

# Road Funding Report



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Compiled by: AA Research



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## Table of abbreviations

<b>AA</b>	Automobile Association of South Africa
<b>CAREC</b>	Central Asian Regional Economic Cooperation
<b>CRB</b>	Central Roads Board
<b>DFR</b>	Department of Feeder Roads
<b>eNaTIS</b>	Electronic National administration Traffic Information System
<b>FiA</b>	Federation Internationale De L'Automobile
<b>GFIP</b>	Gauteng Freeway Improvement Project
<b>GHA</b>	Ghana Highway Authority
<b>JEHDRA</b>	Japan Express Holding and Debt Repayment Agency
<b>MOT</b>	Ministry of Transport
<b>MRDI</b>	Ministry of Regional Development and Infrastructure
<b>MRH</b>	Ministry of Roads and Highways
<b>NLTF</b>	National Land Transport Funding
<b>NRB</b>	National Road Board
<b>OUTA</b>	Organisation Undoing Tax Abuse
<b>PAJA</b>	Promotion of Administrative Justice Act
<b>RAMS</b>	Road Asset Management System
<b>RD</b>	Road Department
<b>RTMC</b>	Road Traffic Management Cooperation
<b>RUC</b>	Road user charges
<b>SANRAL</b>	South African National Roads Agency Limited
<b>SatsSA</b>	Statistics South Africa
<b>SCA</b>	Supreme Court of Appeal
<b>SLRA</b>	Sierra Leone Roads Agency



## Executive Summary

This Road Funding Report examines road funding models globally, compares the different road funding methods of various countries, and discusses the best practices for road funding. South Africa implemented e-tolls as a method of road funding for the Gauteng Freeway Improvement Project (GFIP) in 2013. These e-tolls have experienced a substantial amount of public resistance, with the highest compliance rate of 40% reported in 2014. The South African Roads Agency Limited (SANRAL) has attempted to increase compliance rates. Indications are that these attempts have failed.

The public resistance to e-tolls in Gauteng, is explored by the administration of a public opinion survey. The survey results indicate that the respondents have a negative attitude towards SANRAL, perceiving it and the e-toll system as corrupt. Respondents feel that they are not getting value for money when paying e-tolls. Legal measures are unlikely to increase compliance rates. It is unlikely that SANRAL will be able to convince more people to comply. SANRAL may have also reduced compliance rates by temporarily suspending historic debt collection, as it is perceived as an unfair decision towards those who have been paying e-tolls.

We recommend that SANRAL suspend e-tolling effective immediately, while reconsidering potential road funding options. Regardless of which road funding method is chosen to go forward, it is of paramount importance that SANRAL proceed with sufficient public consultation and input, as well as using complete transparency in their planning and budgeting. SANRAL should also make an attempt to change public perceptions of them before approaching the public.

Further steps recommended to be taken going forward, including the reimbursement of those who have paid to date, are included in the conclusion of this report.



## Background and Introduction

Gauteng is the economic hub of South Africa, generating approximately 38% of the country's economic activity (Gauteng e-toll Panel, 2014). Increased urbanisation and substantial development has occurred in and around Gauteng, increasing the flow of traffic significantly. Gauteng was in need of a road network upgrade, and the Gauteng Freeway Improvement Project (GFIP) began in 2008 in an attempt to alleviate congestion on the primary thoroughfares (Gauteng e-toll Panel, 2014).

The South African National Roads Agency Limited (SANRAL) did not have the fiscal means to complete such an extensive highway upgrade, resulting in the need for government-backed bonds. To recover the money used to complete Phase One of GFIP, SANRAL opted for a user-pays approach. As a result of engineering constraints, as well as to improve travel time, physical toll gates could not be erected along the roads. The decision was made to utilise an e-tolling system, in which an electronic system determines the capacity of a vehicle, and charges the road user accordingly (Gauteng e-toll Panel, 2014).

The e-tolling system went live at midnight on 3 December 2013. SANRAL experienced considerably less compliance than it anticipated, leaving SANRAL with a R89,77bn debt to repay over the 24 years stipulated in the loan agreement (Nazir Alli, 21 May 2012). E-tolls have become a contested subject within the South African economic, legal and social spheres. SANRAL has experienced much resistance toward the payment of e-tolls, forcing them to resort to legal action.

This report looks at what road funding is, as well as how roads are funded globally, in Africa, and in South Africa. The history of tolling and e-tolling in South Africa is discussed, as well as the issues incurred during the planning and implementation of the e-tolling system. Lastly, the future of e-tolling in South Africa is discussed with regard to the options available to SANRAL.

It is stressed that this report does not address the issue of the debt accrued to date, instead it deals with the matter of funding going forward. The issue of this debt is, we believe, a matter for government to resolve in the same manner in which it has dealt with the financial difficulties facing other State-Owned Enterprises rather than unilaterally placing the burden directly on the shoulders of consumers.



## Road funding

Road funding refers to the various revenue streams collected to maintain and upgrade the road network in any given country. “Road asset management looks at optimising the level and allocation of road maintenance funding in relation to medium and long term results on road conditions and road user costs” (Asian Development Bank, 2018, p2).

Tolls are often used to fund road related projects, and is based on the user-pays principle, which states that those who benefit from the road use, should be those who pay for the improvement or maintenance of it. The money collected from tolls make provision for:

- Ease of congestion;
- Reduced air pollution;
- Effective drainage of rainwater;
- Repairing of potholes and cracks;
- Grass cutting on the side of the roads;
- Maintenance and addition of road signage;
- Cleaning of the roads after crashes;
- Resurfacing of the road; and,
- Road expansion (Drive South Africa, 2018).



## Road Funding Globally

Each country has its own road funding model, as well as ways in which revenue for road funding is collected.

*Table 1 Road funding globally*

Country	Road funding
<b>New Zealand</b>	<p>Road User Charges (RUC) were introduced in New Zealand in 1978 as a means of more efficiently charging for road use by heavy vehicles, and to provide a level playing field for rail and road freight competition. It replaced fuel excise duty on diesel and applies to both heavy vehicles over 3.5 tonnes and light-duty diesel vehicles. A cost allocation model is used to distribute road wear and common costs between categories of vehicles considering space use, vehicle weight and distance travelled. The model is regularly run when changes to RUC are considered and the model itself is updated periodically and was last updated in 2015. RUC is one of the main revenue sources to the National Land Transport Funding (NLTF) in New Zealand and accounts for around 40% of its revenue. Other key funding sources include fuel excise duty for petrol and gas powered vehicles (around 54%) and motor vehicle registration and licensing fees (around 6%). The NLTF funds road improvements and maintenance, road safety, public transport, walking and cycling. Local authorities additionally, contribute just under half of the total cost of improving and maintaining local roads and public transport.</p> <p>The New Zealand government has recently introduced a regional fuel tax for Auckland to raise revenue for transport sector investment, at least some of which will be investment in public transport.</p> <p>A number of short, recently-constructed stretches of national highway are tolled in New Zealand, with flat rate charges to enter the tolled sections designed to recover costs. Tolls can only be applied to new roads and tolls are applied with fully electronic free-flow technology, with payment by internet account or at selected filling stations. Payment can be made before or after use or by automatic debit.</p> <p>Compliance is enforced with automatic number-plate recognition cameras.</p>



	<p>For the longer term, traffic demand management measures, such as congestion pricing, are being investigated (International Transport Forum, 2018).</p>
<b>Singapore</b>	<p>Singapore's electronic road pricing system uses prices determined by optimisation of traffic flow. Prices are set to ensure traffic speeds are maintained at agreed levels: 20-30 km/h on arterial city roads, 45-65 km/h on expressways. Electronic Road Pricing rates are determined by a quarterly review of traffic speeds of priced roads, as well as during the June and December school holidays. The pricing formula was developed using a traffic flow model developed by the Land Transport Authority. When speeds fall below the target levels prices are increased. When speeds rise above the target range, prices are reduced.</p> <p>The benefit of this rule-based methodology is transparency. This aids understanding for both the public and decision makers, and underpins public support for the system. It similarly permits prices to be set at the level needed to contain congestion and modified when needed, without having to revert to a political decision each time changes are required (International Transport Forum, 2018).</p>
<b>People's Republic of China</b>	<p>The People's Republic of China is the largest of the CAREC countries and has by far the largest road network, and the second highest road density. The Ministry of Transport (MoT) decentralised responsibility for the trunk road network to the 27 provincial departments of transport and the transport bureaus in the four major cities. In some provinces, responsibility was further decentralised to city level. Public or private companies often manage expressways. In many provinces, in-house units still carry out maintenance.</p> <p>A fuel tax was introduced in 2009, replacing vehicle maintenance fees, tolls on lower-class roads, and several other user charges. The fuel tax provides a predictable level of funding that increases with road usage. Although road sector budgets increased with the introduction of the fuel tax, allocations to road maintenance continue to fall short of estimated needs, especially since a large portion of the fuel tax revenue is used for network development (Asian Development Bank, 2018).</p>
<b>Georgia</b>	<p>International roads and secondary interstate roads are managed by the Roads Department (RD) under the Ministry of Regional Development and Infrastructure (MRDI), while local roads are managed by municipal</p>



	<p>authorities. International roads tend to be in good condition, but 40% of secondary roads and 70% of local roads are in poor condition. All works are contracted out to the private sector, that were privatised in 1999. Design–build and performance-based contracts have been successfully piloted and are currently replicated in other parts of the network.</p> <p>A Road Fund existed previously, but was abolished in 2004. Road sector funding currently comes from the general government budget, with a significant portion coming from development partners. Funding continues to be aimed mainly at construction. Although the allocations for rehabilitation and periodic maintenance increased significantly over the past 10 years (mainly from development partner funding), routine maintenance continues to be severely underfunded (Asian Development Bank, 2018).</p>
<b>England</b>	<p>Road funding has a long history in England, dating back to the well-constructed and well-maintained roads of the Romans. England currently has a sizeable network of roads, and funding is currently provided at two different levels. The major roads (the strategic road network) are funded by the central government and managed by the Highways Agency. Local roads, on the other hand, are the responsibility of local authorities. The maintenance and improvement of these roads are funded through local council taxes, fees, and central government grants.</p> <p>Roads in England were built and maintained through statutory labour, tolls, and ultimately taxes raised from vehicles paid into a specific fund to provide roads. All of these methods of funding and maintaining roads ultimately failed through corruption or misapplication of funds. Currently, all taxes and duties obtained from vehicle taxes and excise duties on fuel are paid directly into the government’s main fund, and monies provided for roads are allocated from the budget. The government has announced that it will likely need to reconsider how vehicles are taxed, given the advances in technology that are reducing the amount of taxes collected through traditional methods, such as through the use of fossil fuels; however, it has yet to propose any changes (Feikert-Ahalt, 2014).</p>
<b>Japan</b>	<p>Japan traditionally constructed highways through highway public corporations, but these corporations incurred huge amounts of debt over</p>

	<p>the years. In 2005, four highway public corporations were dissolved and the Japan Expressways Holding and Debt Repayment Agency (JEHDRA) and six new highway companies were established. JEHDRA took over the highway assets and debts of four former highway public corporations and leased highways to the highway companies.</p> <p>Previously, the major source of government funding for highway construction was earmarked tax revenues, such as the gasoline tax and car-related taxes. The toll from highway users was used to pay off loans. However, the earmarked tax revenue system for road construction was abolished in 2008.</p> <p>The government supports JEHDRA, and JEHDRA in turn provides financing to highway companies through grants and debt guarantees. The government constructs and manages those highways that are not profitable by themselves (Umeda, 2014).</p>
<b>Sweden</b>	<p>Sweden finances its highways through municipal and state taxes. The state receives revenue from the taxation of motor vehicles and fuels, and from congestion fees in the two largest cities. There are two international toll bridges and plans to make part of Sweden's largest divided highway toll-based. Planning for major infrastructure projects is undertaken by the municipalities and the national government. The current national infrastructure plan covers 2014 to 2025 (Hofverberg, 2014).</p>
<b>Australia</b>	<p>Under Australia's federal arrangements, state and local governments are responsible for road construction and maintenance. However, the federal government provides funding assistance under various programs. The federal government also collects a fuel excise tax, a Goods and Services Tax on fuel and vehicle sales, as well as a road user charge that applies to heavy vehicles based on fuel consumption, while state governments collect vehicle registration fees and vehicle stamp duties. Federal revenue from road transport-related activities is added to the general revenue pool and is not ringfenced for road infrastructure expenditure. Rather, expenditure under the various funding programs is appropriated as part of the annual budget process. In addition to federal, state, and local revenue, private sector investment is also a source of funding for some roads, and three states maintain</p>



networks of toll roads. The current government has asked the Productivity Commission to investigate how infrastructure is currently funded and financed in Australia and to explore possible alternative mechanisms, with a particular focus on maximizing private-sector investment in major projects. A further key area for possible reform in the near future is the heavy vehicle charging system, with a reform advisory group considering proposals for distance and road use charges, as well as for associated revenue to be directed to state and local governments to use for road infrastructure (Buchanan, 2014).



## Road Funding in Africa

The road fund in each of the various African countries is run and sustained in the way determined by each individual government.

*Table 2 Road Funding in Africa*

<b>Country</b>	<b>Road Funding</b>
<b>Chad</b>	Chad defines the fuel levy as a percentage of the overall taxes on fuel (currently 16 percent). This has several disadvantages. First, the levy is often applied to non-transport fuels and this it is not really a road user charge (e.g., the levy is also applied to heating oil and kerosene). Second, the revenue generated cannot easily be adjusted to meet the requirements of the road sector without adjusting the percentage earmarked for roads. Increasing the percentage for roads necessitates tightening the rest of the government's budget. And finally, since the fuel levy is not clearly separated from the other taxes applied to fuel, the revenue looks like, and generally is, straightforward earmarking (Balcerac de Richecour & Heggie, 1995). Chad makes use of RUC, including fuel levies, toll roads, transit fees and overloading fines, to finance its road fund (Benmaamar, 2006).
<b>Sierra Leone</b>	The road fund is a bank account managed by the Sierra Leone Roads Authority (SLRA). The Board and Director General manage the road fund, as well as manage the road network. SLRA decides, as an internal matter, how to divide the road fund revenues between main, urban and rural roads. In the longer term, SLRA may create a board sub-committee to manage the road fund to ensure that financial matters receive sufficient management attention (Balcerac de Richecour & Heggie, 1995).
<b>Ghana</b>	The road fund is a bank account controlled by the Ministry of Roads and Highways (MRH). The ministry splits the revenues at the source and decides how much to allocate to the Ghana Highway Authority (GHA), Department of Feeder Roads (DFR), and Department of Urban Roads (DUR). The money is simply transferred from the road fund account into the bank accounts of GHA, DFR, and DUR, and they are then responsible for managing the funds, subject to oversight by MRH. There is no consistent procedure for allocating funds between the different road agencies. For example, in 1992 DUR received 21 percent of the



	<p>revenues, down from 30 percent in 1991 and up from 16 percent in 1990. Annual allocations vary widely and are the subject of continual complaints (Balcerac de Richecour &amp; Heggie, 1995). The Road Fund Act 536 of 1997 states that, the money for the road fund will be collected by a fuel levy, tolled roads, bridges and ferries, vehicle license and inspection fees, international transit fees, as well as money provided by the Department of Finance (Ghana Legal, n.d.).</p>
<b>Tanzania</b>	<p>The road fund splits revenues at the source. The Ministry of Finance pays 20 percent of the proceeds into a road fund managed by the Prime Minister's Office (which deals with district council roads) and 80 percent into a road fund managed by the Ministry of Works (which deals with main and regional roads). The Central Road Board (CRB) oversees the latter road fund. A healthy debate is currently underway regarding these proportions and the Board may in due course be invited to advise on the 20:80 formula, and whether it should be changed or replaced by a more flexible arrangement (Balcerac de Richecour &amp; Heggie, 1995). Fuel levies, transit charges, heavy vehicle registration fees, and overloading fines are used to finance the road fund in Tanzania (Kumar, 2002).</p>
<b>Central African Republic</b>	<p>The Central African Republic has established public utilities to manage their road funds. The public utility has a management board which oversees the road fund, a Director responsible for day-to-day operations, and a large staff, up to 50 to 80 people, organised into several units (accounting, administration, secretarial services, credit management, and personnel). The utility manages the road fund and is also responsible for providing a number of other services to the Ministry of Works. The utility deals with payment of field units, settlement of disputes between contractors and the road agency, and management of staff not working for the road fund. The structure is not particularly satisfactory (e.g., money from the road fund is used to finance activities which have nothing to do with roads) and the multiple objectives confuse staff and divert attention away from the important objective of managing the road fund (Balcerac de Richecour &amp; Heggie, 1995).</p>
<b>Zambia</b>	<p>The road fund is managed by the National Road board (NRB), which was established with the specific objective of managing the road fund. The board consists of eleven members: five from the public sector (non-voting members) and seven voting members representing road users</p>

	<p>and other private sector interests. The current Chairman and Vice-Chairman are both from the private sector. The NRB has a small secretariat consisting of a Secretary and up to five engineering and accounting staff. The board participates in the review of the proposed road expenditure program, recommends the level of the road tariff to Ministry of Finance, and allocates the proceeds between the different road agencies (Road Safety Board, main roads, urban district roads, and rural district roads), in consultation with the responsible Ministers (Balcerac de Richecour &amp; Heggie, 1995). The Republic of Zambia makes use of transit fees, heavy vehicle license fees, carbon taxes, and fuel levies to finance the national road fund (Lombard, 2007).</p>
<p><b>Nigeria</b></p>	<p>A Roads Fund exists to serve as a repository for revenues accruing from road use and other sources for the maintenance of national roads. The Fund is a body corporate capable of holding, purchasing, acquiring and disposing of property for the purpose of carrying out its functions. Each year up to 3% of the total monies accruing to the Fund in the preceding year, before disbursement, is used for the management and administration of the Roads Fund. In effect, the cost of running the Fund, and other costs, are be paid for, from the accruals to the Fund. Included in the revenue stream of the Roads Fund is 5% of user's charge on the price of petrol and diesel received from petroleum products; grants and loans to the Road Fund by the Federal, State or Local government, statutory corporations, or any international organization; private foundation or person; gifts of land and money (Policy and Legal Advocacy Centre, 2016).</p>
<p><b>Angola</b></p>	<p>Angola is one of the highest spenders on road infrastructure in Africa. Angola has an established independent Road Fund Agency. Half the proceeds from the payment of Road Tax, 25% of consumption tax on lubricants, tolls and vehicle import taxes serves to finance the budget of the road fund (Tristan, 2015).</p>
<p><b>Egypt</b></p>	<p>Egypt's road fund gets most of its budget from the national budget allocated to the Ministry of transport, its self-generated income includes; tolls collected from toll roads, revenue from advertisement concessions</p>



	along the sides of its roads and the fines collected from trucks with axle loads over the permitted by the law (Japan International Cooperation Agency, 2012).
<b>Morocco</b>	Morocco has a traditional road fund with earmarked taxes. The road fund is financed by general taxes, road tolls, and public private partnerships (The World Bank, n.d.).
<b>Ethiopia</b>	Ethiopia has an established independent Road Fund Agency. Stated sources of road Fund revenue, are Government budget, Fuel levy, Axle weight based vehicle license renewal fee, overloading fines and any other Road Tariff as may be fixed and approved by necessity (Office of the Road Fund Administration, 2001).



## Comparison of Road Funding

Table 3 Comparison of road funding

Country	Fuel Levy	Vehicle registration fees	License fees	General tax	Tolling	Transit fees	Other financing
New Zealand	X	X	X	X	X		Diesel vehicles road user charges
Singapore					X		
People's Republic of China	X						
Georgia				X			Private sector partners
England	X	X		X			
Japan	X			X			Vehicle weight tax Vehicle purchase tax
Sweden	X			X	X		
Australia	X	X			X		Private sector partners
Morocco				X	X		Private sector partners
Ethiopia	X	X		X			Overloading fines
Egypt				X	X		Overloading fines Advertisement concessions
Angola	X			X	X	X	Tax on consumption of lubricants
Nigeria	X			X			Gifts to the fund
Chad	X			X	X	X	Overloading



							fines
Sierra Leone	X			X			
Ghana	X		X	X	X	X	Inspection fees
Tanzania	X		Heavy vehicles			X	Overloading fines
Central African Republic	X				X		
Zambia	X			X		X	



## Road funding in South Africa

The South African National Roads Agency Limited (SANRAL) is a completely state-owned company, tasked with the development, maintenance, and management of all South African national roads. A national road is any road that has been declared as such by the Minister of Transport, including any toll road and inter-provincial bridge. The Minister may declare or reverse any declaration of a road, as a national road, based on the recommendation of SANRAL. SANRAL is governed by the SANRAL and National Roads Act (1998), which allows SANRAL to manage the national road network, as well as step in when requested by provincial municipalities, charging a fee for their work.

The SANRAL and National Roads Act allows SANRAL to receive funding from a variety of sources in order to fulfil their mandate, including:

- capital investments or loans made by the state;
- revenue generated from fuel taxes in accordance with any applicable law;
- loans;
- interest from cash balances or investments;
- revenue generated from participation in joint ventures;
- revenue generated from the sale of assets;
- revenue generated from tolls;
- revenue generated from collecting fines;
- revenue generated from developing, leasing, or managing assets;
- revenue generated from any fees collected;
- parliamentary appropriations; and
- revenue generated from grants, donations, or inheritances.

Presently, SANRAL operates two separate business areas, non-toll roads and toll roads. The objective of the separation of the two areas is to avoid cross-subsidisation. Cross-subsidisation occurs as a last resort for debt payment.

Toll roads in South Africa are established in one of two ways: SANRAL may directly fund a road and directly collect tolls, or may enter into a contract with a private company to fund a specific road. A frequently used way for SANRAL to raise funds for road development, is by issuing government backed bonds (Goitom, 2014).



## Best Practise for Road Funding

Before road pricing is introduced, an in-depth analysis should be done to determine whether it is the most appropriate way to address the road related challenges, such as congestion. Governments should employ a bottom-up approach, by finding the problems, and then finding the most suitable response to them. The comprehensive fiscal burden placed on individuals should be taken into consideration, the overall burden should not increase (FiA, 2017).

Road funds can work effectively if they have clear objectives, an independent source of revenue based on road tariffs, effective management, as well as commercial accounting systems and independent auditors. Clear objectives are needed for the management of a road fund, such as deciding which agency will be in control of the fund, which road projects will be funded, and will the fund rely solely on road user fees or will it receive an allocation from government (Balcerac de Richecour & Heggie, 1995).

If a single agency is responsible for the entire road network, the same agency may be responsible for the road fund, at the risk of the agency becoming too focussed on the day to day functioning of the roads and neglecting the road fund management. To prevent this from occurring, a subcommittee responsible for the road fund should be established (Balcerac de Richecour & Heggie, 1995).

Where several agencies receive money from the road fund, one of these agencies may be responsible for the management of the funds, or the funds may be split at the source and allocated to each agency. Having a single agency manage the fund will inevitably lead to a conflict of interest. Splitting the fund at the source seems to be the best option, provided these funds are divided in a consistent manner. It is important to keep administrative costs under control, regardless of the agency managing the fund (Balcerac de Richecour & Heggie, 1995).

The revenue, for road funds, usually comes from two main sources, namely the government tax system and road user charges. The income from road user charges are usually more stable and predictable, while many governments struggle to provide a stable flow of income to road funds. Therefore, any road fund should avoid relying too heavily on government funding (Balcerac de Richecour & Heggie, 1995). Road user acceptance plays a crucial role in the implementation of road policy. Therefore, extensive consultation with stakeholders should take place, and road users should understand the pricing system thoroughly, and any changes to the system should go through the same process. Transparency is required to ensure road user comprehension and acceptance (FiA, 2017).

Up to the point that a government is able to fully fund the maintenance of the entire road network, it should identify a core network, maintain this network, as well as only expand this



network or build new roads once the funds are available to maintain them. The roads that do not form part of this core network, may be handed to lower levels of government, or receive only minimal maintenance (Balcerac de Richecour & Heggie, 1995).

A set of questions should be answered before a road tariff is set into place, these include:

- Which mechanisms will be used to raise revenues?
- How will the tariff be adjusted to meet revenue requirements?
- What type of tariff structure will be used?
- Will any exemptions be applied to the tariff?

Road fund revenue is generally collected, excluding government tax funding, by fuel levies, bridge and ferry tolls, weighbridge fees, vehicle licence fees, and international transit fees. Some countries pay the revenue generated by fining overloaded vehicles, and paying these fines into the road fund, as overloaded vehicles damage the road surface. The fuel levy is typically the biggest contributor to the road fund. There should be a clear distinction between the fuel levy and other fuel taxes, to ensure more public support by not confusing this levy with general taxes. It is important to ensure that vehicles are charged for their road use according to the cost they impose on the road network (FiA, 2017). The fuel levy will need regular adjustments to account for inflation, the devaluation of the currency, and varying road maintenance fees. Adjusting tariffs related to road funding often involve consultation with various government departments, and adjustments to international transit fees require international agreement (Balcerac de Richecour & Heggie, 1995). The increased cost of the implementation and running of e-tolling should be carefully considered (FiA, 2017).

Some governments have exemption categories, that allow certain vehicles, such as government owned, diplomatic, or military vehicles exemptions from the fuel levy. These exemptions are problematic, as all vehicles impose a cost on the road network, thus others have to make up the costs imposed by those that are exempted. If government chooses to continue with exemptions, they should pay the fee on behalf of those that are exempted, to ensure that other road users do not have to carry that burden. Some countries offer justified exemptions, such as fuel not used for road transport, for example, fuel used for electricity generation, use of machinery, or fuel used for water transport. This process will however, need to be carefully controlled to avoid undue evasion or avoidance of the fuel levy. In addition, the exemptions for fuel not used for road transport, establishes the fuel levy clearly as a road user fee (Balcerac de Richecour & Heggie, 1995; International Transport Forum, 2018).

It remains paramount that the revenues collected from the fuel levy are not used to fund any other government spending (FiA, 2017). The best way to do this, is to have oil companies



collect the levy at the source and directly deposit it into the road fund. The most efficient means would be to have fuel companies pay the levy at the collection of fuel rather than after sales. All other road fund revenues (e.g. bridge tolls and license fees) should be paid directly into the road fund as well (Balcerac de Richecour & Heggie, 1995).

The primary aim of road pricing (tolling) should be to manage the road demand and levels of congestion. There are less expensive ways to administer tax if the goal of tolling is simply to raise revenue. By differentiating tolling by location and time, road users can plan their travel patterns, instead of being tolled to such an extent that they have no option but to avoid these roads. Commuters should be allowed to make fair and efficient choices regarding their mode of transport. The relationship between road tolling and public transport should be symbiotic. Where public transport is inadequate (such as in South Africa), major investments into public transport should be considered (International Transport Forum, 2018). The greater the use of public transport systems, the lower the need for road maintenance. Similarly, the improved utilisation of road space will make city living more attractive, reducing the number of road users and commuting times, in turn lowering the wear and tear to road surfaces, which equals a reduced need for road maintenance. The economic, social, practical and political aspects of road tolling should be taken into consideration, to avoid negative side-effects and maximise benefits to all involved (International Transport Forum, 2018).

To be effective and efficient, the board in charge of managing the road fund, should be insulated from political abuse and should be able to gain the active support of road users (Balcerac de Richecour & Heggie, 1995).

Road asset management systems (RAMS) aim to optimise the use of road funding, by taking all the costs, both to the government and road user, into consideration in the planning of road maintenance. The Asian Development Bank (2018) has established a set of best practices in the design and use of RAMS:

- The data that is collected by the RAMS should be limited to only the information that is required, in order to avoid any unnecessary use of resources.
- The data collected should be accurate, reliable and subject to quality control procedures.
- The database used for the RAMS, should be easy to use, properly structured, as well as accessible by various levels.
- The RAMS should start with simple, inexpensive software, allowing it to evolve to meet the requirements of road asset management.
- Clear institutional responsibilities and resources should be identified from the inception of the system.

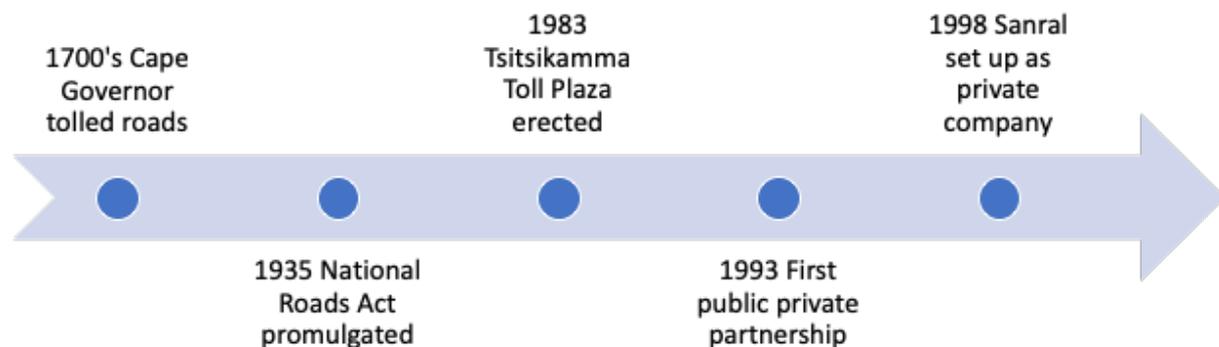


- The publishing of annual statistics will allow for constant monitoring of the performance of the road network.
- RAMS should be used as a monitoring and implementation tool in the maintenance of road networks.
- RAMS are not meant for the implementation of day-to-day maintenance, but rather for the overall management of road networks.
- It is important that RAMS have sufficient and predictable funding.
- Ensure that the RAMS has a high level of support, by integrating it into existing frameworks.
- The RAMS will continue to develop for up to 10 years, and technical support should be made available during this time.
- Build the maintenance capacity of road networks, by ensuring quality and efficiency in the implementation of maintenance (Asian Development Bank, 2018).

## History of Tolling in South Africa

In the 1700's the governor of the Cape Colony collected tolls to repair roads. Tolls were collected in the former provinces of the Orange Free State and Natal up to the end of the 19<sup>th</sup> century. In 1935 the National Roads Act was promulgated, and since then has undergone various amendments, due to changing government policies. In 1982/83 the National Roads Act was amended once again to allow the tolling of road users by government, as an additional way to generate the funds needed to build, maintain and upgrade South African roads. The first modern toll road was established in the Tsitsikamma, Eastern Cape in 1983, as essentially a new road, spanning 27km. Toll roads have since grown from 27 km to 3150 km, consisting of both agency funded and three public-private partnerships. SANRAL was set up by the government in 1998, as a public company completely owned by the state. SANRAL's purpose is to fund, develop, maintain and rehabilitate the South African national road network. The N3 toll road built in 1993 was the first public-private partnership, covering 415 km of road. In the latter part of the 1990's SANRAL awarded three 30-year public-private partnership concession contracts for approximately 1250 km of roadway, while directly operating around 2000 km of toll roads (Tolmie & Lawther, 2015).

*Figure 1 Timeline of tolling in South Africa*





## Position of AA on e-Tolling in South Africa

The Automobile Association (AA) represents members and the general motoring community of South Africa, as well as playing an oversight/advocacy role in motoring related matters. On 24 March 2011 the AA submitted its stance on e-tolling to the Department of Transport. In this written submission, the AA indicated that the congestion and road safety crisis in South Africa was due in part to a lack of affordable and reliable public transport systems. The AA petitioned the Department of Transport and SANRAL not to go ahead with the planned tolling of GFIP roads. Concerns were raised regarding the unfairness of the system, as well as the safety of alternative routes (where they exist/ed). The reasons for the petition included:

- The reliance of the South African economy on road transport, which would pass the financial burden onto South African consumers.
- The user-pays principle would add to the burden of more disadvantaged motorists, who have no choice but to make use of the roads daily.
- The alternative routes (where available) were not designed to cope with an influx of traffic, leading to increased congestion and damage to vehicles.
- Phase two of GFIP would leave almost no alternative routes available.
- The funds collected by means of tolling may not be used to fund any other infrastructure, and will thus have no benefits to the community.
- There is a lack of evidence to support that alternative funding methods were thoroughly investigated.
- A dedicated road fund would provide a more stable income, and could be spread out to the entire South African road network.
- The AA suggested that a dedicated road fund be established from the surcharges on fuel.
- The introduction of the tolling system would go against the President's Growth Plan, by raising the cost of doing business in Gauteng.
- The potential outflow of the money collected to a foreign entity was of great concern.
- The exemption of certain transport sectors might have led to constitutional and competitive challenges, as it discriminates against other road users.
- The AA wanted a breakdown from government regarding the spend of all funds collected through the fuel levies, vehicle licensing fees, eNaTIS transaction fees, and environmental taxes on vehicles.

Although the AA understood the benefits of an improved road network, the tolling of urban roads could not be supported. Road users may be required to pay for road improvements, but



should not be responsible for the cost associated with the implementation of the gantries, administration of the system, advertisement campaigns etc. (AA, 2011).



## History of e-Tolling in South Africa

Gauteng generates close to 38% of the total South African economic activities, making it the economic nucleus of the country. Substantial development, including housing, industrial, commercial and office developments, has occurred, resulting in increased levels of traffic flow in and around the province. The road infrastructure, was not able to handle the rapid rate of traffic growth, leading to an over capacitated road network (Gauteng e-toll panel, 26 August 2014). The response to this problem was to be the Gauteng Freeway Improvement Project (GFIP), planned in two phases. The project traversed the Tshwane, Ekurhuleni, and Johannesburg metropolitan limits, expanding freeways to between four and six lanes in both directions, to allow for less congestion and improved travel times. Electronic tolling had to be used due to the engineering constraints on Gauteng's roads (Gauteng e-toll panel, 26 August 2014). The environmental impact of private transportation, would be mitigated by shifts in mode of transport (private to public and road to rail shifts), encouraged by the e-toll system (Discussion document, August 2014).

*Table 4 History of e-Tolls*

	<b>Date</b>	<b>Event</b>
<b>1</b>	8 October 2007	Gauteng freeway improvement project (GFIP) is officially launched.
<b>2</b>	12 October 2007	Intention to toll sections of Gauteng's freeways published in Government Gazette. Public asked to comment.
<b>3</b>	14 November 2007	Closing date for public comment on the proposed introduction of e-tolls.
<b>4</b>	28 March 2008	Sections of Gauteng freeways declared toll roads in Government Gazette.
<b>5</b>	June 2010	The SA National Roads Agency Limited (SANRAL) starts erecting toll gantries along Gauteng's freeways.
<b>6</b>	4 February 2011	SANRAL announces e-toll tariffs and that registration commences in the second quarter of 2011.
<b>7</b>	18 February 2011	Congress of SA Trade Unions announces it will call for strike action over the introduction of e-tolls.
<b>8</b>	22 February 2011	The then transport minister Sibusiso Ndebele suspends implementation of e-tolls and establishes a committee to address concerns about the tariffs.
<b>9</b>	March 2011	Public consultation process on e-tolls takes place.



<b>10</b>	June 2011	GFIP steering committee announces reduced e-toll tariffs following the public consultation process.
<b>11</b>	10 August 2011	Cabinet approves the revised tariffs for e-tolls.
<b>12</b>	23 October 2011	Ndebele orders that e-tolls be halted and that further consultation take place.
<b>13</b>	1 November 2011	Public hearings held on e-tolls.
<b>14</b>	22 February 2012	In his budget speech, Finance Minister Pravin Gordhan announces that e-tolls will go ahead at reduced rate in April of that year.
<b>15</b>	1 March 2012	Opposition to Urban Tolling Alliance (OUTA) applies for an urgent interdict in the North Gauteng High Court in Pretoria against the implementation of e-tolls.
<b>16</b>	22 March 2012	Treasury files an appeal against the interim interdict in the Constitutional Court.
<b>17</b>	29 April 2012	The court grants OUTA an interim interdict pending a full judicial review.
<b>18</b>	15 August 2012	Case is heard in the Constitutional Court.
<b>19</b>	20 September 2012	Constitutional Court sets aside the temporary interdict.
<b>20</b>	13 December 2012	After the full judicial review, the North Gauteng High Court in Pretoria rules against OUTA in its application to have the implementation of e-tolls set aside.
<b>21</b>	25 January 2013	North Gauteng High Court in Pretoria grants OUTA leave to appeal to the Supreme Court of Appeal (SCA) against the December ruling.
<b>22</b>	25 September 2013	OUTA appeal is heard in the SCA.
<b>23</b>	9 October 2013	OUTA loses its appeal in the SCA.
<b>24</b>	20 November 2013	Transport Minister Dipuo Peters announces e-tolls will go live on December 3.
<b>25</b>	26 November 2013	SANRAL warns that a hefty bill awaits non-registered motorists without e-toll accounts who fail to pay for e-tolls within a week. The Freedom Front Plus announces a last-minute attempt to stop the implementation of e-tolls through an application for an interdict in the High Court in Pretoria.



<b>26</b>	2 December 2013	FF Plus application is heard in court and scrapped from the court roll.
<b>27</b>	June 2014	Highest compliance rate experienced.
<b>28</b>	10 July 2014	Gauteng premier David Makhura announces the names of the 10 people to sit on the panel which is to assess the socio-economic impact of e-tolls.
<b>29</b>	27 August 2014	Start of public consultations on the socio-economic impact of the e-tolls.
<b>30</b>	31 August 2015	Road users are given a 60% discount and 6 months to settle any outstanding debt. All debt incurred prior to the 31st of August 2015, is subject to a 60% discount if paid in full by 23:59 on 2 May 2016.
<b>31</b>	March 2016	The first round of civil summonses are sent out to defaulters.
<b>32</b>	3 December 2016	The first debt to SANRAL begins prescribing.
<b>33</b>	September 2017	The next round of civil summonses are sent out to defaulters.
<b>34</b>	17 January 2019	The ETC contract is extended.
<b>35</b>	27 March 2019	SANRAL announces suspension in the pursuing of debt, with immediate effect.

Figure 2 Timeline of e-tolling in South Africa





## Benefits of e-tolling

Toll roads ensure a high quality road network. In addition, to contributing to improved road safety, toll roads reduce travelling distances and result in substantial savings on the running costs of a vehicle, including maintenance costs and much valued travel time. The “user-pay” principle represents a fair and precise way of paying for transportation facilities. Tolls link the benefits for the road user with its fees by charging users only in direct relationship to how much of the road they use. Better roads lead to better infrastructure, allowing for an improved economy. E-tolls provide for free flowing traffic along the route and assist in eliminating congestion. E-tolls reduce the amount of Carbon emission, as there is less time spent on the roads. Motorist safety and security are improved along the route, as it is a free flowing collection system along an open road. SANRAL has also, implemented a Freeway Management Systems whereby roads are monitored and road user assistance along the tolled road network is improved in emergency situations (SANRAL, n.d.).

Clark (2018) states that “toll roads save commuters’ time and money; reduce congestion and create safer driving environments; improve fuel efficiency and pollution; and support business growth.”

A list of the benefits of tolling is added as:

- Tolling allows for the free flow of traffic, as most toll roads employ technology that reduce delays and improve the free flow of traffic, such as of using an electronic tag, instead of stopping to pay.
- Tolling saves time and money, by reducing the time spent on the road.
- Toll roads can play an important role in alleviating congestion and accidents on the road.
- Toll roads reduce pollution and fuel consumption, by reducing the time spent in traffic and allowing vehicles to move at a more fuel efficient speed.
- Businesses are benefited by having their vehicles move more efficiently (Clark, 2018).



## E-toll related disputes

According to OUTA, the e-toll system was doomed to fail from the inception. The e-toll system has proven to have many faults, including legal, financial and other problems. Originally, the declaration of the roads involved, was against the SANRAL act 66 of 1995, as well as the PAJA act 3 of 2000. Insufficient public consultation was done before the implementation of e-tolls, and the equipment currently used in the e-toll system is not approved, verified, or certified according to South African law (OUTA, 2018).

As a sign of public defiance, the majority of the public making use of e-toll roads has refused to pay their e-toll bills, with SANRAL reporting only a 29% compliance rate in February 2016 (SANRAL Annual Report, 2017). Erroneous information has gone out to the public, such as inaccurate notifications sent to people who had not been in Gauteng for years, did not have a car registered in their name, had been dead for years, or have paid-up e-tags. Individuals have received invoices for vehicles that have been written off, for both the vehicle and the trailer it was towing, for a vehicle on the flatbed of a truck, or for incorrect vehicle registrations. In some cases no invoices had been received, and users were not aware of their debt until receiving a summons from SANRAL. Individuals have received summonses for debt that occurred during the national post office strike, for which they never received invoices. This is because the e-toll system relies heavily on eNaTIS, which has been proven to be inaccurate (OUTA, 2018).

Should SANRAL win a court case against a defaulter, the debt would not be recovered. Even if charged with a criminal offence, and found guilty of non-payment, the punishment will be to go to prison for six months, or to pay a R1000 fine, leaving the debt unpaid nonetheless. The prescription of debt occurs after three years, in the event that the creditor has made no legal attempt to recover such debt (OUTA, 2018).

The GFIP project budgeted R22bn for both Phase One and Phase Two. More than ten years on from the inception of the project, R89, 722bn is owed by SANRAL, and only Phase One has been concluded. Kapsch Trafficom, an Austrian company, is now the sole owner of the e-tolls collection company, with the implication that all profits would go offshore, instead of back into the South African Road Fund. SANRAL has begun an attempt at collecting the debt owed to them by road users by sending summonses to 8,000 debtors initially; yet 3 million road users owe e-toll fees, making this an unlucky draw (SABC News, 18 December 2017). The cost of legal action against defaulters is only adding to the debt that SANRAL already has. SANRAL has contracted with law firms based in Cape Town and Durban, to engage in legal processes against defaulters. According to South African law, a law firm has to have a service office within 15km of a courthouse, thus SANRAL's contracting of firms outside of the province is increasing the cost of litigation by creating the inevitability of subcontracted law firms within



the Gauteng region. According to OUTA, SANRAL has unacceptably overpaid for the first phase of the GFIP project by up to 67% (OUTA, 2018).

Although some categories of vehicles are exempt from paying e-tolls, e-tolls will result in increased costs on all aspects of living, affecting not only the road user, but all South African citizens, making the user-pays principle an invalid argument, as everyone will indirectly be paying (AA, 2011).

The e-toll system may have worked in markets such as Germany and Austria, but the South African market is remarkably different to these. There are no alternative routes, or viable public transport options, giving Gauteng road users no option other than using private transport on the e-toll roads. The alternative routes were not designed to cope with the anticipated increase in road users, and as the funds collected via e-tolls may not be used to fund any other road projects, these alternative routes have no means to implement maintenance (AA, 2011).

The aim of GFIP was to expand highways in order to reduce congestion on these roads. Congestion occurs when vehicle density on highways climbs above a critical point. Once congestion has set in, it takes a considerable time to return to optimal traffic flow levels, while delays continue to accumulate. The maximum flow of vehicles on a highway is reached while vehicles are still moving freely (Varaiya, 2005). Research has shown that expanding highways does not lead to less congestion. This is referred to as induced demand in traffic infrastructure, the more capacity a highway has the more vehicles will make use of it (Van der Loop, Haaijer & Willigers, 2015). SANRAL has failed to take this phenomenon into consideration.

SANRAL lists the safely engineering of roads, as one of the benefits of e-tolling. The effective drainage of water from the highway, should be included in the engineering of the roads. Yet, several flash floods occurred in 2017, along the Gauteng highways, with inadequate water drainage, causing a dangerous situation for motorists, as well as causing the destruction of valuable assets (Eyewitness News, 2 March 2017).

GFIP would, according to SANRAL, increase road safety on Gauteng highways. The Road Traffic Management Cooperation (RTMC), report on annual road fatalities, per province. In 2012 Gauteng had 2404 road crash related fatalities, and in 2017 Gauteng had 2398 road crash related fatalities, equalling a decrease of only six road crash fatalities over a five year period (RTMC, 2017).

If congestion has remained a problem, the amount of environmentally dangerous gasses, would not have decreased either.



## Public Opinion Survey Results

A survey was conducted to gauge the opinions of AA members regarding e-tolling on the GFIP roads. The survey contained mostly quantitative questions, with some qualitative questions. The quantitative responses were analysed using descriptive statistics, while the qualitative responses were analysed by a thematic analysis.

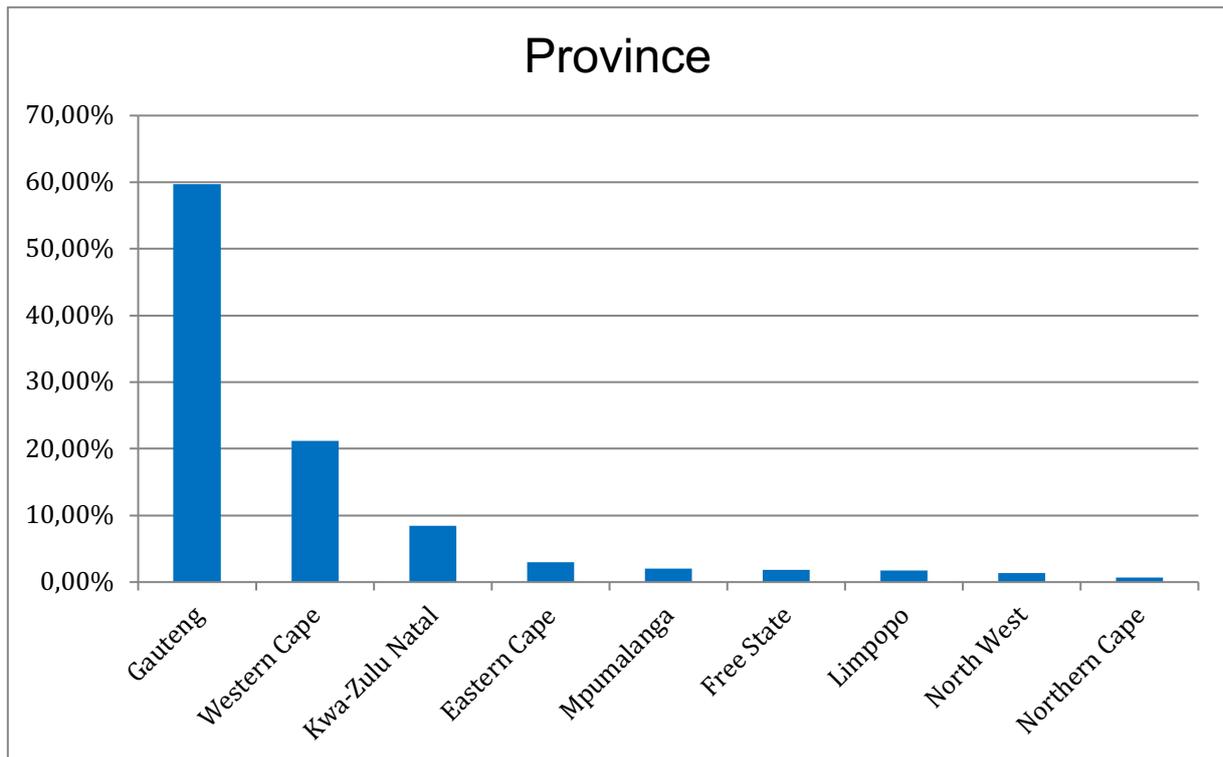
The questions asked participants whether they paid their e-toll accounts, why they did or did not, as well as their opinion of recent developments regarding e-tolls.

The survey was sent out with the AA monthly newsletter, the AA research panel, as well as to an independent research panel. The survey was completed by 1022 respondents.

### Demographics of respondents

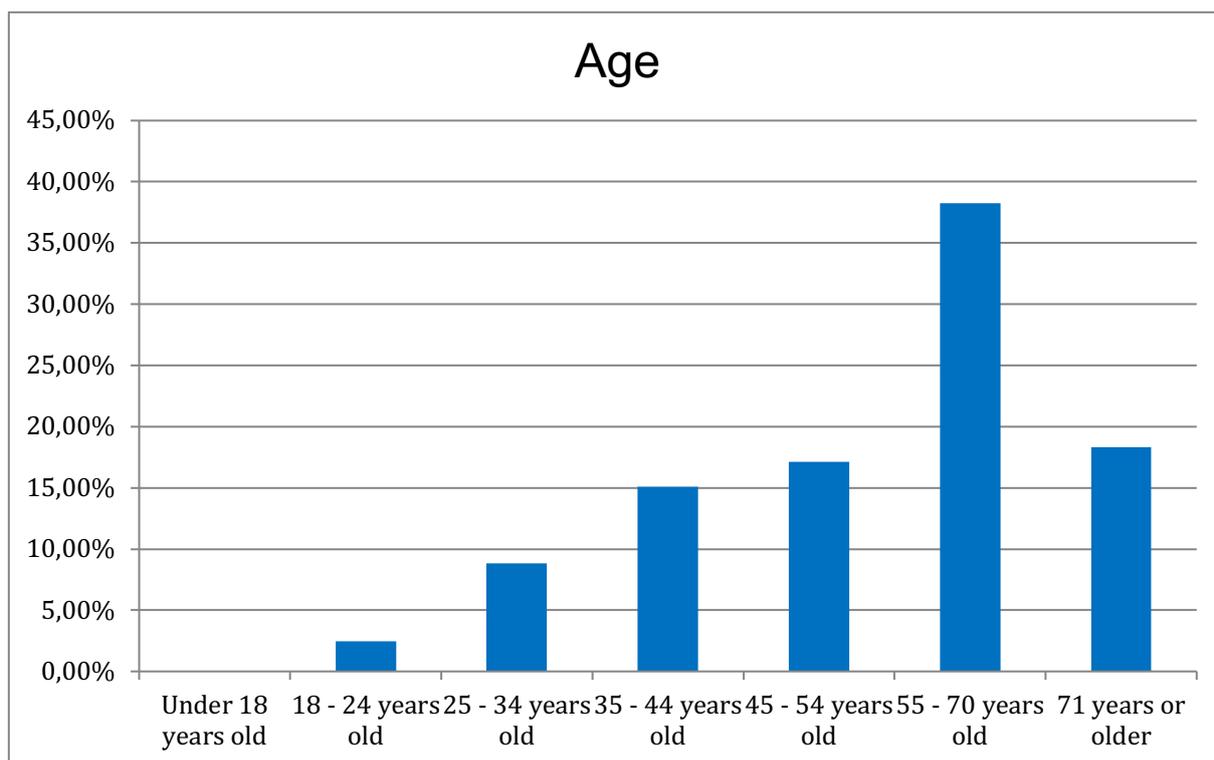
*Table 5 Province*

Answer Choices	Responses	
Eastern Cape	2,94%	30
Western Cape	21,23%	217
Northern Cape	0,68%	7
KwaZulu-Natal	8,41%	86
Free State	1,86%	19
Mpumalanga	2,05%	21
Gauteng	59,69%	610
North West	1,37%	14
Limpopo	1,76%	18
	<b>Sample</b>	<b>1022</b>



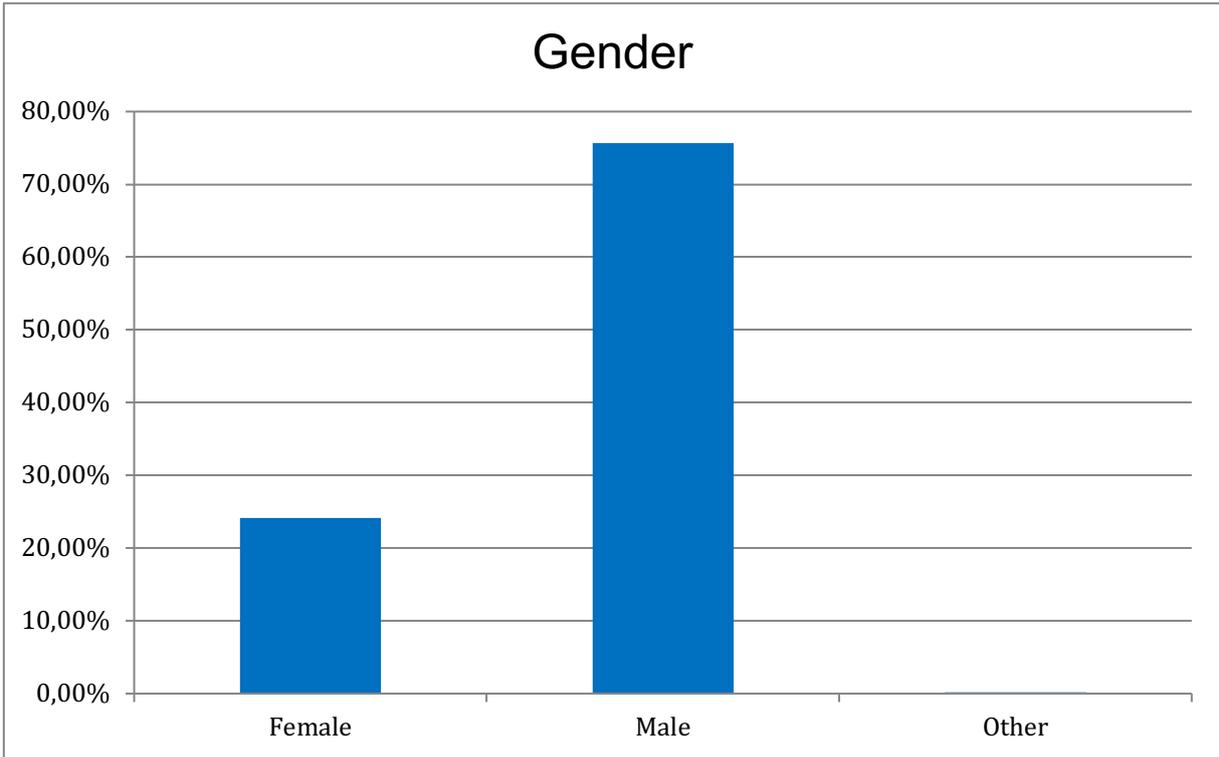
*Table 6 Age*

Answer Choices	Responses	
Under 18 years old	0,00%	0
18 - 24 years old	2,45%	25
25 - 34 years old	8,81%	90
35 - 44 years old	15,07%	154
45 - 54 years old	17,12%	175
55 - 70 years old	38,26%	391
71 years or older	18,30%	187
	<b>Sample</b>	<b>1022</b>



*Table 7 Gender*

Answer Choices	Responses	
Female	24,17%	247
Male	75,64%	773
Other	0,20%	2
	<b>Sample</b>	<b>1022</b>





## Results

Table 8 Do you make use of e-toll roads in Gauteng?

Answer Choices	Responses	
Yes	79,58%	799
No	20,42%	205
	<b>Sample</b>	<b>1004</b>

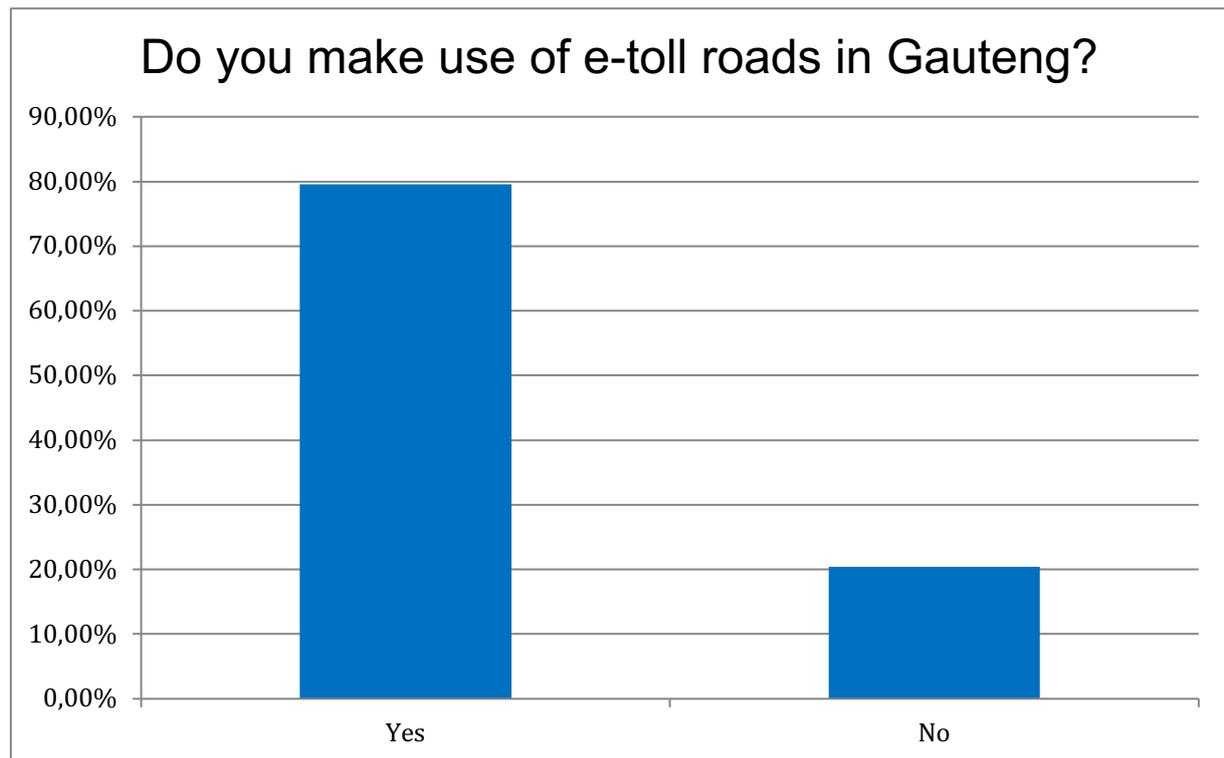




Table 9

To what extent do you agree with the following statement: “If we want a road transport infrastructure that works, we need to pay our tolls. The government remains committed to the user-pays principle because it is the most efficient and effective way to ensure that the direct benefits of services are paid for by those who use them.”

Answer Choices	Responses	
Completely agree	12,61%	96
Mostly agree	13,14%	100
Somewhat agree	22,60%	172
Do not agree at all	51,64%	393
	<b>Sample</b>	<b>761</b>

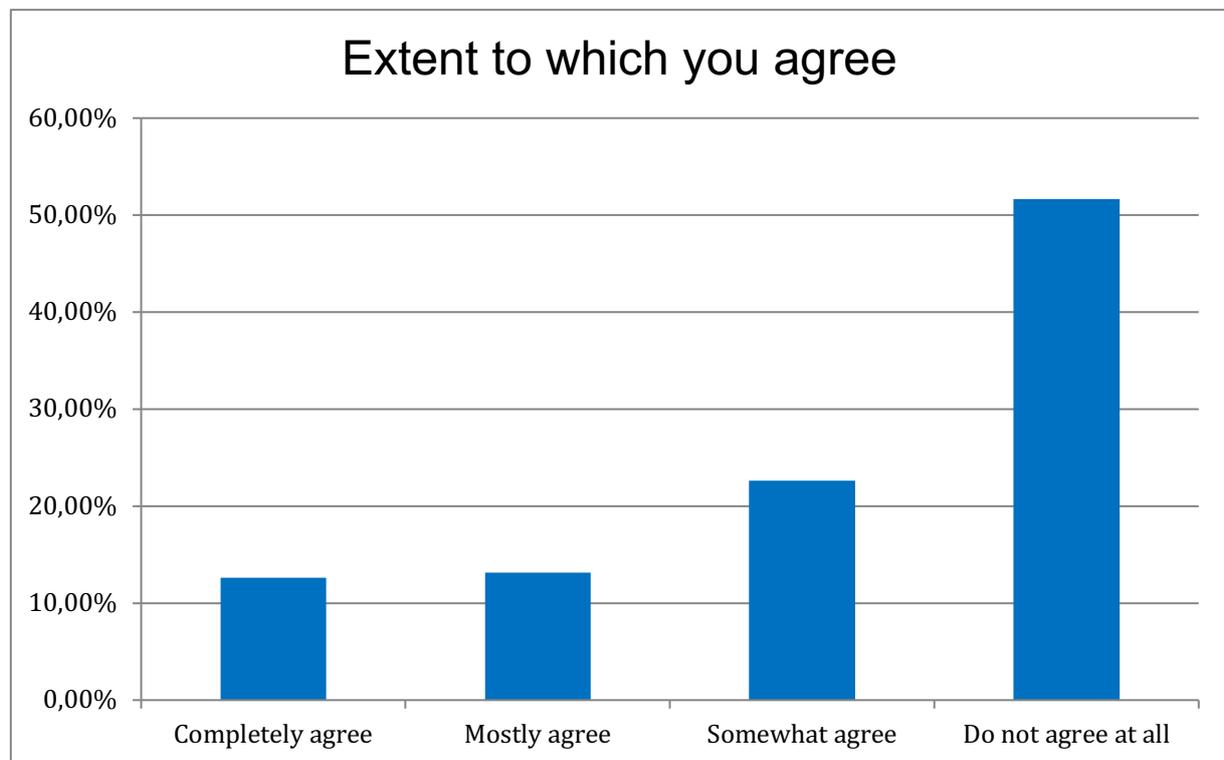




Table 10 Do you pay your e-toll account?

Answer Choices	Responses	
Yes - I am a registered e-toll user and have a tag	28,06%	220
Yes - I pay my e-toll accounts, but I don't have a tag	11,73%	92
No - I used to pay, but don't anymore	21,68%	170
No - I have never paid my e-toll accounts	38,52%	302
	<b>Sample</b>	<b>784</b>

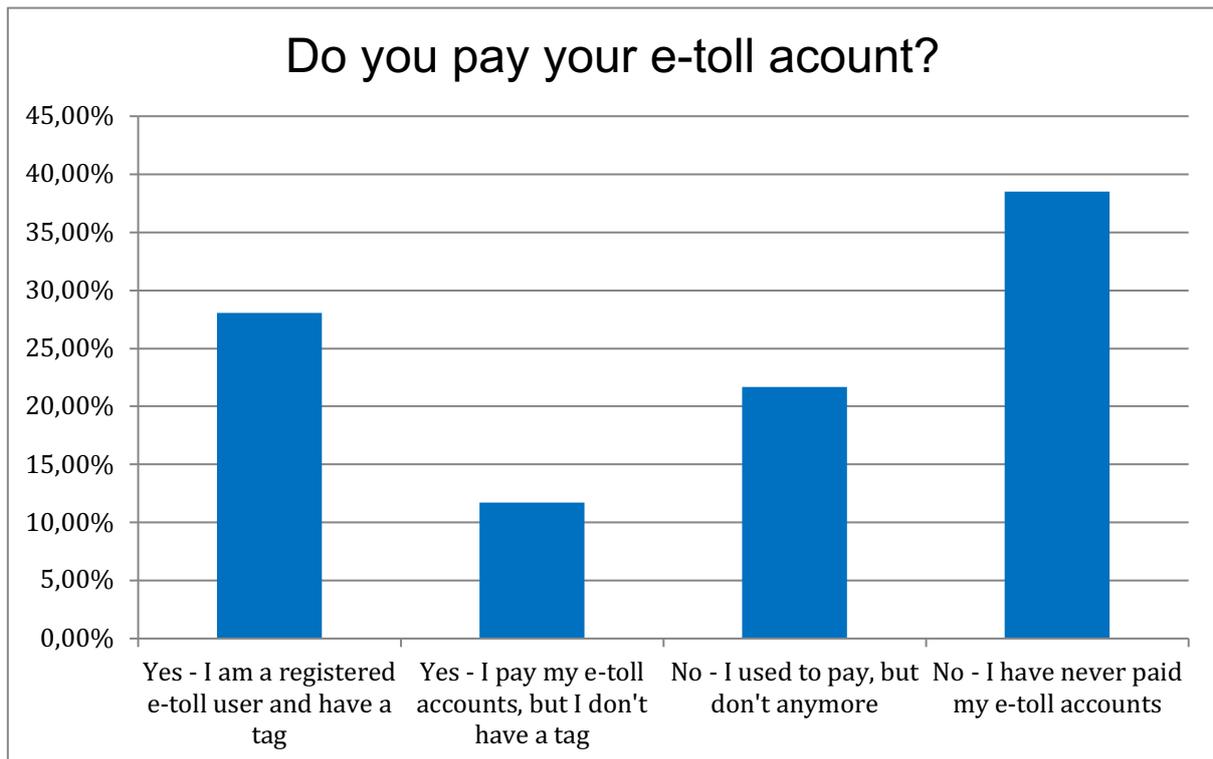




Table 11 Why do you pay e-tolls?

Answer Choices	Responses	
I'm afraid of the legal consequences of non-payment	17,53%	54
I feel that it is my civic duty to pay	21,75%	67
I want to avoid prosecution	14,61%	45
I feel that the cost is worth the improvements to my commute	26,62%	82
Other	19,48%	60
	<b>Sample</b>	<b>308</b>

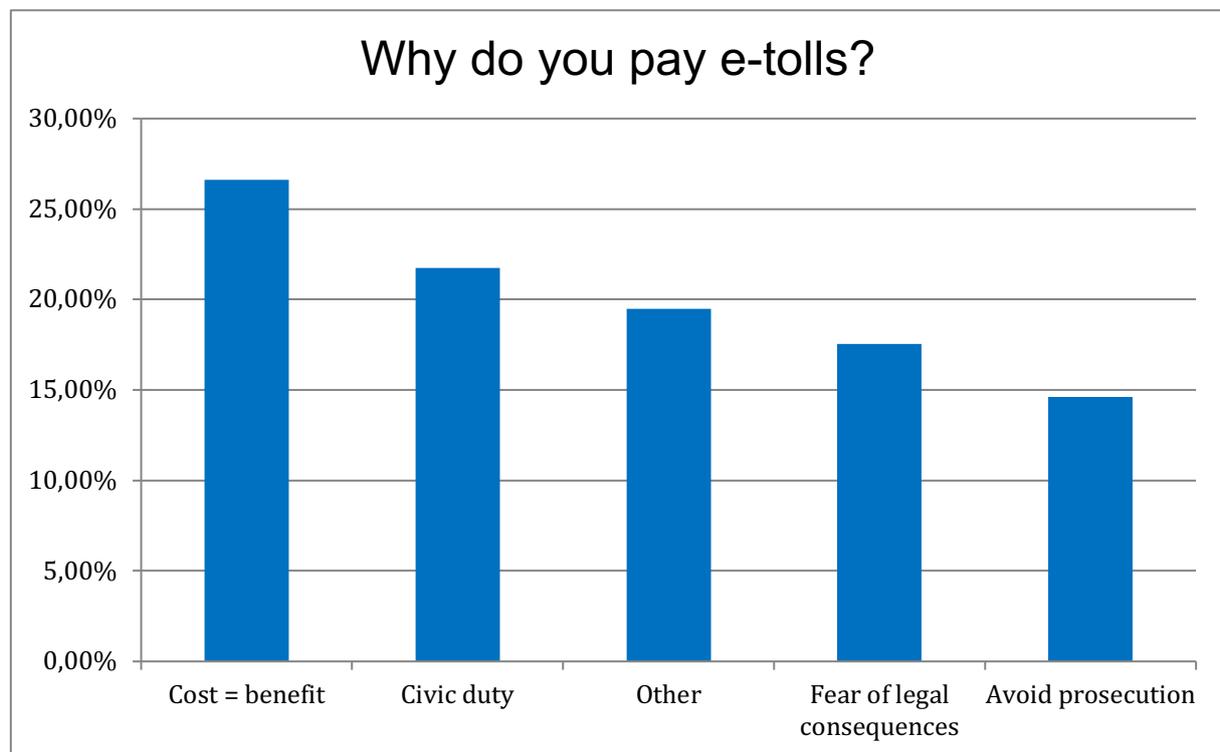




Table 12 Other reasons to pay

Agree with the user-pays principle	4
Paying early ensures a discount	1
Not worth the risk of prosecution	2
Company pays e-tolls	13
E-tag saves time at other toll plazas	19
N/A	21

Responses provided by participants as other reasons to pay their e-toll accounts:

- Agree with the user-pays principle - some respondents indicate that they agree that they should pay for the improvement of the roads, as they are the users of the road, for example *“If we want proper road infrastructure the user pay principle should apply and I am fine with it.”*
- Paying the e-toll account early ensures a discounted rate - one respondent indicated that the discounted e-toll rate was preferable, for example *“I pay the immediate (SIC) payment amount even though our hopeless post office takes 4 months to deliver my invoice, which allows the discount if paid within two weeks!”*
- Not worth the risk of prosecution - some respondents indicated that the risk associated with prosecution was larger than the monetary value of the account, for example *“The small cost of my minimal usage is worth paying to avoid the hassle of defending any penalty for no-payment.”*
- Company pays e-tolls - some respondents were not responsible for their own e-toll accounts, but rather they were paid by the company of their employment, for example *“My company insisted (SIC) that all staff that drive a lot for the company must have an e-tag which the company (SIC) pays for”*
- Having an e-tag saves time at other toll plazas - with many toll plazas having a dedicated e-tag lane, users with an e-tag do not have to wait in a queue to pass through these plazas, for example *“Convenience of dedicated e toll lane on certain highways”*



Figure 3 Word cloud of reason to pay





Table 13 Why do you choose not to pay your e-toll accounts?

Answer Choices	Responses	
The amount is too high	34,30%	154
The accounts I receive are inaccurate	15,14%	68
There is a lack of law enforcement on the e-toll roads	19,60%	88
There are no legal consequences for non-payment	8,69%	39
Government corruption	78,40%	352
I don't feel the benefit of paying e-tolls	43,43%	195
No alternative routes were created - forced to use e-toll roads	52,78%	237
No safe and affordable public transport exists	46,99%	211
I don't feel that my commute has been improved	45,66%	205
Other (please specify)	34,52%	155
	<b>Sample</b>	<b>449</b>

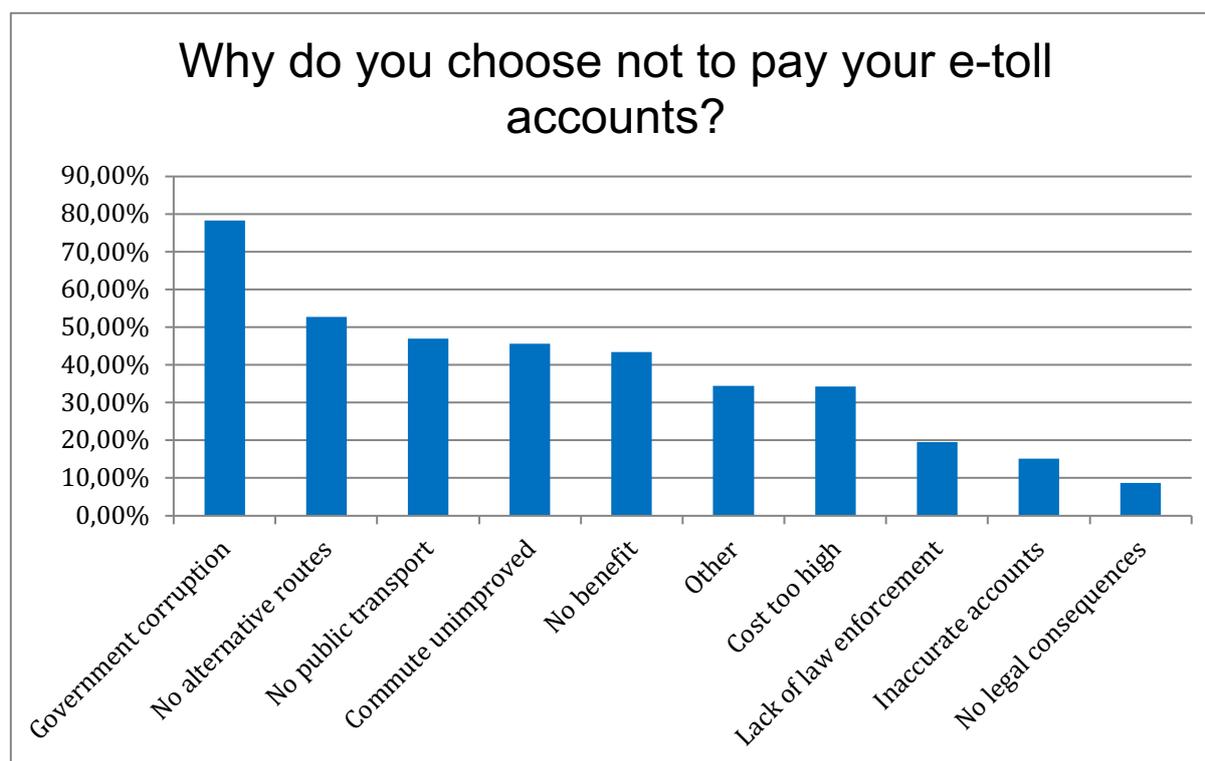




Table 14 Other reasons not to pay e-tolls

Simply can't afford additional costs, already overtaxed, and already paying other taxes and fees	53
The collection costs are too high, and the money leaves South Africa	13
The system is unfair, providing exemptions to some	11
Alternative funding options are available	24
The government should be responsible for the road network	5
SANRAL failed to engage with the public before implementation	19
N/A	42

Responses provided by participants as other reasons to pay their e-toll accounts:

- Simply can't afford additional costs, already overtaxed, and already paying other taxes and fees - respondents feel that they cannot afford any additional cost. They are already overtaxed, and paying other fees and taxes to provide for road improvements. The e-toll system adds to the cost of living of everyone. For example, *"We are already taxed to breaking point. If our tax money is managed and spent properly, it will not be necessary to have e-tolls."*
- The collection costs are too high, and the money leaves South Africa - respondents feel that it is one thing to pay for the road upgrades, but another thing to have to pay for the expensive collection system. The money generated by e-tolls leaves South Africa, as the collection system is owned by an Austrian company. For example, *"It is not a South African entity, The amount of South African Rands leaving South Africa is too much. We need services like this to be PROUDLY SOUTH AFRICAN!"*
- The system is unfair, providing exemptions to some - respondents feel that the system provides exemptions to some, leaving other road users to cover the cost of those that are exempted. For example, *"It should be for ALL users and not only a few of us paying for the majority!!!!!!"*
- Alternative funding options are available - respondents are opposed to paying because they believe that alternative funding options were available to SANRAL, but were not used. For example, *"There are other avenues of collecting funds for road maintenance."*
- The government should be responsible for the road network - respondents feel that the government should be responsible for the maintenance and upgrades of the road network, as they already pay taxes for services such as this. For example, *"Infrastructure is Government Responsibility. I pay my tax"*



- SANRAL failed to engage with the public before implementation - respondents feel that SANRAL did not engage with the public sufficiently before the implementation of e-tolls. For example, “We were not consulted when the system was set up”

Figure 4 Word cloud of other reasons not to pay





Table 15 Assuming that you do pay tolls at physical toll plazas, what makes e-tolls different?

Answer Choices	Responses	
The administrative burden	8,07%	28
Poor enforcement of payment	1,15%	4
Physical toll plazas force payment before you can continue	31,99%	111
It is an opportunity to take a stand against government spending	37,75%	131
Other	21,04%	73
	<b>Sample</b>	<b>347</b>

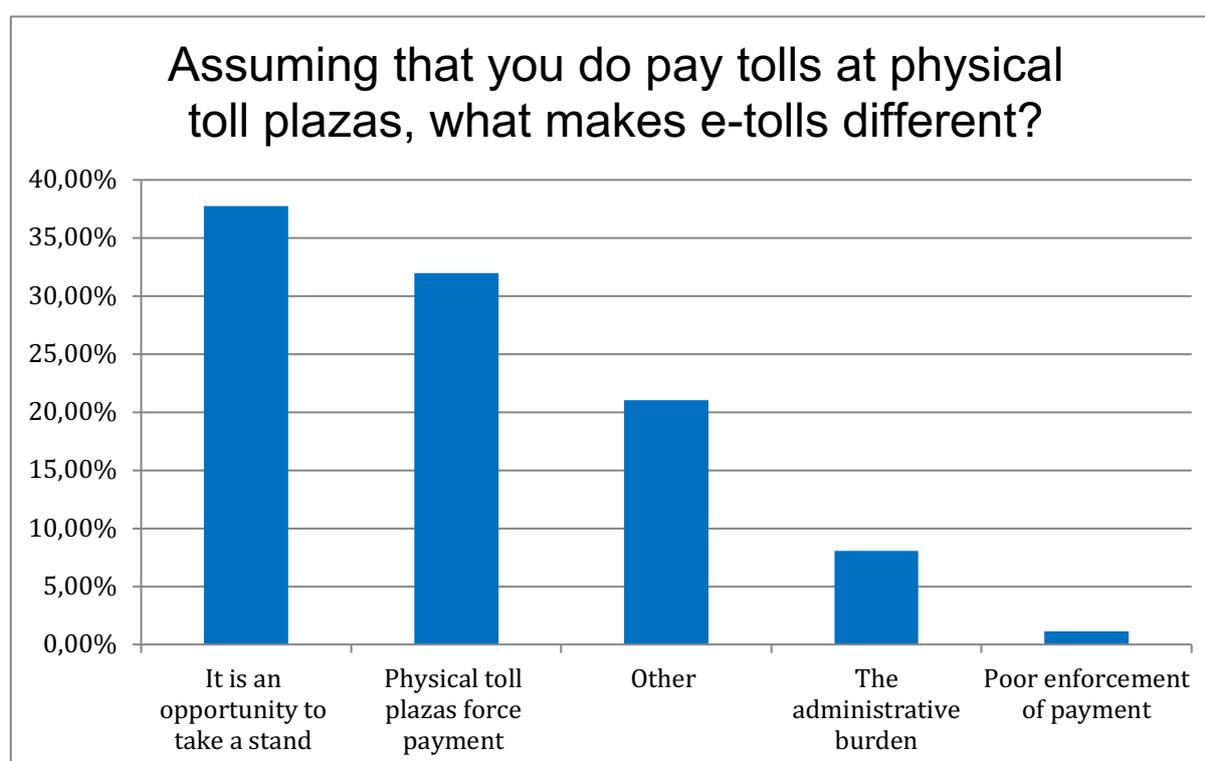




Table 16 Other reasons e-tolls are different

Physical tolls are accurate	1
There are benefits associated with the use of physically tolled roads	6
Corruption of the e-toll system	21
Cost associated with e-tolls is too high	15
There is a lack of transparency regarding the implementation and running of e-tolls	4
E-toll roads have the same amount of congestion	2
No alternative routes or transport options exist for e-tolls	7
N/A	21

Responses provided by participants as other reasons e-tolls are different:

- Physical tolls are accurate - one respondent felt that physical tolls were accurate whereas e-tolls are inaccurate. For example, *“Costs/ Billing (at physical tolls) is correct.”*
- There are benefits associated with the use of physically tolled roads - respondents indicated that they experience the benefits of using physically tolled roads, but do not see the benefits of the e-toll roads. For example, *“Toll plaza offer faster and efficient road infrastructure, saves times and thus have benefits, which I am happy to pay for. Cost/benefit. e-tolls do not offer time benefits, you get stuck in traffic, how can you slap a tax on something that always existed, that's unacceptable.”*
- Corruption of the e-toll system - respondents perceive the e-toll system as corrupt. For example, *“The tolled N3 was a new road built with physical toll plazas. The e-toll roads in Joburg were built decades ago using taxpayers funds. The Joburg roads were already paid for. There was no need to toll them again after they were paid off. Another problem is that Austrian company ETC takes 74 percent of all toll revenue. There is corruption in this illogically high percentage going to an Austrian company.”*
- Cost associated with e-tolls is too high - respondents consider the cost of e-tolls to be too high, especially for those that use the roads daily. For example, *“I understand the physical plazas. The e-tolls in Jhb are overkill and way too expensive for daily commutes.”*
- There is a lack of transparency regarding the implementation and running of e-tolls - respondents indicate that there was a lack of transparency during the planning and implementation of e-tolls, as well as in the running of the e-toll system. For example, *“The roads were build under false pretenses (SIC). No toll was mentioned when the roads were advertised and only shortly before the project was finished the public was*



*informed of the toll.”*

- E-toll roads have the same amount of congestion - respondents feel that the upgrades to the e-toll roads have not improved congestion on these roads. For example, *“It is a further burden on road-users in Gauteng, with already congested roads”*
- No alternative routes or transport options exist for e-tolls - respondents feel that they are not given the choice to use e-toll roads, as no other viable alternative roads or public transport exists. For example, *“Physical plazas provide and alternative route. No force. Etolls (SIC) are on unavoidable routes.”*

Figure 5 Word cloud of other reasons e-tolls are different





Table 17

A recent report stated that e-tolls have a 27% compliance rate. This means that only 27% of the road users pay their e-tolls. What would the compliance rate have to be to make you feel obligated to pay?

Answer Choices	Responses	
Less than 40%	4,52%	15
50%	1,51%	5
60%	0,60%	2
70%	2,71%	9
80%	8,43%	28
90%	11,45%	38
More than 95%	70,78%	235
	<b>Sample</b>	<b>332</b>

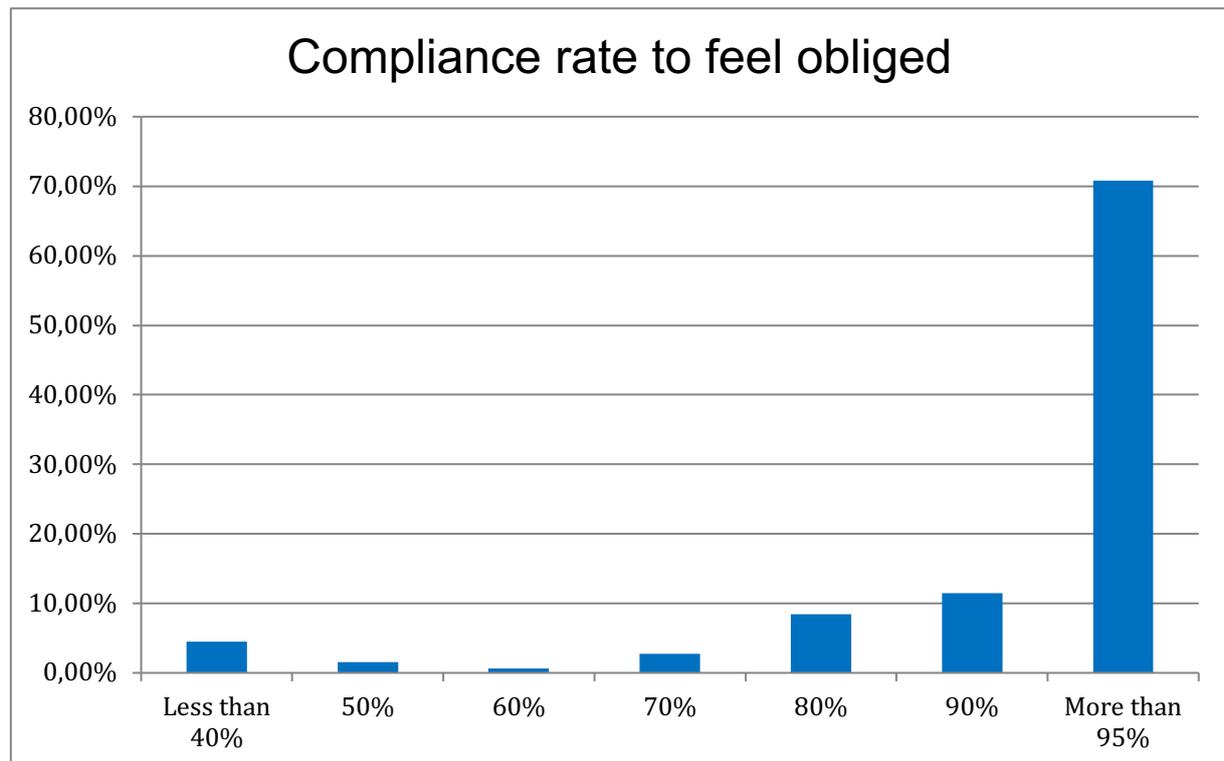




Table 18 What would convince you to start paying e-tolls?

Answer Choices	Responses	
Nothing - I won't pay e-tolls	52,47%	223
Revised pricing of e-tolls	31,06%	132
Scrapping of all previous e-toll debt	32,94%	140
Benefiting by using an e-toll road	26,59%	113
Legal consequences for non-payment	9,88%	42
Improved law enforcement on e-toll roads	17,65%	75
Pressure from social group	0,94%	4
If my commute was improved	24,00%	102
If SANRAL had a more amicable approach	28,00%	119
Other (please specify)	24,47%	104
	<b>Sample</b>	<b>425</b>

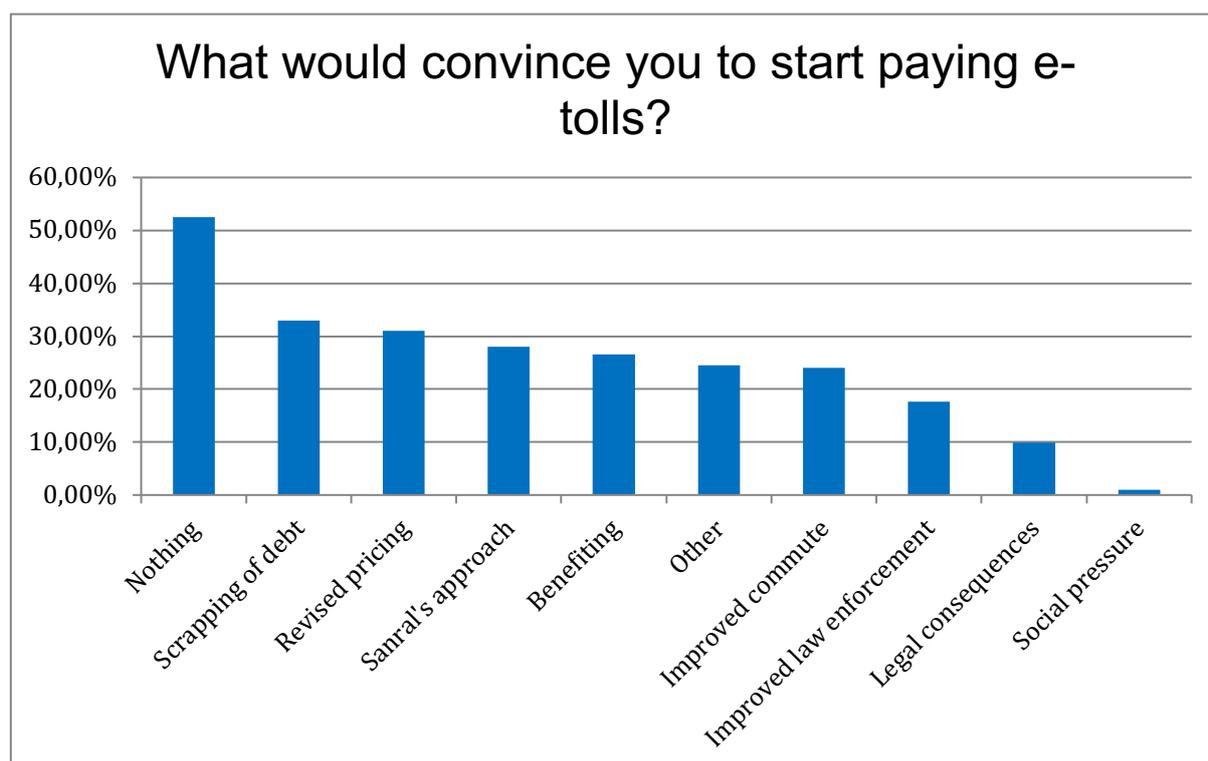




Table 19 Other options that would convince e-toll payment

Accurate billing	1
Alternative routes and transport options available	8
Fair system where everyone pays	9
Funds remain in South Africa	11
Transparent implementation and running	14
Corruption cut out	23
Reduced taxes	3
Nothing	40

Responses provided by participants as other options that will convince them to pay e-tolls:

- Accurate billing - one respondent indicated that if there was absolute certainty that the billing was accurate they will pay e-tolls. For example, *“Correct bills to be sent within a week of use”*
- Alternative routes and transport options available - respondents indicated that they would pay e-tolls if there were alternative routes and/or transport systems in place. For example, *“Give me an alternative option so that I have a choice. Reliable and safe public transport and alternative routes.”*
- Fair system where everyone pays - respondents will be more likely to pay e-toll accounts if the system was perceived to be fair and/or every road user had to pay. For example, *“If everyone had to pay, including government departments and taxis.”*
- Funds remain in South Africa - respondents will be more willing to pay e-tolls if they knew that the funds collected by e-tolls were staying in South Africa and/or are being used to benefit South Africa. For example, *“If we were not paying a huge amount to a foreign company” and “ALL the monies raised are used for the roads”*
- Transparent implementation and running - respondents will be more likely to pay if they felt that the e-toll implementation and running was done transparently, and they could see where the money is being used. For example, *“Proper transparency (SIC) in how the road was built, funded & administered.”*
- Corruption cut out - respondents will be more willing to pay e-tolls if they did not perceive the system as corrupt, if any corrupt behaviour was punished severely. For example, *“I would need to be convinced that the money is applied for its intended purpose and government spending / corruption is brought under control!”*
- Reduced taxes - respondents will be more willing to pay if taxes were reduced. Respondents feel that they are being overtaxed, or double taxed for road improvements. For example, *“The scrapping of the Fuel Tax. Make an e toll user,*



*benefit by obtain a far cheaper rate of fuel per litre that is currently being charged.”*

- Nothing - respondents strongly believe that they could not be convinced to pay e-tolls regardless of any changes to the systems. For example, “*I would never pay e-tolls on a commuter route, it is absurd.*”

Figure 6 Word cloud of other options to convince payment





Table 20 Which of the options below would be the best way for SANRAL to collect past e-toll debt?

Answer Choices	Responses	
A levy on the fuel price	20,30%	148
Increased license fees	4,53%	33
Use of legal measures to collect from debtors	12,62%	92
Increased income taxes	0,69%	5
Building physical toll plazas	5,62%	41
Increased fees at other toll plazas	1,65%	12
There is nothing that can be done	37,59%	274
Other	17,01%	124
	<b>Sample</b>	<b>729</b>

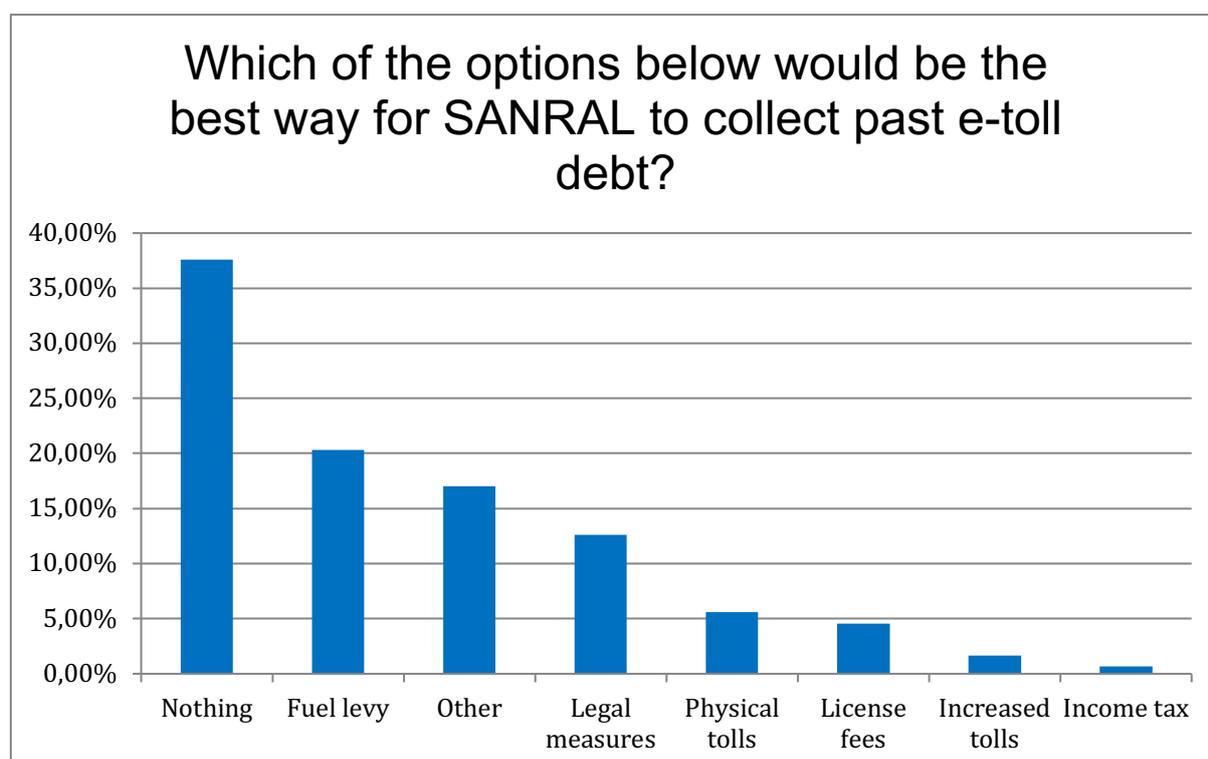




Table 21 Other options for SANRAL to recover past debt

Get the money from corrupt officials etc.	19
Already pay taxes and levies	24
Make everyone pay	9
Decrease fees and taxes	4
Scrap the debt	38
Fines	3
Heavy vehicle fees	1
Keep the money in South Africa	2
N/A	24

Other options for SANRAL to recover past debt:

- Get the money from corrupt officials etc. - respondents suggest that SANRAL retrieve the money needed from officials, companies etc. that engaged in corruption, or construction collusion. For example: *“Government spending and corruption / wrongful use and abuse of public funds be properly accounted for and brought under control.”*
- Already pay taxes and levies - respondents feel that the money already paid to general taxes and fuel levies should be ring fenced and used by SANRAL for road development. For example, *“There are already other taxes that are collected and those should be used.”*
- Make everyone pay - respondents feel that the debt could be recovered if there were no exemptions to e-tolls. For example, *“Apply toll equitably, e.g. all pay and no exemptions”*
- Decrease fees and taxes - respondents argue that a decrease in other fees and taxes will make individuals more likely to pay e-toll debt. For example, *“Decrease in fuel prices”*
- Scrap the debt - respondents think that SANRAL should scrap the debt. For example, *“They must not collect it. Write it off and stop the e-toll it is a money making racket and the public are not fooled by the authorities.”*
- Fines and heavy vehicle fees - respondents feel that SANRAL should collect the money generated from fines to make up for e-toll debt, as well as to institute heavy vehicle fees, as they damage the roads the most. For example *“Using the gantries as average speed measurement and a check on moving violations, monitored by JMPD, the fines issued would make up the shortfall.”*
- Keep the money in South Africa - two respondents indicated that SANRAL should not be paying a foreign entity with the money collected. For example, *“Most of the etoll*



money leaves the country. They should not get any of this uncalled for debt.”

Figure 7 Word cloud of other ways for SANRAL to collect debt





Table 22 What is your opinion of SANRAL's recent decision to suspend the prosecution of e-toll debt dating back to 2015?

<p>SANRAL made a good decision for themselves and for road users e.g. <i>"Very favourable to the motorist"</i></p> <p><i>"Good decision, it makes them look sane because the whole e toll project and the related debt doesnt (SIC) make sense to many of us."</i></p>	255
<p>The suspension was a political ploy to gain votes e.g. <i>"Just a ploy to get votes before elections - it will return after the elections"</i></p> <p><i>"It's totally a political move by the ANC government to get votes in the election"</i></p>	94
<p>It was a poor financial decision for SANRAL, as well as adding to the culture of non-payment in South Africa e.g. <i>"Irrational - how are they get all the outstanding toll fees?"</i></p> <p><i>"It adds to the general idea in SA that you dont (SIC) have to pay for services if you don't want to."</i></p>	58
<p>It is unfair to those that have paid, and they will most likely need a refund e.g. <i>"Bad news for an honest paid-up customer, unless it also means that all the fees already paid by others &amp; me will be reimbursed"</i></p> <p><i>"It is unfair towards those who have paid, they should be given their money back."</i></p>	43
<p>SANRAL had no other option, as the public resistance to e-tolls has been large e.g. <i>"It is their only option. The whole e-toll system was flawed from the beginning and never had the good-will of the public because South Africans are over-burdened with taxation."</i></p> <p><i>"It had to happen. Many people would never be able to pay the huge amounts which they owe."</i></p>	50
N/A	66



Figure 8 Word cloud of public opinions

Given Citizens People pay Scrapped completely S Prosecute  
Public Ridiculous E toll Decision make Want Us paid Cost  
Good news Best Road users Unfair Correct decision  
Electioneering Fair Back Cancelled Don't Come  
Collect May Suspended Future Good  
decision Year Must First place Roads  
Positive Think Comment Scrap Must scrap E-  
toll Due Money Use roads Decision  
Others Great Idea Election Ploy  
Good Way Pay Government Will  
Already Agree Happen Debt Votes election  
Time Political ploy System Election ploy  
ANC Write People Bad decision Political  
Must pay Good idea Thing Toll None Now  
Fuel levy Going Scrap system Choice E-toll debt E-  
tolls Sensible Bad Never Fees Enough SANRAL  
Good thing Stop Much Make Happy Start Prosecution  
Taxes Need Use Introduced Option Toll roads Support  
Move



## Theoretical explanations for the failure of e-tolls?

- Spicer and Becker (1980) argue that the perceived equity between taxes paid and services received, impacts the likeliness of compliance. When inequity is perceived between the amount of taxes paid and the services delivered by government, an individual will be less likely to pay tax. Therefore, if Gauteng road users do not perceive the benefits of the road expansion, they will be less likely to pay for the 'service'. People need to feel that they are receiving value for money.
- In 1959 Schmolders, and Strumpel in the late 1960s, developed theories suggesting that tax compliance is related to the attitudes of individuals held towards tax authorities. The more positive an individual perceives a tax authority, the more likely they will be to pay tax. Strumpel (1969) found that the amount of "red tape", in other words the administrative burden, impacts on willingness to comply. The higher the administrative burden the less likely compliance will be. Similarly, the more rigid a system is, the less likely compliance will be.
- Ajzen and Fishbein (1980) combined the previous two theories, suggesting that tax compliance will depend on attitudes, as well as on perceived equity.
- According to Allingham and Sandmo's (1972) tax evasion theory, tax evasion is influenced by tax rate, unemployment rate, level of income, and dissatisfaction with government. All of these aspects are present in the current South African economic climate and can be used to explain e-toll evasion. The rate of e-tolls are considered unreasonably high, as South Africans are already paying income tax to fund certain services, but find themselves paying for private education, private medical aid etc., as well as a fuel levy, making the payment of e-tolls another added expenditure that many cannot afford. The average unemployment rate in South Africa, between 2000 and 2018 was 25.63 %, much higher than other developing countries such as Brazil (12%) and India (6.1%) (Trading Economics, 2019). According to StasSA (2015), 55.5% of South Africans were living below the poverty line in 2015. The impact of e-tolls are felt the most by those living in poverty, even if they do not directly have to pay e-tolls (public transport exemption), they are paying the added costs to consumables such as food and clothes, as transport prices of these items have increased. Mistrust in government is indicated by the amount of respondents that indicated that the system and the government is corrupt in the survey.
- Noncompliance with one type of tax (in this case e-tolls), contains the potential risk for knock-on effects to other forms of tax. Once individuals realise that they are successful in evading one form of tax (e.g. e-tolls), they might believe that they will be able to do the same in terms of other forms of tax (e.g. income tax). Some respondents indicated



that they are worried about the culture of non-payment in South Africa, in the survey results.



## Possible Options

SANRAL has already tried the “door in the face” persuasion technique, where the target audience is first asked for a large amount, when this is rejected, the amount is reduced to what is considered more favourable by the target audience. SANRAL has tried to gain more compliance by overestimating their own income (Budget review, 2016), by attempting to convince defaulters that most other people were paying their e-toll bills.

SANRAL has three options with regard to e-tolls:

- to implement changes in terms of the e-toll system,
- to continue with e-tolls as they are now, or
- to scrap e-tolls and collect the revenue elsewhere.

Figure 9 Possible options





## **Implement changes**

- The benefits of the GFIP should be made clear to the Gauteng road users, in order for individuals to feel that they are paying for a worthwhile service provided by SANRAL. Improved law enforcement on the GFIP road network, creating a safer more pleasant commute, could be one of the benefits visible to e-toll payers.
- SANRAL should cut all additional expenses (OUTA, 2018). SANRAL should make an attempt to reduce all unnecessary spending. The downside of this option is that many of the lower level employees of SANRAL may lose their jobs as a result, increasing the unemployment rate in South Africa, as well as adding to the poverty crisis.
- An improved public transport system will reduce the need for road maintenance in the long run, as well as allow people to feel they have a choice to make use of the toll roads. In choosing to use the roads, instead of using them out of necessity, may make individuals more willing to pay. SANRAL is not in a financial position that would allow any additional large investments, and public transport systems take years to become fully functional, making this a long term plan.
- SANRAL should consider the scrapping of all previous e-toll debt, as many people owe obscene amounts of money, which they simply cannot afford to pay. This debt may discourage individuals to make any payments.
- SANRAL should reach out to individuals that have stopped paying, to understand what has influenced this decision.
- Furthermore, SANRAL could have made use of various attitude changing techniques, such as classical conditioning, instrumental conditioning, and various other compliance gaining strategies, discussed in Appendix A. At this point, however, SANRAL may have waited too long to implement any of these possible strategies, to ensure effective behaviour change in the Gauteng driving public.

## **Continue e-tolls as they are now**

The debt owed by SANRAL continues to increase due to the interest rate. In addition, the expense of prosecuting defaulters continues to rise, as SANRAL attempts to claim debts against them.

## **Suspend e-tolls**

Suspend e-tolls means that South Africa remains in debt, which will require alternative revenue streams to settle.

- Gantries can be used to mount speed cameras, creating an alternative income through the collection of fines (OUTA, 2018). This approach will however, rely on the suitability of the gantries as speed cameras, as well as the level of compliance in payment of fines.



- Advertisements can be mounted on the gantries (OUTA, 2018), reliant on the willingness of advertisers to be associated with the failing of e-tolls, and the maximum amount of revenue to be generated.
- Funds should be collected from construction colluders (OUTA, 2018). The ability to collect a refund from construction colluders will depend on the availability of evidence, proving that they were guilty of colluding, as well as a judgement ordering the return of funds to SANRAL. The cost of prosecuting construction colluders, may outweigh the refunds that could potentially be reimbursed. The outcome of such an expensive, and most likely lengthy, trial cannot be guaranteed either.
- A levy could be added to the fuel price. The fuel levy could be added to all fuel sold in South Africa or only to fuel sold in Gauteng. Adding a levy to all the fuel in sold in South Africa, may cause a general unhappiness, as only Gauteng road users benefit from the levy. The argument could be made that those living in Gauteng, would drive out of Gauteng to avoid the increased cost to fuel. The differences in fuel prices across South Africa, for instance inland vs. coastal fuel prices, has proven that people will continue to pay for the convenience of obtaining fuel in their proximity, rather than travel great distances (which will have its own set of additional costs) to save a small amount of money. The calculations below indicate that if a fuel levy of approximately 20c per litre was introduced in South Africa, and ring fenced in 2011, the total cost of GFIP phase 1 (R20 bn), would have been paid by 2016. (This calculation excludes any interest the loans would have accumulated.) This suggestion assumes that the levy would be ringfenced and not be paid into the national revenue fund as current fuel levies are.



Table 23 Fuel levy calculation

	Litres of Petrol + Diesel sold (2018)	Fuel levy over 20 years	Fuel levy over 15 years	Fuel levy over 10 years	Fuel levy over 5 years
Only in Gauteng	Approx 6,4 bn	15,63c / litre	20,83c / litre	31,25c / litre	62,50c / litre
South Africa	Approx 23,7 bn	4,22 c / litre	5,63 c / litre	8,44c / litre	16,88c / litre

- Increase license fees and renewal of license fees across South Africa (OUTA, 2018).



## Discussion and Conclusion

Considering that 22% of respondents had once paid their e-tolls, but have decided to stop paying, while 39% of respondents have never paid their e-tolls, it is concluded that e-tolls have failed as a funding source for GFIP.

With less than 10% of respondents indicating that the fear of legal consequences would convince them to pay, and only 9% indicating that their non-payment is due to the lack of legal consequences, we reach the conclusion that legal measures are not the answer. Thus, SANRAL's attempt at debt collection via the legal system will most likely not improve compliance rates.

Almost half of the respondents that choose not to pay indicated that their commute was unimproved (45%) and that they did not experience any benefit in using the GFIP roads (43%), with less than 1% of all the respondents indicating that they experience a benefit that is worth the cost. Spicer and Becker (1980) suggested that this inequity between cost and benefit affects tax compliance rates. People want to feel that they are getting value for money, when making any payment.

The majority of respondents indicated that they did not agree with the statement "If we want a road transport infrastructure that works, we need to pay our tolls". The government remains committed to the user-pays principle because it is the most efficient and effective way to ensure that the direct benefits of services are paid for by those who use them." The user-pays principle is however flawed in this context. E-toll exemptions to public transport, government vehicles etc. make this a "some users-pay" approach to road funding. It seems that this contributes to the outcome that the e-toll system, as well as the South African government (including SANRAL), are perceived as corrupt. As a result, the general attitude towards SANRAL is negative. This is confirmed by Schmolder and Strumpel's theories of tax evasion, the more negative an individual perceives a tax authority, the less likely they will be to pay tax.

The rate of e-tolls is considered unreasonably high, as South Africans are already paying income tax to fund certain services, finding themselves feeling overtaxed as it is, making the payment of e-tolls another added expenditure that many cannot afford. The lack of transparency in government funding and spending adds to the issue, with many not understanding where the money, paid via taxes and levies, is being spent.

The suspension of debt collection by SANRAL, although experienced as a good thing by most respondents, is a problem on its own. SANRAL is now in effect punishing those who have been paying their e-tolls, which is the opposite of what is needed. Will those who did pay be receiving a refund? And if so, where will the funds for these refunds come from? If not, these



individuals are most likely not going to keep paying, if they know others are getting away with non-payment.

This report provides ways in which SANRAL could improve the attitude of road users toward them, but the survey results suggest that improvement in this regard may not be possible. If 70% of non-paying road users require more than 95% compliance rate to feel obliged to pay, we have an impossible situation. The majority of participants indicated that there was nothing that would convince them to start paying e-tolls, and there is no way that SANRAL will be able to collect past debt. Although respondents provided other options that would convince them to pay, as well as ways for SANRAL to collect past debt, we predict that these will be ineffective. It seems that the e-toll system and SANRAL have pushed Gauteng road users too far, to be able to turn it around and gain any more compliance.

We recommend that SANRAL halt e-tolling effective immediately, while reconsidering potential road funding options. Regardless of which road funding method is chosen to go forward, it is of paramount importance that SANRAL proceed with sufficient public consultation and input, as well as using complete transparency in their planning and budgeting. SANRAL should also make an attempt to change public perceptions of them, as well as of the government in general, before approaching the public.

## **Recommendations**

The Automobile Association (AA) believes that current and future billing and collection of e-tolls be suspended with immediate effect. This call is made for a number of reasons:

1. Historic compliance rates are low, and are getting lower. These compliance rates are getting lower because:
  - a. The announcement by SANRAL in March 2019 that it will not pursue historical debt has left consumers confused. Many of those who were paying have stopped, believing they are paying while others aren't;
  - b. Many of those who weren't paying, and who have been pursued legally, feel vindicated, and this has entrenched their positions not to pay; and,
  - c. Those who have never paid, but who weren't necessarily pursued legally, see no reason to start paying now.
  - d. SANRAL's position – perceived as lacking empathy (particularly in relation to its communication with the public) has created a strong anti-SANRAL sentiment among many users (even those who have paid), resulting in further non-compliance.
  - e. The tensions between provincial and national structures relating to e-tolls is adding to confusion over payment and non-payment in the minds of



consumers. There is no clear direction on e-tolls from government with some in government strongly opposing the system, and others strongly supportive of the model within a user-pays context.

2. The call for immediate suspension of current e-tolling is further strengthened by the AA's belief that viable alternative funding models were not sufficiently investigated. To this end, the AA reaffirms its position for the ring-fencing of funds linked to the General Fuel Levy (GFL), to cover the costs of road infrastructure (NOTE: not pay debt owing to collection agencies employed by SANRAL to collect GFIP e-toll monies), which should include the GFIP, and other road infrastructure projects country-wide. Currently money generated from the GFL is available to Treasury to use on any government-related project, which does not necessarily have to be road-related.

In addition to the suspension of e-tolling in its current format, and the ring-fencing of funds from the GFL to fund roads development and maintenance, the AA is of the view that those individuals and companies who have, so far, contributed to e-tolls through the current system, be reimbursed in full for their contributions to date. This is the only fair and equitable manner in which the introduction of the ring-fencing model can be justified as being fair to all users. Given the technology available to SANRAL through its foreign contractors – which SANRAL itself has noted is world-class – calculating these reimbursements correctly and efficiently refunding those payers, should not be a tricky undertaking.

The AA further believes that the current infrastructure of the gantries and collections' offices, can be better utilised by government, even to the point where these facilities and infrastructure are revenue-generating, instead of remaining unused white elephants.

It is evident from the historical and survey data, and from the current mood around e-tolls, that compliance rates will not increase, even if government directs that it is not suspending the system. In fact, such a standpoint by government may drive compliance rates even lower.

A better, more effective alternative system is urgently needed, and that, the AA believes, is based on the model outlined above.



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## Appendix A

### Indirect classical conditioning

Classical conditioning occurs when two stimuli are presented together often enough that exposure to one of the stimuli becomes the signal for the occurrence of the other. This type of attitude formation is often used in advertising, for example, when a new beer is brought to the market, it is often paired with stimuli attractive to the target market (if young men where the target population, the new beer may repeatedly be paired with images of attractive women), eventually the image of the beer on its own evokes the positive attitude required to increase sales (Sweldens, van Osselaer & Janiszewski, 2010). SANRAL could potentially change attitudes toward the paying of e-tolls in a similar way. If SANRAL were to continually pair e-toll payments with positive events, such as supporting a charity, visibly putting back into the community etc., the general attitude held toward the payment of e-tolls may shift to a more positive one. SANRAL has tried a similar approach in an attempt to change the attitude of South Africans toward the upgraded road system. This has not been successful in convincing more people to pay e-tolls. It is important that SANRAL realise that the issue is not with people's' attitude toward the road, but rather their attitude toward SANRAL.

### Instrumental conditioning

Instrumental conditioning shapes attitudes by rewarding the 'right' attitude, and helping an individual avoid negative outcomes. The rewards for the 'right' attitude may be tangible rewards, for example, a reward point system for shopping at a certain store, or social rewards such as acceptance from peers (Levitan & Visser, 2008). Similarly, SANRAL could make use of a reward system for those that pay e-tolls, in conjunction to the prosecution of e-toll defaulters. SANRAL could, for example, give regular e-toll payers a tax break in return for their compliance, while adding a fine to the tax payable by defaulters.

### Improved communications

The way in which messages are communicated have a substantial impact on how those messages are received, and in turn to what extent the message is able to change attitudes. In the early 1950's Hovland and Weiss (1951), found that messages received from sources that were considered credible (someone known to be an expert in a specific field and is an in-group member) were more likely to affect attitude change, than messages from sources that were not credible (not considered an expert and not an in-group member). Taking this into consideration, as well as the level of diversity among



South Africans, SANRAL should very carefully select the sources of the messages that are presented to the public.

Hovland and Weiss (1951) also found that communicators that are considered physically attractive to the target audience, tend to be more persuasive. If the target audience already likes the communicator, they are more readily persuaded by the message conveyed.

Messages that are not perceived to be aimed at attitude change, are often more successful than those that are seemed to be designed to achieve attitude change. Knowing that a sales pitch is coming your way, raises your guard against that message (Walster & Festinger, 1962; Benoit, 1998). By implication special attention should be paid to the design of messages sent out by SANRAL. In the same way, the level of fear induced by messages sent out to defaulters, should be carefully considered. Messages that arouse too much fear and/or anger in the target audience, will most likely, cause people to argue against the threat or believe that it is not applicable to them (Lieberman & Chaiken, 1992; Taylor & Shepperd, 1998; De Hoog, Stroebe & de Wit, 2007).

### **Gaining compliance**

Techniques used to gain compliance can take many forms, and plays a crucial role in various professions, such as door-to-door sales or political lobbying. Although gaining compliance can occur in many different ways, there are basic principles that underlie the gaining of compliance. Firstly, people are more likely to comply with requests when these requests are made by people that they like. SANRAL may use this to their advantage by having the request to pay e-tolls made by an individual that South Africans can identify with generally, or a few individuals that different cultural and/or social groups can identify with. Next, once an individual has committed to a position, it is easier to comply with requests that are in line with this position. SANRAL may remind South Africans that they have taken the position of good citizens, and good citizens are expected to pay their e-toll bills. Then, objects that are scarce or decreasing in availability, tend to be valued more than those that are not. Although SANRAL has made an attempt to use this principle in the past, the effects were only short-term. By having road-users pay less, if they pay within a certain time frame, will only yield long-term results on condition that the way people are informed about outstanding toll fees is efficient and reliable. Likewise, People are more willing to comply with requests if they are made by someone that has previously done them a favour. SANRAL would have to ensure that road-users experience the benefits of using the expanded highway, in order to have them feel that they owe SANRAL reciprocity. Finally, those that appear to hold legitimate authority are more likely to gain compliance from others (Cialdini, 2008). SANRAL would have to



come across as a legitimate authority, in order to gain increased levels of compliance from road users. As a government owned agency, this becomes increasingly difficult, in the current political climate of widespread mistrust in the government.

### **Relationship between attitude and behaviour**

The relationship between attitudes and behaviour can be explained by the ABC model of attitudes. The ABC model attempts to explain how emotions and beliefs/knowledge (cognitive) influence behaviour. Emotions and beliefs/knowledge together create attitudes, and behaviour is influenced by these attitudes (McLeod, 2014). For example, if an individual has negative feelings toward e-tolls, and believes that the system is nothing more than an expansion of government corruption, they will most likely not pay their e-toll accounts. Similarly, an individual that believes that he is getting value for money (e.g. his morning commute is shorter, less frustrating and he saves money on fuel), and feels positive toward e-tolls, is more likely to pay his e-toll account.