 The following legal issues may influence the City's policy on road tolling:

- It appears that the promulgation of Act No 7 of 1998, entitled "The South African National Roads Agency Limited and National Roads Act 1998" may not have been published in a manner that allowed organized local government, municipalities and other interested persons an opportunity to make informed representations with regard to the draft legislation. Clearly, the declaration of national roads, which are wholly or partly within the urban municipal boundaries, and the imposition of tolled routes controlled by a national agency could negatively effect the capacity of municipalities in the management of their own affairs, to exercise their powers and to perform their functions. If this is so, then the promulgation of Act No 7 of 1998 may well have been in conflict with Section 154 of the Constitution.
- In terms of Act 7 of 1998 it is legally possible for the City of Cape Town as well as the Premier to request SANRAL to undertake the Tender Process, Construction and Maintenance of any road of which that municipality or province is the road authority. The Agency may charge a fee for any such service rendered.

## **7. RECOMMENDED POLICY ON THE IMPOSITION OF ROAD TOLLS IN THE CITY OF CAPE TOWN**

It is recommended that:

- The City of Cape Town must retain control over the functions of transport planning, design, access management, prioritisation and budgeting in respect of its road system as a vital part of the transport system owing to the importance of transport to development and the overall quality of life.
- The City of Cape Town strongly articulates the concern that the revenue from existing fuel levies and vehicle licence fees collected by national and provincial spheres of government from the City's road users is not spent on transport services in the City in sufficient proportion relative to the amount collected as well as the need for such expenditure. As toll financing is not in the public interest if funds are available or could be forthcoming from traditional revenue sources, such sources should be fully explored before resorting to toll road schemes.
- If the national and provincial spheres of government cannot be persuaded to reallocate their income to improve the City's vital but deteriorating transport system, then road pricing should be introduced preferably in the form of a "shadow toll" per litre of petrol or diesel sold at service stations within the City. This is more cost efficient and more equitable than route specific tolling and would result in fewer adverse effects. Province is permitted to impose this levy in terms of the Provincial Tax Regulation Process Act No. 53 of 2001.
- The City of Cape Town accepts that road pricing is an acceptable means of charging road users for the provision, operation and maintenance of road infrastructure which operates at a satisfactory level of service and safety. However, the most equitable and cost efficient means of collection of these user charges would be in the form of the levy on fuel or a "shadow toll" paid at service stations.
- If the goal is to use the imposition of this kind of road user charge to increase the utilization of public transport, then the transport authorities must ensure adequate comfort, safety, capacity and frequency of those public transport services, which provide the alternative to the road routes, which will become subject to the levies. In order to ensure that these policies lead to sustainable provision of transport facilities and services, the transport authorities must ensure that the overall transport and environmental costs of travel demand management and "public transport first" strategies will be less than the status quo costs.
- Route specific tolling should preferably be used exclusively for travel demand management or recreational/tourism purposes within the jurisdictional area of the City of Cape Town and only in accordance with an approved Transport Plan, which is part of an Integrated Development Plan. The City is empowered in terms of Section 21 of the Urban Transport Act to impose certain travel demand management levies.
- These levies should only be imposed if the income derived there from will exceed the cost of collection and/or if the imposition of these levies reduces the generalised cost (including the cost of the levies to the motorists) of transport in the City of Cape Town. This form of road pricing or congestion charging can be used to reduce peak hour travel demand on certain routes by a few percent, which could reduce delays by a substantial amount.

If central and provincial governments proceed with the imposition of road tolls within the boundaries of the City of Cape Town, despite the above conclusions and recommendations, it is then recommended that;

- In view of the much higher expense to road users of providing roads through toll financing and the incentive for BOT-developers to incorporate spending on the scheme to the limit of what the toll payers are likely to bear, in order to raise their return, careful consideration must be given to the actual need for the road works envisaged when considering approval of the toll provision contract. The innovative financing method used by the Community of Madrid for the M-45

Expressway described in sections 4 and 7 of this policy is the desirable way forward for any toll roads imposed by other spheres of government within the boundaries of the City of Cape Town.

- If this innovative way of funding imposed toll road schemes is not adopted, then the City of Cape Town must be consulted when discounts on toll fees are granted within the City boundary, in order that the income redistribution effects are taken into account in the implementation of local social policy.
- In view of the enduring effect of national toll road schemes within the metropolitan area on the welfare of local road users, it is advisable for the City of Cape Town to have insight of the financial models of BOT-contracts to be concluded for national or provincial toll roads within the metropolis.
- Although South African law does not require an alternative route when a road is tolled, consideration should always be given to ensuring that existing mobility is not unduly inhibited by the lack of choice of routes when a toll road is opened.

Although the National Environmental Management Act 1998, requires that development must be socially, economically and environmentally sustainable in order to be acceptable, no criteria are given for social and economic sustainability – consideration should thus be given to the extent to which inequitable income re-distribution stemming from toll road schemes renders the schemes socially unsustainable, while the economic sustainability should be determined through cost-benefit analysis, the documentation of which should be publicly available in the EIA's.

Each proposal for road tolling will require careful analysis prior to implementation in order to avoid any adverse unintended consequences.

With regard to the possible but undesirable imposition of road tolls within its area of jurisdiction by other spheres of government, the City of Cape Town approves the adoption of the way ahead as described in section 9 of this policy.

## **8. THE WAY AHEAD ON THE IMPOSITION OF ROAD TOLLS IN THE CITY OF CAPE TOWN**

It is important to understand that the road system serving the City of Cape Town consists of a network of interdependent links. Different links and elements of this network perform different functions. Uninterrupted-flow roads usually carry trips of longer distances than the slower interrupted-flow arterials and the local roads. However, most trips involve the use of most of the different types of elements of the road network in order to provide door-to-door service. Tolling only certain elements of the network usually results in inequitable charging because the tolled elements would not attract much traffic if the remainder of the road network is not in place or if it did not function properly. Unless the use of the entire system is “tolled”, traffic will be diverted from the logical routes of choice by the imposition of tolls on only certain links. The easiest links to toll are the freeways and expressways as they have limited points of access.

As can be ascertained from the arguments and facts in this policy document, it appears that three main courses of action are available to the City of Cape Town if it is deemed desirable for the city to retain planning, design, prioritization and budgeting control over its vital transport system as well as achieve the desirable level of service and balance of utilization of the city's road and public transport systems.

- The City can request SANRAL and/or the Province of the Western Cape to fund any proposed improvements or additions to the national or provincial road network within the City boundaries from a “shadow toll” levied at the fuel sales points located throughout the City of Cape Town. This could be levied by SANRAL in terms of Act No. 7 of 1998 or by Province in terms of the

Provincial Tax Regulation Process Act No. 53 of 2001 in order to pay the tendering concessionaire consortia, which develop these schemes in terms of an agreement with the appropriate road authority. (Refer to section 4 for more detail) This proposal has the advantage of avoiding most of the adverse impacts outlined in section 7. above. In addition it could solve the chronic problem of under-funding of transport as well as having overall cost efficiency advantages. This proposed arrangement does not conflict with the creation of a single Transport Authority for the City of Cape Town. In fact it requires the close liaison of all three spheres of government for this course of action to succeed.

- Alternatively, the City could reluctantly accept the imposition of road tolling on roads within the City boundaries by SANRAL as well as the Province on condition that:-
  - (a) toll road facilities and the management thereof conform in all respects with the Transport Plan for the City of Cape Town as amended from time to time and that
  - (b) SANRAL assumes financial responsibility for conducting a Strategic Environmental Assessment of the impact of tolling specific routes, mitigating the adverse effects on the environment and funding the required improvements on any roads affected by diverted traffic from the tolled routes and that
  - (c) SANRAL ensures that all the important considerations outlined in section 4 of this report are adequately addressed. (The City of Cape Town will negotiate with the toll road providers in order to obtain the best possible outcome)
- If neither of the above two courses of action are acceptable to all of the relevant authorities, the City could challenge the validity of the Act No 7 of 1998 in the Constitutional Court.
- As part of the Transport Plan, the City must prepare a strategy of road pricing concurrently with a strategy of public transport system improvements in order to reduce the unacceptable costs and environmental degradation of the growing demands for travel and access to opportunities. It is recommended that a Strategic Environmental Assessment (SEA) be undertaken during the preparation of the transport plan and that the outcomes of the SEA are properly considered in the formulation of the transport plan.

## 9. REFERENCES

- [1] Floor B C, March 2002. "Report on the considerations which should underlie the imposition of road tolls in the metropolitan area of the City of Cape Town", (report prepared for the City of Cape Town)
- [2] Constitution of the Republic of South Africa, 1996, No.108 of 1996.
- [3] National Environmental Management Act, 1998, No. 107 of 1998.
- [4] The South African National Roads Agency Limited and National Roads Act 1998, No. 7 of 1998.
- [5] Urban Transport Act 1977, No 78 of 1977.
- [6] Western Cape Toll Roads Act 1999, No. 11 of 1999.
- [7] Provincial Tax Regulation Process Act No. 53 of 2001.
- [8] IRF Official Section, World Highways/Routes du Monde, May 2002. "The M-45 Expressway, Community of Madrid (Comunidad de Madrid), Spain", p.20-21.
- [9] Stander H J, April 2002. "Toll Roads and the Cost-Effectiveness of National Infrastructure", presented to Institute for International Research, 2<sup>nd</sup> Annual Road Infrastructure Management and Investment Forum, Johannesburg (23 April 2002).

# TOWARDS A POLICY ON THE IMPOSITION OF ROAD TOLLS IN THE CITY OF CAPE TOWN

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## **Biography**

Ron Haiden is Head: Metropolitan Transport Projects, Transport Roads & Stormwater, City of Cape Town. He graduated with a B.Sc. in Civil Engineering from the University of Cape Town in 1973. After working for the Harbour Engineers in Cape Town and Port Elizabeth and being registered as a Professional Engineer in 1976, he studied at the University of Edinburgh and graduated with a Master of Philosophy degree in Urban Design and Regional Planning in June 1980. His 40 000 word thesis was entitled “Planning Alternative Futures: Some Organizational Implications”.

After working as a Planning Engineer in the Head Office of the erstwhile South African Transport Services in Johannesburg and as a District Engineer with Reef Construction, he resigned in July 1983. Since the 18<sup>th</sup> July 1983 he has worked on metropolitan transport projects for the old Cape Town Municipality and the Cape Metropolitan Council in Metropolitan Transport Planning. He obtained a Graduate Diploma in Transport Engineering from the University of the Witwatersrand in 1991. He was part of the team responsible for preparing the transport plan for the Cape Town bid for the 2004 Olympic Games.

Ron Haiden presented a paper entitled “the 1989/90 Highway Capacity Study for the Cape Town Metropolitan Transport Area” to the 1991 Annual Transport Convention. He has also presented papers to the 1996 and 2000 Quadrennial Conferences of the Transport Engineering Division of the SAICE. In February 1999 he was co-author of a paper presented to the Symposium on Road Access Management in Midrand.