

**MEGA PROJECT ANALYSIS:
A CASE STUDY OF THE GAUTENG FREEWAY
IMPROVEMENT PROJECT**

by

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*Thesis presented in partial fulfilment of the requirements for the degree of
Master of Arts (Political Science) in the Faculty of Arts and Social Sciences at
Stellenbosch University*

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March 2015

DECLARATION

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November 2014

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ABSTRACT

Mega projects have fascinated human beings for as long as history can remember. The urge to build something bigger and better than has ever been done before has always been a driving force behind the human race's relentless pursuit of technological advancement.

It is in this vein that mega projects have evolved over time, as methods of construction improved, so did the scale on which people could attempt new projects. The Channel Tunnel between England and France, the Hoover Dam in America and the Millau Viaduct in the French countryside are some of the biggest examples of infrastructure projects in the world and these are all unequivocally, mega projects. Costing at least \$ 250 million and incorporating major technological challenges, mega projects continue to inspire and motivate artists and engineers alike.

This thesis seeks to expand people's understanding of the analysis of these mega projects. Mega project analysis is a field that has struggled to differentiate itself ordinary project analysis. The Gauteng Freeway Improvement Project (GFIP) and the associated e-tolling mega project will be analysed in this thesis.

The framework for analysis will be provided by the work of Flyvbjerg, Bruzelius and Rothengatter (2003), who seek to analyse mega project success or failure based on three key indicators of economic sustainability, environmental concerns and the effect of public support. This thesis will use the indicators of economic sustainability and the effect of public support to determine whether the Gauteng Freeway Improvement Project (GFIP) can be viewed as a failed mega project or not.

After an in-depth study of the data and material available, this descriptive and explanatory study shows that the GFIP and associated e-tolling mega project is indeed a failed mega project. This is because it has failed the analysis in both categories of economic sustainability and the effect of public support.

OPSOMMING

Megaprojekte het al eeue lank die mens gefasineer. Die neiging van die mens om iets groter en beter te maak as wat al ooit gemaak was het nog altyd baie dryfkrag verskaf vir die mens se strewe na tegnologiese verbetering.

Dit is met hierdie idee in gedagte dat megaprojekte met tyd verander het, soos wat boumetodes verbeter het, so ook het die grootte van projekte verander wat mense kon aanpak. Die Channel Tunnel tussen Engeland en Frankryk, die Hoover Dam in Amerika en die Millau Brug in die Franse platteland is voorbeelde van die grootste infrastruktuur projekte ter wêreld en hierdie is al drie, sonder enige twyfel, megaprojekte. Teen 'n koste van ten minste \$ 250 miljoen en met grootskaalse tegnologiese uitdaging, hou megaprojekte aan om vir beide kunstenaars en ingenieurs te motiveer en uit te daag.

Hierdie tesis poog om mense se kennis van die analise van megaprojekte te verbreed. Megaprojek analise is 'n veld wat al jare lank sukkel om verskille te bewerkstellig tussen homself en gewone projek analise. Die "Gauteng Freeway Improvement Project" (GFIP) en die verwante e-toll megaprojek sal geanaliseer word in hierdie tesis.

Die raamwerk vir analise sal deur Flyvbjerg, Bruzelius en Rothengatter (2003) verskaf word, waar die outeurs poog om megaprojekte se sukses of mislukking te bepaal gebaseer op die sleutel aanwysers van ekonomiese volhoubaarheid, omgewingskwessies en die effek van openbare ondersteuning. Hierdie tesis sal gebruik maak van die ekonomiese volhoubaarheid en openbare ondersteuning aanwysers om te bepaal of die GFIP beskou kan word as a mislukte megaprojek of nie.

Na 'n in-diepte study van die data en materiaal beskikbaar, sal hierdie beskrywende en verduidelikende studie wys dat die GFIP en verwante e-toll megaprojek inderdaad 'n mislukte megaprojek is, as gevolg daarvan dat die GFIP megaprojek analise aandui dat die megaprojek misluk het in beide die ekonomiese volhoubaarheid en publieke ondersteunings aanwysers.

ACKNOWLEDGMENTS

I would like to thank my supervisor Prof. Janis van der Westhuizen for helping me in completing my thesis. For his belief in me, his tact advice and friendly demeanour has made this thesis an absolute pleasure and I hope that we can work together again in the future.

To my parents, Alan and Gretchen, thank you for everything you have done for me, not only in terms of the financial support to finish up my studies, but for everything else. The late night messages of encouragement, the frank and honest goal setting. I cannot in words describe how truly grateful I am to both of you.

Lisa, my cheerleader and supporter, the person who has been through all the highs and lows with me regarding this thesis, without your love this would not have even been remotely possible. From bringing me study snacks on lonely weekends working on my thesis to proofreading the final product, your love and support are much appreciated.

To my friends, Albert, for all the encouragement and the small things that made my writing process so much easier, for always being a sounding board for ideas, whether they made sense or not, thank you. Fredrick for always being up for a good chat to moan about thesis writing. Dirk for always giving perspective on thesis writing that was invaluable and enabled me to make my time management decisions with a level head. Deon, Jacques and Dalmayne thanks for being there for me and always being willing to listen and keeping me motivated. To all my friends, thank you for never being too busy to listen and for celebrating the good times.

To Prof. Hennie Lötter from the University of Johannesburg, thank you for reading through my work and providing positive feedback at such short notice.

To all of my classmates Angela, Caitlin, Evan, Helena, Indiana, Lauren and Micheline. Thank you for all the good times, for all the jokes in class, for the motivation and for being a support network that could be counted on when I needed you guys most.

Finally, thank you to God for making everything possible.

Phillipians 4:13 “I can do all things through Christ who strengthens me.”

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ABBREVIATIONS

AA	Automobile Association
AARTO	Administrative Adjudication of Road Traffic Offences
ANC	African National Congress
BOT	Build, Operate and Transfer
BRT	Bus Rapid Transfer
Cosatu	Confederation of South African Trade Unions
DA	Democratic Alliance
DoT	Department of Transport
EFF	Economic Freedom Fighters
ETC	Electronic Toll Consortium
GFIP	Gauteng Freeway Improvement Project
ITS	Intelligent Transportation System
MAD	Mutually Assured Destruction
OPEC	Oil Producing and Exporting Countries
ORT	Open Road Tolling
OUTA	Opposition to Urban Tolling Alliance
SANRAL	South African National Roads Agency Limited
SACP	South African Communist Party
TDM	Travel Demand Management
VPC	Violations Processing Centre
UTFC	Ultra-Thin Friction Course

CHAPTER ONE: INTRODUCTION TO STUDY

Mega projects are expensive, disruptive, controversial and almost always involve risk-laden decision making. This thesis deals with the Gauteng e-Tolling project. At over R20 billion rand and coming in at 254% over budget, the Gauteng Freeway Improvement Project (GFIP) and the e-Tolling scheme are, without a doubt, an interesting case for study.

History serves up many different examples of mega projects and how they have failed despite the best intentions of those building them. The Sydney Opera House is an example of a failed mega project. The project came in massively over budget and outside of the requested time frame. However, today it is viewed as one of the most iconic buildings in the world. This thesis will provide the reader with the tools to understand why mega projects are so difficult to construct successfully; that mega project failure is not necessarily a clear-cut issue; and that, even though a project seems to fail in terms of construction goals, it will not necessarily always be viewed as a failure.

The GFIP and the associated e-Tolling system have been controversial from the start because of the nature of transport politics in South Africa. While one can see the presence of large and very expensive projects, such as the Gautrain, access to high quality public transport is not a luxury available to all. As a result of this, the detractors of the GFIP argue that the money spent on the GFIP could be better served to upgrade the outdated railway network that serves many more people than the GFIP would.

South Africa is a country with a unique political history, characterised by a dominant party system, which has seen the African National Congress (ANC) winning five national, general elections back-to-back since the advent of democracy in 1994. While the ANC has had an electoral majority since 1994, the 2014 general elections saw the ANC winning with the smallest majority they have experienced in any of these five elections. Some election pundits have noted the large role that the e-Toll system has played in the election campaigns of the opposition.

This study will analyse whether or not the GFIP and the associated e-Tolling project can be viewed as a failure. The reason this study has the potential to produce interesting results is that it incorporates the influence of public support on mega projects with the effect that mega projects can have on the political landscape of a country.

Specifically in the South African context, the findings of this study will lead to a change in choosing which mega projects to build. As mentioned earlier, the GFIP is still a project that does not serve the majority of the population because all citizens do not have access to cars. If the GFIP does, in fact, emerge as a failure from this study, then advocates of improved rail and mass public transport networks will be more inclined to voice their opinions.

The major elements of this study will be to, firstly, analyse the economic sustainability of the mega project and secondly, to analyse the role of specific interest groups involved in public discourse and what the repercussions are, if any, for the politics in South Africa, with the intention of challenging the way in which mega projects are analysed today.

1.1 PROBLEM STATEMENT AND RESEARCH QUESTION

Mega projects¹ have been constructed for centuries; the nature of these projects is that they are not usually able to be constructed in time or within budget. This leads to the problem statement, “Mega projects are victims of poor planning, budgeting and demand forecasting; why is this so?” Through the course of the thesis, the criteria for determining mega project success or failure will be introduced and analysed. For the purpose of this study, a South African project has been analysed in order to add to the literature on mega project analysis.

The Gauteng Freeway Improvement Project (GFIP) and the associated e-Tolling mega project have often been mentioned in news articles in the last decade, specifically between 2011 and 2014. Since the public became aware of the way in which the e-Toll system would affect them, people have been aggrieved by the system; the problem that this thesis is trying to address is how and why such a situation came to pass. The problems that the thesis will address are: i) How did the costs escalate as much as they did? and ii) Why did this project in particular become the focus of such scorn by the public when there are many other projects that are massively over budget, yet do not receive nearly as much attention as the GFIP has?

The research question for this thesis is:

Can the Gauteng Freeway Improvement Project and the associated e-Tolling mega project be viewed as a failed mega project?

¹ As defined in section 1.3.1

The research will determine if the project at hand is a failure or not by assessing its performance in the fields of economic success, and environmental and public support. As will be explained in greater detail in Chapter Two, the environmental assessment is excluded as a major factor due to the nature of the project.

1.2 RESEARCH AIMS AND PURPOSE

The research aim of this thesis is to analyse the GFIP and the associated e-Tolling mega project and determine whether or not it is a failed mega project. The framework seeks to prove whether a mega project is a success or failure based on two key indicators, namely, economic sustainability and public support.

The research aims to show how each of the factors present in the study has affected the GFIP and the political consequences of each of these factors whether it be the economic sustainability of cost underestimation, revenue overestimation, negative economic ramifications or economic multiplier effects that may or may not have been realised.

1.3 CONCEPTUALISATION

Mega projects have existed in various guises since the turn of the 20th century. These projects came about in order to tackle more than one major problem at a time. Often, mega projects were commissioned to solve infrastructure shortfalls, to fight unemployment and to inject new business into a community, so that the entire community, city, state or even the country might benefit.

1.3.1 Mega project definition

Altshuler and Luberoff (2003) define a mega project as a project which is “physical, public and very expensive”. In other words, the project occurs physically, meaning that it is usually a major construction project although, in time, some projects have become less focused on infrastructure development and more on examining scientific problems. Good examples of this are projects such as the Square Kilometre Array (a collaboration of satellites and telescopes between South Africa, Australia and New Zealand) and the large Hadron collider in Meyrin, Switzerland.

The projects are public, mostly funded by governments or government agencies, with the minority of mega projects being funded by private investors. Finally, mega projects are very

expensive, with a minimum cost threshold ranging between \$250 million and \$1 billion (Flyvbjerg, 2009; Altshuler & Luberoff, 2003). Steinberg (1987:331) adds further detail to the broad definition of a mega project by saying that mega projects have very high development costs, long development periods, often encompass technical and economic uncertainty and can become political symbols, which may hold great prestige for governments.

Hundreds of mega projects have been completed throughout human history. The majority of these projects have come in late, over budget and have often been underutilised by the society for which they were intended. These trends are not static in time and they show no signs of abating.

Among the oldest mega projects known to man, such as the pyramids of Giza that were constructed using slave labour, it is known that even this ancient mega project took longer than forecast. A mega project such as the Manhattan project that sought to create nuclear weapons capabilities, took two years longer than originally forecast. And at a cost of \$2 billion dollars in 1946 (the equivalent of \$26 billion when adjusted for inflation in 2014), the Manhattan project was most definitely a mega project. The aim of the project was to attain nuclear capabilities in order to seek revenge for the surprise attack on Pearl Harbour. Had the project taken even a mere six months longer, there is a chance that the German army would have achieved nuclear armament before the allies (Groves, 1962:333-340).

Mega projects have evolved over time and these changes will be explained in more detail in Chapter Two. Today, most mega projects are linked to infrastructure. Examples of these mega projects include national highway networks and building new bridges in places where it was impossible to even think of building a large bridge before, such as the Oresund Link between Denmark and Sweden. In South Africa, a good example of an infrastructure mega project is the high-speed rail link between Johannesburg and Pretoria, the Gautrain.

Mega projects have, for most of recorded history, been burdened by poor planning and operation. Bruzelius, Flyvbjerg and Rothengatter (2003:3) note that

many projects have strikingly poor performance records in terms of economy, environment and public support ... In nine out of ten transport infrastructure projects costs are underestimated, resulting in cost overrun.

Bruzelius et al (2003:16) also noted that “[c]ost underestimation and overrun exist across 20 nations and five continents, it appears to be a global phenomenon”. This thesis will use the model provided by Bruzelius et al (2003) to highlight the reasons why mega projects fail.

1.3.2 Defining mega project failure

It is necessary to define at this point what exactly constitutes a mega project’s failure. Mega projects can be viewed as failures if they do not conform favourably to a majority of the categories outlined in the framework for analysis. The three categories that are outlined by Bruzelius et al (2003) are: economic success, environmental concerns and public support. If a project fails in two of the three categories, then the project is viewed as a failure.

This thesis focuses on the category of environmental concerns because of the nature of the case study. The GFIP is a road construction project that seeks to upgrade the road network and not embark on building new roads.² This means that there are only two major categories of analysis (economic success and the presence of political support). If the project fails in either of these two categories, then the project is viewed as a failure. Mention is made of the benefits that the upgraded road network will have for road users so that the reader does not have a skewed perspective of what the motivation for the GFIP is. The environmental benefits are not wholly excluded because this would portray a biased opinion of the utility of the GFIP.

1.3.3 Defining the public and the role of public interest groups

Heywood (2004:8) draws the distinction between two different types of public and private divides. The first distinction is the difference between the public being the government and the apparatus of government and the private being “civil society, autonomous bodies, businesses, trade unions, clubs, families and so on”. The second set of distinctions classifies the public realm as “politics, commerce, work, art, culture and so on” and the private (or personal) realm as being one’s family and domestic life (Heywood, 2004).

For the purpose of this thesis, this definition is adapted so that a distinction between can be

² The upgrading of the road network does have environmental benefits in terms of reduced emissions from cars working more efficiently; however, the environmental benefits are not significant enough to warrant an in-depth analysis. The environmental benefits are outlined shortly in the motivation for e-Tolling in Chapter 3.

drawn between those in government and those not exclusively involved in government. The government, in this case, means those who are directly employed by the government to fulfil a task. In this thesis, this includes the role players involved in the decision-making process surrounding the GFIP and the associated e-Tolling project, more specifically, the South African Roads Agency Limited (SANRAL) and the Department of Transport (DoT) among others.

In contrast to the government, there are public interest groups. These include all those not directly involved in the decision making and running of government. In this thesis, this refers to civil interest groups such as the Opposition to Urban Tolling Alliance (OUTA), political parties, trade unions and others.

Political parties are included under the broader umbrella term of public support because, in a representative democracy, the political parties are supposed to represent the views of the people. This is especially true close to a political election; by representing the views of the people, political parties are able to garner more votes.

1.3.4 Open road tolling and Build, Operate and Transfer tolling

This study will focus on the GFIP, which uses an e-Tolling system to collect funds. E-tolling is more generally referred to as Open Road Tolling (ORT) because it does not require a road user to stop and pay at a toll booth. It collects the money using software in the form of e-tags.

There are other tolling systems operating in South Africa, such as the Bakwena Platinum Highway system that runs from Rustenburg to the outskirts of Pretoria or the N3 Toll Concession between the South East of Johannesburg through to Durban. These toll systems are known as Build, Operate and Transfer (BOT) systems where payment is made at a physical toll booth.

1.4 RESEARCH DESIGN AND METHODOLOGY

The research design for this thesis is descriptive and explanatory and makes use of the case study method to analyse the GFIP and the associated e-Tolling mega project.

The research design of this thesis uses the case study method as opposed to a large-N sample as the statements and opinions of the aforementioned groups in the public sector are seen as representative of public opinion. George and Bennett (2005:5) define the case study approach

as “the detailed examination of an aspect of a historical episode”, in this case, the GFIP and the associated e-Tolling scheme. The case study approach is used to “develop or test historical explanations that may be generalizable to other events” (George & Bennett 2005:5) as, in the case of this thesis, the model developed by Bruzelius et al (2003). As opposed to statistical studies, which are large-N, case studies are considered small-n studies. Bennet and Elman (2006:262) explain that

qualitative methodologists do not look for the net effect of a cause over a large number of cases but rather for how causes interact in the context of a particular case ... to produce an outcome.

The case study method was chosen because of “the desire to derive an up-close (or otherwise) in-depth understanding of a single or small number of cases” (Bromley, 1986:1). In addition to this, Yin (2009) highlights the in-depth nature of research that “goes beyond the study of isolated variables”.

The descriptive and explanatory case study was chosen because the descriptive method is

mainly concerned with describing the nature or condition of a present situation. It is applied in order to investigate and explore the causes of a particular phenomenon. Descriptive studies provide a detailed [and] highly accurate profile of people, events or situations (Botha, 2012:13).

This study is also explanatory because it seeks to answer the question of why events have occurred as described, and to delve deeper into the questions and determine the reasons behind the actions undertaken in the GFIP.

The case study method was selected because the study focuses on a single case and answers only one question, whether or not the GFIP and associated e-Tolling system is a success or a failure. If the study were to seek to determine how often something specific happened, then a large-N, statistical survey would have been better suited to answer the question (Yin, 2009).

Although the case study has been chosen for this particular study, it is not without its shortcomings. Case study research is criticised because it does “not seem to protect sufficiently against such biases as a researcher seeming to find what she or he had set out to find” (Yin, 2009). This study has countered this possible bias by objectively analysing data, and attempting to include data that brings balance to the argument (for example, a

government riposte, once the opposition parties have criticised a certain action or stance). Criticism of the case study method also includes the fact that the results obtained are often case specific and the method is often overlooked because it does not have the ability to provide results that could be used more broadly.

1.5 LIMITATIONS OF THE STUDY

The delimitations found in this study are, firstly, the fact that the thesis only analyses one case study, that of the GFIP and the associated e-Tolling system. This is as a result of the unique nature of the GFIP and the absence of other e-Tolling systems in South Africa. Furthermore, this study is delimited geographically only to South Africa, simply because of the absence of an ORT system anywhere else in Africa.

Finally, the time frame is delimited to run from 2004 when the GFIP was first envisaged and introduced to the South African government, through to the time period immediately after the conclusion of the General Elections of May 2014. This means that extending the time frame to earlier than 2004 would be superfluous, because there is no relevance of any discussions taking place before 2004. The decision to end the study after the conclusion of the election is to allow for the analysis of the political consequences.

1.6 OVERVIEW

Mega projects have continually evolved over the course of history in their nature, size, frequency and their perceived benefits and drawbacks. Chapter Two sketches an in-depth picture to explain how these mega projects have evolved, by examining the different historical eras. The chapter then moves away from the historical overview to provide a practical framework for analysis that will be used to analyse the GFIP and the e-Tolling mega project.

Following on from the second chapter, Chapter Three relates the story behind the GFIP, how the system came to be and what the motivations for the GFIP were. Additionally, the different goals that the project had in terms of construction, financing and traffic are discussed. It describes the different arguments and motivations for using the open road tolling system and what the alternatives were, before concluding with an overview of the benefits of the e-Tolling system.

Chapter Four outlines the economic ramifications of the GFIP and the e-Toll project, in order

to understand the decisions that were made and the economic factors that influenced the performance of the project. Specifically, the chapter looks at underestimated costs, overestimated revenues, negative economic effects and economic multipliers, as reasons for the success or failure of the project from an economic point of view.

The role of public interest groups is analysed in Chapter Five, with a specific focus on how these public interest groups reacted to the GFIP and the associated e-Tolling mega project. Finally the sustainability of the GFIP and the associated e-Toll project is analysed. Once the economic factors (Chapter Four) and the public support factor (Chapter Five) have been analysed, the thesis will move on to its concluding chapter.

The concluding chapter of this thesis seeks to bring together all of the arguments outlined earlier in the thesis and to highlight the main points of interest. Having assessed the project on the basis of economic sustainability and the role played by public interest groups, the thesis finds that the GFIP and associated e-Tolling scheme is a failed mega project and concludes by providing advice for the way forward for the South African National Roads Agency Limited (SANRAL).

CHAPTER TWO: MEGA PROJECTS THROUGH HISTORY AND A FRAMEWORK FOR ANALYSIS

Mega projects have always been seen as projects which are progressive, instill a feeling of national pride, push technological barriers and, most importantly, attempt to solve mega problems with mega solutions. The nature of mega projects, what they consist of, what their aims are, what their limitations are and who funds them have changed drastically over the course of history.

This chapter consists of two main parts, the first being an in-depth literature review on the historical nature of mega projects. The second main part is an explanation of the framework for analysis, which will outline the main ideas with which the Gauteng e-Tolling mega project will be analysed.

2.1 LITERATURE REVIEW

2.1.1 Five political eras of mega projects

The majority of the academic research that has been done in the field of mega projects is biased towards a western perspective, operating more often than not in the developed or “Western” world. This means that while many of the lessons learnt from this literature review are directly translatable into the developing world, often, however, these lessons are not directly comparable. In addition, the research from the eras before the 1990s is based in the United States of America because of its unique status of not being part of the “old world” occupied by the established nations of Europe.

In the context of American political history, the four time periods or “political eras” that Altshuler and Luberoff (2003) refer to commence with the era up to the 1950s. In this time period, central and federal governments were not as involved in mega project development as they in later years. This meant that localities had to fund and operate infrastructure projects with reactive capital, as opposed to early investment capital. Reactive capital is the funding used for building a project which is generated as a result of the improvements that the building project has provided. An example is a toll placed on a road or bridge that has been upgraded to reduce traffic congestion. Early investment capital, on the other hand, is usually provided by government or private-public partnerships which is generated before the initiation of the project and can be viewed as the funding being paid upfront, rather than in reaction to the building project improvement. In this time period, mega projects also tended

to occur away from built-up precincts.

The second political era in question is dubbed “the great mega project era” and focuses on the time period from 1950 through to the late 1960s. This political era is characterised by the Cold War, the willingness of global superpowers to fight proxy wars and engage in prestige initiatives such as the space race. This second political era is characterised by a rise in slum clearance and attempted inner city redevelopment under the banner of urban renewal. This was a time period in which the seeds for the era of transition were planted, by not allowing for adequate consultations with citizens. It brought into focus the racial inequality still inherent, especially in American culture, which would lead to rioting and a general dissatisfaction with government.

The third political era is labeled “the era of transition”. This time period progresses from the late 1960s through to the early 1970s. In this era, there was an increase in social movements which have a direct impact on mega projects. These social movements include the Civil Rights Movement and the rise of environmentalism as a policy concern. The result of these social movements is that citizens’ protests led to the government having to adopt more conservative approaches when embarking on massive and disruptive mega projects. This third political era is book-ended by the Oil Producing and Exporting Countries (OPEC) crisis of 1973. The economic repercussions of this crisis were felt especially in the mega project sector.

The fourth political era, “the era of do no harm”, shows a distinct change in mega project development. Whereas in the great mega project era (1950s to the late 1960s), projects were not hamstrung by any concern except to get the job done, the rise of citizen action in “the era of transition” meant that policy makers now had to operate within a framework that minimally disrupted and fully compensated any affected party in the construction phase. This fourth political era runs from the mid 1970s through to the early part of the 21st century. It is accompanied by a move back into the city, where convention centres, sport stadia and festival malls are built in an attempt to lure people back into the inner city which was characterised by squalor and poverty.

A fifth political era that this author has developed runs from the early 2000s up until the present. Global terrorism has once again reared its head and has presented new and unique challenges to policy makers and mega project planners across the globe. Advances in

technology have enabled mega project developers to embark on projects that had not been possible earlier in history. Massive projects such as the Millau Viaduct or the Hoover Dam would not have been possible without the advances in steel-reinforced concrete for the Hoover dam, or that of cable-stay bridges for the Millau Viaduct.

2.1.2 Expanding public works and broadening infrastructure

During the era up to the 1950s, the global landscape changed drastically. With the commencement and conclusion of both the First and Second World Wars, technological advancements saw an increase in the need for tarred roads, telephone lines, railways, industrial areas and postal services. Nakicenovic (1991:484) notes that

transport infrastructures and transport systems ... are an important aspect of techno-economic development ... and their evolution must be related to the basic driving forces of economic and social development.

This meant that, as new technologies became available, it became imperative for governments to disperse this technology as widely and as rapidly as possible. This era differs from what we know today because the central or federal government was not the main financial partner at this time, because it did not have a tax network that was as comprehensive and as far reaching as it is today, often proceeding under what is described as a “minimalist government” approach (Altshuler & Luberoff, 2003:9).

At that time, governments and their expenditures were structured very differently to what they are today. Governments were seen as minority partners in mega project construction, not as primary partners as they are often portrayed today. Projects were undertaken more frequently by private companies who did not seek financing from government, but instead worked under incentives granted to them by the government—zoning concessions, preferential taxation, exclusive franchises, grants of land and loan guarantees were but a few of the benefits that were extended to mega project entrepreneurs at this time (Altshuler & Luberoff, 2003:4-9). Monkkonen (1990:178-181) notes that, at the time when rail and road concessions were being handed out by government, the government allowed project developers to own the land on which they were developing (land grants), thus it was in the developers’ best interests to construct the project to a high standard because the introduction of a transport line meant that urban areas would inevitably develop around transport hubs, raising the value of the land and generating more revenue for the developer.

The American Interstate Highway Project is the largest mega project in the world. Although it has been ongoing since the beginning of the 20th century, this project was only formally ratified by the American Congress's transport committee as recently as 1995 (Schwantes, 2003)³. Once national road networks had largely been achieved, the focus shifted to massive and disruptive networks of highways being planned within American cities for most of the 1920s. Green (1998:71-72) notes that, up to the 1940s, communities were displaced and people resettled due to the insistence of highway planners that highways had to achieve the most direct route in order to be successful. This view is shared by Vahrenkamp (2010:1, 41), who discusses the rise of the German autobahn, which was opened in 1932, which drew its inspiration from the concept of the expressways developed in Italy. The importance of national highway construction and inner city highway construction at the expense of any existing structure is a concept that will be revisited later in this thesis (in section 2.1.2.1).

Across the world, there were similar events unfolding. In Great Britain the 1920 Roads Act saw the upgrading and expansion of the road network. Due to the increase in traffic, these upgrades were unavoidable and led to the creation of a classification system for important routes, either between large population centres or for main roads that acted as thoroughfares to other parts of the country (Ministry of Transport, 1941).

Sarkar, Maitri & Joshi (2015:437) note that this trend was not exclusive to the western world, with Japan having heavily invested in transport infrastructure, to such a degree that the "suburban rail system, to a great extent ... was already developed by the 1940s". This meant that infrastructure development had occurred on a large scale well before the 1950s. Sarkar et al (2015:438) mention that, as early as 1927, the Jayakar Committee Report recommended the implementation of a twenty-year road development plan.

At the start of the 1930s it seemed that the future for mega projects in America, and indeed in the Western world as a whole, could not be brighter, with the expansion of highway systems both in and between cities. User-pay models of capital recovery were commonplace in developed countries and, where these were absent, the idea of land ownership for mega

³ The formal ratification of the process is significant, because it means that this project was so well supported that it continued to be pursued and constructed, despite having no official recognition at American federal government level. This kind of goodwill for a construction project is unheard of in modern times and is also a sign of the times that mega projects were accepted much more readily a hundred years ago than they are today.

project developers made it seem a lucrative practice. However this was all to change with the advent of the Great Depression; the nature of mega project financing was to change drastically.

Following the collapse of the stock market and the first major economic downturn of the 20th century, unemployment and poverty were major problems that governments around the world had to overcome. Most governments tackled this problem by launching major infrastructure projects, often on a mega project scale (such as the German autobahn) (Braun, 1990). In America, the tendency at this time was to spread resources over a large number of smaller projects. However, when taken into account collectively, the effect of the “New Deal” projects, financed through federal aid, can be viewed as mega projects. The “New Deal” projects accounted for, wholly or in part, the financing of 34 000 schools, 2 700 new parks and playgrounds and 280 000 miles (448 000 kilometres) of streets and roads. While the principal aim was to create jobs in order to curb unemployment, the upshot of having new infrastructure was an added bonus (Altshuler & Luberoff, 2003:12).

The Second World War brought two new paradigms to the managing of developed nations and their economies. The first of these was that, due to conscription, the male population was sent to fight the war while the female population took up the slack in domestic production to head into the factories, providing, for the first time, full employment at home in pursuit of victory abroad (O’Neill, 1995:9, 100). The second paradigm shift that governments encountered at this time was the global struggle of ideology that was engulfing the developed world, also known as the Cold War.

As Communism and the advances of the Soviet Union loomed large over the world, the United States decided that, as a superpower in a bipolar world order, it had no option but to stand up to the overtures of the Soviet Union and supply nations with aid, which, it believed, would stop those nations from falling under the influence of Communism. The Truman Doctrine, named after the former American president, was characterised by a speech given in 1947, which stated that “[i]t must be the policy of the United States to support free peoples who are resisting attempted subjugation by armed minorities or outside pressure” (Gaddis, 1974:386).

In accordance with the Truman Doctrine, the United States launched the Marshall Plan with the express goal of economically supporting these countries until they could rebuild to a point

of self-sufficiency, in order to remove the allure of Communism and its policies of collectivisation. Although it does not expressly fall into the parameters of a mega project in that it is not public and physical, the Marshall Plan was very expensive and had long development periods. It was a physical project, but indirectly, in the sense that the rewards for the project were not experienced by Americans, as was the case with a new road or bridge or airport, but that the indirect reward was that the nation was being protected from the threat of Communism which was spreading in Eastern Europe. Following this rationale, it can be argued that it was one of the largest projects ever attempted, pumping \$13 billion into Europe in the four years following Truman's historic speech. De Long and Eichengreen (1991) argue that the Marshall Plan was one of the most successful mega projects that the world has seen, despite it not occurring on American soil.

To conclude, the first political era up to and including the early 1950s, shows the expansion of infrastructure as a major focus of mega project literature and a focus on private investment as an effective financing model. Following the stock market collapse and the rise of the war economy, there was the changing nature of mega projects, focusing on military technology and later the battle of ideology between Communism and the West. Once the Marshall plan had run its course, human history was on the cusp of entering a never-before-seen level of mega project investment.

2.1.2.1 The great mega project era: Public transport infrastructure and urban renewal

As a result of the Great Depression, many people both in America and in many other parts of the world had, when the economy started declining, moved into city centres hoping to find work. The result of this was that most cities in developed countries had a large population of poor people living there, which meant that slums formed and urban decay became a very real and tangible problem (Miller & Hobbs, 2002).

It is with this as a backdrop that the great mega project era commenced. The need for mega projects within cities was much more important than those linking cities, as had been the case in the 1920s. Larger cities were losing out to newly developing regions, and ageing infrastructure and an outdated physical layout were burdening these cities. Public transport was being hastily abandoned, because people were simply no longer interested in going into the city centre. The solution was urban renewal.

Altshuler and Luberoff (2003) outlined the need for increased attention to public transport in

Altshuler's work published in 1963, which analysed the politics behind urban public transport and its effectiveness. In this work he also espouses the values of urban renewal as the panacea for the ever-expanding and rapidly ageing city centres. The need to clear slums and revitalise inner city areas was nearing the top of the agenda.

Given the challenge of urban renewal, American federal aid was channelled into building highways within cities. These highways, in turn, cleared slum areas, an idea supported by business interests because businesses did not want to be located near a slum. Capital, provided for public transport initiatives, was channeled into urban renewal and trains were overhauled and upgraded with federal aid. Finally, the federal aid was used to build new investment in tourist attractions which had not been previously addressed. This increased spending on tourist attractions showed that visiting people tended to spend more money compared to local residents (Altshuler & Luberoff, 2003:14-18).

The revitalisation of the public transport industry in American city centres, combined with the idea of replacing slums with business districts and tourist attractions, proved to be an effective form of urban renewal. The increase in domestic air travel (a knock-on effect of having the military build many airstrips in WWII that could easily be converted into civilian airports) led to major cities in the developed world having the ability to host large numbers of people. The idea of convention centres, which in itself was a novel development, was to be used to lure people to a city in order to spend their newly acquired disposable income (Sidrauski, 1967:539).

Klemek (2011:79) draws attention to a German philosophy espoused by Werner Hedebrand, who noted that “[a] city has to be more than just functional, and it is precisely this “more” that gives it the glitter and radiance”. This quote shows that, at the time that urban renewal was popular, a city needed to be more than just a place to do business. A city, more specifically a city centre, had to be made more attractive to people and businesses.

In France, Treister (1987:57) noted that “[a]s the years pass, transformations take place, allowing the city to constantly rejuvenate itself in a natural and organic way”. While this opinion would arguably not be shared by all urban planners, the importance of urban renewal is well documented. While Treister had a very poetic approach to the idea of urban renewal, experts in this field have noted the International Seminar on Urban Renewal as a defining moment in urban renewal. The seminar, held in August 1958 in Den Haag, Netherlands,

came to the following conclusion:

The main purpose of urban renewal is to deliberately change the urban environment and to inject new vitality through planned adjustment of existing areas to respond to present and future requirements for urban living and working (Miller, 1959).

It was during the great mega project era that the rise of disposable income triggered the creation of industries that many would have thought to be ridiculous at the end of the 1950s. These included recreational activities such as watching sport, live music shows and the aforementioned tourist destinations that began to emerge as lucrative industries.

Long (2002) outlined the real costs of erecting sports stadia and showed how spending on recreation emerged. Across America, in the 1960s, twenty-five new sports facilities opened as opposed to six in the 1950s. This coincided with the creation of Major League Baseball, the National Basketball Association and the National Football League. What makes the construction of these mega projects unique is that the stadia are owned by the teams, who are private investors yet, during their construction, the teams obtained funding from the state government with the rationale that fans coming to the stadium would generate money for the city as a whole (Danielson, 1997).

The rest of the world was also engulfed in the construction of new sports stadia, with stadia being built all across the globe from the national stadium in Algiers, Algeria, constructed in 1962, to the Estadio Azteca in Mexico City, built in 1966. This was, without a doubt, to cope with the increased proliferation in the popularity of not only sports, but other recreational activities as well.

Although the 1950s and 1960s were characterised by urban renewal, the comeback of inner city public transport, the increase of sports stadia and the emergence of tourist attractions were also significant outcomes of this time period. What made the mega project era great was that all of these projects were completed with minimal fuss and minimal opposition. Once a project had generated funding or a funding model, there was an almost unassailable chance of it being built. The American government was not concerned with ideas such as minority rights, the plight of the environment or even citizen rights that most people today take for granted. The removal of people from slum areas in order to build businesses or infrastructure was common practice and went largely unchallenged because it was seen as being in favour of the greater good of the city. This argument is well illustrated in the work of Sogg and

Wertheimer (1966), which focused on the legal and governmental issues in American urban renewal. Although they do note that three state courts rejected urban renewal as a good enough reason for slum clearance, the overwhelming majority of courts found that the ends justified the means.

2.1.2.2 The great mega project era: The space race and military technology

The great mega project era was also the time when governments spent overwhelming amounts of money on prestige initiatives, which promised to be economically costly from the beginning. Military initiatives were often justified in the name of national security or the retaliation paradox, which is so eloquently described by Pinker (2011) who argued that states or nations cannot be truly safe unless they have the military capability to, not only defend themselves, but to make the idea of attacking them seem absurd, due to their overwhelming military preparedness. Prestige initiatives, however, which often seem like nothing more than political muscle flexing—initiatives such as the space race between the United States and the Soviet Union—seem somewhat ridiculous today but, during the 1950s and 1960s, the idea of proving that your nation was technologically superior to another was right at the heart of national consciousness.

Between 1955 and 1972, the space race consumed the imagination of the populations of both super powers and entering the final frontier seemed to be the most important aspect of research. Although the space race did produce technologies which are widely used today, and would arguably not have been discovered had it not been for the space race, the amount of money spent on the space race would never have held up under the scrutiny of a modern cost-benefit analysis. Over \$200 billion dollars was spent on the Apollo project with the goal of putting a man on the moon and, although the target was reached, the tangible benefits that it offered the society of the day have been highly questionable (Chaikin, 1994).

In terms of weapons, the great mega project era saw the golden age of nuclear weapons even though the use of nuclear weapons had been outlawed after the conclusion of World War II after their use in Japan. The Cold War gave rise to a period characterised by mutually assured destruction (MAD). MAD meant that both competing superpowers were building up massive arsenals of nuclear weapons in an attempt to safeguard themselves, in accordance with Pinker's security dilemma (2011).

Each superpower wanted to ensure that the prospect of attacking it was unimaginable because

the consequences of retaliation would be so dire that the attacker would not even consider it. In a 1994 article outlining the potential backsliding of the US economy if defence spending was to decrease, Markusen and Yudken (1994:25) highlighted the fact that, in 1969, military spending made up 57% of the entire American Federal budget. This was in no small part thanks to the US's readiness to defend the policies outlined in the Truman Doctrine and defend and support, amongst others, anti-Communist forces in Korea and Vietnam.

At the end of the World War II, most countries had geared their industries to serve the outputs required by the military. This ideal, sometimes referred to as a "permanent war economy" or "Military Keynesianism" meant that, for their economies to continue to grow, most countries would have to continue producing military products (Custers, 2010).

This led to a relative increase in military spending around the world, compared to pre-war figures. Both West and East Germany, France, the United Kingdom, Italy, Japan, Sweden, Greece and Spain saw increased military spending coupled with a period of massive growth (averaging between seven and ten per cent) in all these countries. The great mega project era was truly in full swing and governments were spending large sums of money to ensure national growth and increased prosperity.

Although the outlining of government spending is not wholly relevant to the study of mega projects in general, it provides an excellent insight into what people at the time of the great mega project era were willing to accept as important and necessary projects. It is unlikely that there is an industrialised European country in the world today that could justify spending more than half of the federal budget on military preparedness, yet today it seems perfectly acceptable to spend massive amounts of money on projects such as the Channel Tunnel, the Oresund Link or similar transport infrastructure projects.

The great mega project era came to an end with the awakening of certain levels of civil unrest both in developed countries and in the Third World. There was a wave of nationalist, independence-seeking movements in the colonies and equality-seeking movements in First World countries. The era of transition would bring about distinct changes in the way in which people considered and accepted mega projects, and especially the repercussions of these mega projects.

2.1.3 The era of transition: Citizen participation and environmentalism

During the great mega project era, project sponsors and planners were seen to be beyond reproach, an almighty force that no individual could hope to contest. This ideal would change dramatically in the era of transition (late 1960s to early 1970s). In a highly coincidental confluence of factors, the tide of public opinion began to turn against mega project planning in a most unpredictable turn of events. The rise of the Civil Rights Movement, citizen participation and environmental activism were the three main factors giving rise to the era of transition, as outlined by Altshuler and Luberoff (2003:22).

Wilson (1966) gave an excellent account of the critiques directed at urban renewal that had begun to emerge in the second half of the 1960s. Once the surface had been scratched in terms of complaining against urban renewal, the floodgates opened and “academic critiques of the urban renewal program poured forth” (Altshuler & Luberoff, 2003:24).

In other parts of the world, the criticism of urban renewal was emerging similarly to that in the United States. Klemek (2011:80-82) noted that, although the opposition to urban renewal was not as radical as that seen in America, there was pronounced opposition to the movement. In the United Kingdom, Peter and Alison Smithson

led a coup within preeminent international organization of modern urbanists, challenging the cardinal tenets of functional segregation and questioning the value of new constructions when compared to the older cityscape they obliterated.

In Germany, urban sociologists focused on the ideal of finding “something worth preserving in a society undergoing rapid structural transformations” (Klemek, 2011:80). The misgivings surrounding urban renewal were found all around the world, especially in the era of transition, where the ideas of human rights and the concerns surrounding the environment were beginning to take shape.

In order to discuss the Civil Rights Movement, the role of citizen participation which originally manifested itself in developed countries, must be taken into account. The idea of citizen participation is that citizens would no longer accept being dictated to by government and cared enough to do something about their problems. The negative feeling against urban renewal manifested itself in the public eye and could not be ignored. The Kerner Commission of 1968, appointed to investigate the causes of the 1967 race riots in the US, found that

government clearance activities in the name of urban renewal were the main cause of grievance for most citizens (Button, 1978:73).

The link between the Civil Rights Movement and the increase in citizen participation is unquestionable, because one can be seen as a catalyst for the other and vice versa. This means that, although people were concerned about the nature of urban renewal and slum clearance, lower income areas, occupied predominantly by minority race groups, linked the clearance of slums to racism, because it seemed to predominantly affect poorer, minority groups. The act of slum clearance itself was seen as inherently racist because of this and led to riots against the government.

Similarly, the idea that human beings are biological organisms and should strive to protect the natural environment also played a role at this stage but would come into focus more clearly in the next political era, the era of “do no harm”. Environmentalism was triggered by the publication of Rachel Carson’s (1962) famous work *Silent Spring*, the first work to actively challenge the “chemical poisoners and what they are doing to the beauty and life support bases of the nation”. Scheffer (1991) elaborated on the point made by Carson (1962) and focused on the victories of the environmentalist movement from the time of the publishing of Carson’s book through to the early 1980s, when, as will be discussed in greater detail later, the environmental movement suffered major setbacks when the Reagan administration came to power.

What the race riots and increased citizen participation meant for mega projects was that both the nature and practical implementation of mega projects would have to change. Immediately after the riots, no level-headed bureaucrat would agree to a slum-clearing inner city mega project, because of the risk of inciting more riots. The long-term effect was that the social responsibility that mega project planners had to the people they were serving, was wider than ever before, which, in turn, would lead to an increase in the cost of these projects. Frieden and Sagalyn (1989:49-53) noted that urban renewal became “a policy backwater, fraught with far more local controversy than it seemed worth”.

The era of transition was an important time period in mega project development, because it highlighted the fact that mega projects could not carry on indefinitely without proper consultation with the people that they affected. The rise of the Civil Rights Movement in the USA was not explicitly linked to slum clearance, but there was an association between the

two. The era of transition was also important in the sense that it sketched the scene for the era of “do no harm” that was to follow. The negative effect that this era would have on mega projects in general, due to massively declining infrastructure investment, especially in developed countries, would serve to quell interest in mega projects for a time. These problems were compounded by the uncertainty brought about by the OPEC crisis of 1973 and the associated stagflation that followed.

2.1.4 The era of “do no harm”

This fourth political era of mega project development in the USA, and indeed the rest of the world, was characterised by a massive dip in mega project spending across the developed world, due in no small part to the additional obstacles that had entered the fray since the conclusion of the great mega project era (citizen participation and environmentalism). A combination of inflation and economic stagnation (stagflation) and the shifting focus of government spending away from building projects and towards people, in the form of social security and health programmes, meant that mega projects received less monetary support.

The focus of mega project rationale shifted to the “avoidance of disruptive side effects” (Altshuler & Luberoff, 2003:28), especially because citizen activists now questioned project funding. A slight increase in state or federal tax would not go unnoticed as it had done in the 1960s and the opponents of mega projects were keen to exploit these trying financial times in order to further their own cause of political consciousness.

A seemingly obvious consequence of this development was to look at projects that were inherently less disruptive and to devise “ingenious financing schemes that did not appear to burden local taxpayers” (Altshuler & Luberoff, 2003:28). Sport stadia, convention centres and festival malls had the added advantage of not only boosting the local economy in terms of construction, but also sought to remodel city centres as vibrant, well-kept areas and remove the seedy undertones that had captured many city centres in the developed world. Nevin and Loftman (1995) supported this view by arguing that “flagship developments” were necessary to kick start the urban policy goals of many cities.

Convention centres, festival malls and sport stadia all fall into this framework of flagship developments. It was the express hope when building one of these mega projects that people, both local and from out of town, would be tempted back into the inner city, to spend money at local restaurants and leisure activities, in the case of the locals, and hotels and airports, in

the case of visitors from out of town.

Sports stadia had, since the 1960s, been growing in popularity in the USA, however, it was only during the era of “do no harm” that city planners began to realise that sport stadia could be used as a gateway to the city. This was in direct contrast to the building of stadia on the outskirts of towns because they were thought to be disruptive and not in the greater interests of the city (Thomley, 2002). Although sports stadia were not seen as very good investments in terms of a cost benefit analysis, the ability of a city to attract a high profile sports team was directly comparable to the attractiveness of that city, which directly translated into political drivers for the politicians in charge (Grant, 2002).

The sponsors of sports stadia argued that a return to downtown locations would be in the interests of the city as a whole because of the factors outlined above. Bale (2000) highlighted the fact that the majority of people who actively supported sports teams at live events were working-class individuals who lived nearer and frequented the city centre more regularly, which is why they were targeted as the majority demographic of customers that these projects were hoping to entice.

Retail development, and specifically festival malls, started to gain more traction during the 1970s, but it was in the 1980s that this idea flourished. A festival mall was a new development for the United States at this time and it was to become the norm across the world. A festival mall, as opposed to a strip mall or shopping complex, offers a massive variety of products and stores in one single location, removing the need for people to drive between shops. Such malls encouraged customers to spend more time in one location.

Frieden and Sagalyn (1989) made the point that, in order “for downtowns to thrive, they also needed to be exciting retail environments”. The rationale for developing sports stadia and festival malls in the inner city fell largely under the same rationale that people of the city had to be enticed to spend more time in the inner city. Motivated by local business people (who were very often also financial backers), local politicians promoted the idea of downtown retail development. The politicians managed to do this while still dodging the proverbial bullet, in terms of citizen action against these developments, by only taking a minor financial stake in the building of these retail developments. This meant that the majority of the financial risk was carried by the local businesses.

The local politicians were, by no means, seemingly absent role players in this promotion of

city centre redevelopment because they still played a role in raising extra funds for the projects by allocating preferential investment models for the projects (similar to what local governments did in the pre-1950 era in order to foster infrastructure expansion) (Jacobs & Roistacher, 1980).

Convention centres are arguably the least financially attractive initiative that any developer can bring to a city, because research has shown that “no convention centre generates enough revenue to cover its debt service and few even cover their operating costs alone” (Sanders, 1997; 1998). Although economically flawed, the number of convention centres being built in the developed world continued to grow in the era of “do no harm” thanks largely to the claims routinely made by the sponsors of the projects that convention centres would spark collateral development in the area and, in turn, create an economic multiplier effect that would benefit the whole city. Finally, the promoters of the convention centres managed to convince decision makers in the city that it was necessary to build convention centres in order for the city to remain competitive relative to other major cities.

In all but a few rare instances, these claims turned out to be completely wrong. Sanders (1998:59; 1997:8) found that both collateral development and multiplier benefits were extremely weak. Finally, to put to rest the claim that it was necessary to build convention centres to keep up with development in other cities, if every city had a convention centre, then no one city had a competitive advantage.

The era of “do no harm” showed that the nature of mega projects had, once again, changed. Although there were many more hurdles to overcome compared to, for example, the great mega project era, mega project construction still continued even though none of the three examples, festival malls, sports stadia and convention centres, were very good options when considering mega projects purely in economic terms. However, there will always be other drivers to make a project look attractive, such as the political reward of hosting a professional sports team or arguing that a convention centre is going to be a successful investment, when the literature clearly shows the opposite. This section is especially relevant when one considers the case study of Gauteng e-Tolling that will be explored in more detail later in the thesis.

The nature of mega projects has changed greatly in the last decade of the 20th century, with governments once again shifting focus back to very large infrastructure projects after the idea

of urban renewal had run its course. Examples such as the Millau Viaduct in France and the Oresund Link between Sweden and Denmark are massively large mega projects that focus on transport infrastructure. This fifth unofficial political era was precipitated by events in America on 11 September 2001.

2.1.5 Global terrorism and the post-2001 World Order

Bruzelius et al (2003), as well as Altshuler and Luberoff (2003), were not in a position to comment on the rise of global terrorism. While both predicted that terrorism would play a major role in the formation of a new world order, neither could have forecast exactly what would happen. This section of the thesis seeks to examine this phenomenon.

Shortly after the beginning of the 21st century, the world was rocked by the destruction of the World Trade Centre towers in New York. This event brought showed that the world was no longer the harmonious and peaceful place that many had envisaged after the completion of the Cold War. It was inherent in the nature of this terrorist attack and subsequent terrorist attacks in London (2005), Madrid (2004) and Mumbai (2008) that the perpetrators of the crimes were very obviously anti-Western and would not renege on their objective of curtailing the lifestyle of the “decadent West”. The reason that this is particular dangerous for mega projects is because these projects are high-profile potential targets that are often political symbols as well as economic or recreational hubs (Glaeser & Shapiro, 2002).

The re-emergence of global terrorism saw the scaling down or halting of some mega project developments in the face of this potential risk but, as political decision makers also do not want to be seen to be crippled by the fear of terrorism, many of these projects have continued. The 21st century has brought to the world a balancing out between the great mega project era and the era of “do no harm”. This means that many developed countries have curtailed the way in which citizen activists can protest about new mega projects. In the past, citizen activism was often tolerated without an excessive response from the government. This is, of course, not true for all citizen activism, but the peaceful protests of the 1960s against the war in Vietnam are a good example of protests met with force by the government.

Today, many governments have enacted far-reaching powers for police and the military. These extended powers often fall under the “anti-terrorism” banner. An example of this is the ability of the US government to hold a terrorist suspect without charge for 90 days, a period that may be lengthened if the request is approved by Homeland Security. Although there have

been laws in place in the past to curb treason or terrorism (as was the case during both the Second World War and the Cold War), this is the first instance of developed nations having such restrictive powers when the country is not in a state of war.

Although terrorism has put a damper on mega project development in many parts of the world, the scientific advances and advances in technology that have occurred in the 21st century have seen mega projects becoming more ambitious and daring than ever before. Urban renewal, massive transport infrastructure and technological innovation continue to be powerful drivers of mega projects, however, this has not always translated into solutions that benefitted the entire population. Even though the mega project is no longer a novel concept, decision makers have not managed to develop a formula that benefits most of the people. In some cases, self-interest still takes preference over what is best for the city and its people.

The environmental movement has steadily been gathering momentum since the beginning of the “do no harm” era, post 2001. Today, mega projects are expected to be fully compliant in terms of environmental impacts. Mega projects are also expected to mitigate the negative effects of their construction, as was seen with the construction of the Oresund Link. The Oresund Link even had to mitigate the effect that the bridge would have on the common mussel population through the sections of the sea where it was being built (Bruzelius et al, 2003:59).

It is in the nature of mega projects to run longer than scheduled, cost more than expected and often not deliver on what was promised in the original marketing of the potential project. After reviewing the literature regarding the history of mega projects, the study has a clearer understanding of how the nature of mega projects have evolved over the past century. Bruzelius et al (2003) make the point that, when analysing mega projects, although they often run over budget and longer than scheduled, there does not seem to be much learning taking place in terms of mega project analysis. In a study of several mega projects spanning more than five decades, they argue that techniques of cost benefit analysis have not improved at all. The nature of this problem is analysed in their book *Megaprojects and risk: An anatomy of ambition* (2003).

The next section of this chapter will further explain this approach and how Bruzelius et al’s work will be used as a framework for the analysis of mega projects, specifically, the Gauteng e-Tolling project.

2.2 A FRAMEWORK FOR ANALYSIS

Bruzelius et al (2003) draw on four main points to highlight the problems faced by failed mega projects that all deal with the problem of incorrect information in the evaluation of potential mega projects. These four main points are underestimated costs, overestimated revenues, undervalued negative economic impacts and overvalued economic development multiplier effects.

2.2.1 Underestimated costs in mega projects

The inherent problems in mega projects can be found quite simply in their definition. Because these projects are large, disruptive and very expensive, the scale on which construction economists and quantity surveyors usually work cannot simply be extrapolated, because the scale at which the project is performed often brings in additional problems that might not be foreseen during the planning and design phases. Due to mega projects being disruptive, costs of mitigation for environmental or social concerns are also on a larger scale and often require smaller, more specific projects within the larger mega project to appease all concerned parties (Bruzelius et al, 2003:62). These smaller specific projects can include, for example, the building of a new park or estuary, because the mega project demolished the existing green space in order to gain sufficient space for construction. The reasons why costs are so poorly estimated will be dealt with in the conclusion to this section of the chapter, as the problems are generic to all four main points.

Flyvbjerg, Holm and Buhl (2002) show that cost escalation is far more likely than negative cost escalation. Negative cost escalation, or cost diminishing, can occur as a result of overestimated costs, which are not realised. However, this phenomenon is very rare. The authors also analyse different types of infrastructure mega projects and find that rail and fixed link projects are more likely to run over budget than road projects. Road construction projects are generally nearer their estimated value because the chance of very large variables being unaccounted for is lower. In rail and fixed link (bridge) construction, the areas traversed are, generally speaking, more unforgiving than where road construction occurs. It will cost a lot more to excavate and remove a rock line that is present underwater or in a valley than what it would cost for a rock line that is present where roads traverse. However, that does not mean that road projects are exempt from cost overrun; they are still coming in at an average of 20 per cent over budget, less than rail projects which come in at 45 per cent over budget on

average (Flyvbjerg, Holm & Buhl, 2002:284-285).

Mega project construction cost overruns occur because the promoters of these projects are inclined to underestimate costs, because it is more likely that a project will then be accepted by the presiding political committee, such as a parliamentary committee or a provincial legislature. Accountability (or a lack thereof) of people involved in the planning and development phases for mega projects, who often commit the underestimation that leads to cost overruns, is very common, because of the long lifespan of most mega projects. If a project has a construction lifespan of ten years, the chances that the same politician who agreed to the project will still be in the same position is highly unlikely in the fluid world of politics.

Strategic misinformation is the act by which mega project promoters seek to mislead the decision makers. Bruzelius et al (2003) argued that this is a tactic that is not only unnecessary, but also detrimental to the industry as a whole. In the perception of the general public, mega projects are always viewed with some trepidation as a result of strategic misinformation. The authors further argued that if projects and cost and time overruns were better estimated, then the general perception for mega projects would be more positive.

Bruzelius et al (2003) also noted that cost estimates are “highly, systematically and significantly deceptive”, which indicates that the problem is a lot more common than expected. The tendency of mega project promoters to describe mega project costs in perfect world terms is also a significant problem. This can be seen as an extension of strategic misinformation because it portrays the information regarding project development in a perfect world, where all products are completed on time and with no external factors influencing the outcome of the construction period.

2.2.2 Mega projects and overestimated revenues

Overestimated revenues or, more specifically, lower than projected use of the infrastructure mega project, is the second main point when dealing with mega project evaluation. The nature of the problem is the same as that of underestimated costs, because it is based on forecasting techniques that are lacking in precision or objectivity. In terms of economic ramifications, it could be potentially devastating for a project not to achieve the expected revenues that had been worked out when feasibility studies and cost benefit analyses were carried out (Flyvbjerg, Holm & Buhl, 2005:135-137). The reason for overestimated revenues

is essentially the same as the first main point, which is that there is a strong motivation that sponsors of mega projects have much more to gain than to lose when it comes to incorrectly estimating the margins at which the project will operate.

The lack of accountability from the political side, due to long construction periods in addition to strategic misinformation, are causes of overestimated revenues but are the causes of additional reasons as well. Many different projects come under consideration at any given time and overestimated revenues are often a way in which mega project promoters seek to get their projects to the top of the agenda. This is done in order to make the project more appealing in the long term when compared to other projects that would have a similar cost estimation.

Demand prediction failures are also as a result of using the wrong methodology when concluding the initial cost benefit analysis. Estimating the increased usage of a rural dirt road if it is tarred and tolled would be very different to estimating the increased usage of a road in the city centre but logic dictates that this will not be the case. Although this seems like a highly unlikely scenario, it explains the kinds of problems feasibility studies might come up with when reviewed in more detail, especially if the people making the decision are not familiar with the area being investigated.

Tying into the previous point, the use of a poor database during investigation can also play a detrimental role in the demand estimation of a new project. The influence of unexpected or unknown outside factors (such as fuel price escalation shortly before a newly upgraded road opens) can also heavily impair the expected results of a study.

Unexpected political activities can obviously influence the forecasting of mega project usage before it opens, which may include the changing of political personnel, changes in the law or even the general feeling towards a certain project as a result of negative news articles. These changes in perception may lead the project to be viewed in a negative light by politicians and the people that they serve. Finally, implicit assumptions can have a detrimental impact on mega project development. For example, it can be argued that it is a fair assumption that people in a given European country will use cars ten years from now. If a massive road upgrade is planned for this country, and it emerges, after eight years, that remote technology has improved to such a point that people no longer have to commute to work and everyone works from home, then the chances of that hypothetical road having overestimated revenues

is very possible.

2.2.3 Negative economic ramifications

Negative economic ramifications for mega projects are distinct from the first two indicators because they are not necessarily involved in the planning and estimation phase of the project. Once a project has been accepted and leads to cost overruns, the sheer size of the project leads to a negative economic impact on the host city, or even the host country. Mega projects often have massive costs and this may cause the host country's balance of payments to be affected which can lead to an economic downturn or recession if the debt incurred for construction cannot be effectively managed by the country (Bruzelius et al, 2003:3).

If a mega project is to be funded by the user-pay principle, then citizens of that country will have to take on the extra financial burden of paying more for a service that they previously used seemingly at no cost. If the user-pay principle is not directly implemented, there is the widely accepted view that taxpayers' money is used to pay for the mega project.

Once taxpayers' money is used to fund a project, the "what if?" argument revolves around the idea that, although the upgrade of the infrastructure programme may be beneficial to the country, these benefits are not always obvious to the average citizen. Thus, citizens often argue, "what if the amount used to fund the infrastructure was used to build schools?" especially in the case of mega projects, where the amounts invested are often massive. Due to the nature of representative government, it will never be possible to assuage everyone's concerns. Whether a mega project is a top priority or not is always open for debate, meaning that what is viewed as a priority project will differ depending on who is analysing the situation. For example, if a city is grappling with a lack of electricity supply, a mining interest group could see the construction of a coal-fired power station as the top priority for the city to function well. In comparison, an advocate of an environmental group would see the research and development of sustainable energy technologies as the top priority for solving the city's energy problems. This difference in opinion often negatively impacts the general population's perception of politicians, especially if the user-pay principle is used.

The negative economic ramifications are independent of the construction phase and, if it impacts the country's economic situation, then it may even generate a "lost generation" for a country, as was seen in Japan in the 1990s (Rowley & Hall, 2007). The "lost generation" occurred as a result of crippling infrastructure costs, due to a weak currency. This

phenomenon can also be understood by calling it “a lost generation of development”. Despite the advances made in infrastructure implementation, the debt occurred in building these projects set the country back economically to such a degree that the country has yet to recover.

2.2.4 Economic multiplication effects

Economic multiplier effects are often cited by sponsors of mega projects, on a very basic level. The argument is that once the mega project has been built, it will lead to economic development in the area, either by creating new spaces for development (as in the argument for urban renewal), or by improving the quality of life of the person on the street. For example, if journey times to and from work are shortened, people can spend more time at work and more time at home, making them more productive (Bruzelius et al, 2003:72).

The problem with economic multiplier effects is that the anticipated economic multipliers may never materialise. Just because a project has upgraded the quality of public transport in a city does not necessarily mean that all people will use it. This factor also occurs once feasibility studies have been completed, although they are often used as advantages during the process of getting a project approved. The literature has shown that it is almost impossible to accurately forecast the economic impact that a mega project might have, especially if construction periods are very long.

A problem inherent in all four of these indicators, which does not receive enough recognition in the literature, is that the people who are completing these feasibility studies are only human, and may not always make these mistakes on purpose, even though Bruzelius et al (2003:16) choose to differ that mistakes can be attributed to human error, by saying that the knowledge surrounding mega project forecasting has not improved over the last seventy years.

2.3 PUBLIC SUPPORT

When discussing the public support factor, one has to consider how members of the public have reacted to the project. It is often more difficult to gauge the nature and magnitude of public support than it is to determine, for example, the likelihood that a project achieved its construction goals or had a positive cost to benefit ratio. This is because the will of the people is not something that can be broken down into numbers and analysed through statistical

analyses, unlike construction goals and the percentage of construction projects that run over budget.

As a primary outcome in their work on mega project analysis, Bruzelius et al (2003) note the importance of public input:

We see stronger involvement by civil society and stakeholder groups in mega project decision making as a prerequisite for decisions that are better informed and more democratic (2003:10).

This thesis highlights the role played by public support in the analysis of the GFIP mega project seeks to determine if this particular case study did, in fact, heed the words of Bruzelius et al (2003).

2.3.1 Public support: Positive reactions

It is necessary to evaluate both the positive and negative sides of public support, but it will be the goal of this thesis to determine the positive support before shifting focus to the negative. Positive public support may come from a variety of sources, for example, a mine or a factory may support mega projects that seek to upgrade infrastructure that will directly improve the performance of their operations. New power stations which will guarantee an uninterrupted power supply, or transport infrastructure that will decrease the time it takes for their employees to get to work, will most likely receive positive support from these businesses. These and other examples of support for mega projects will be fully investigated in Chapter Five.

One of the more difficult issues that have arisen when dealing with the Gauteng Freeway Improvement Project (GFIP) and the associated e-Tolling mega project is that there is a distinct difference in opinion and support for the GFIP and the e-Toll. While there have been many different sectors of society who have come out in support of the GFIP, it is with the e-Tolling programme that most dissenting voices have taken issue.

2.3.2 Public support: Negative reactions

As with the positive reactions, the difference in reaction to the GFIP and the e-Tolling system has made this analysis challenging. The GFIP and the e-Tolling system cannot be investigated independently of one another because of the way that the project is designed.

The result of this is that there have been many positive reactions to the GFIP that have, at the same time, been critical of the e-Tolling system, which makes the analysis of the negative reactions difficult. The analysis of the positive reactions has been just as difficult for the same reasons.

The variety of organisations that have come out in criticism of the GFIP include civil action groups, political parties, social responsibility programmes and a vast mix of individuals who have personally spoken out against the programme. Chapter Five will explore in greater depth the grievances and reasons for these grievances by these various organisations.

Bruzelius et al (2003:10) highlight the danger of having negative reactions to mega projects, noting that mega project planning needs the “involvement of informed and active citizens, enjoying a mature, adult-to-adult relationship with experts and with politicians”. This thesis will determine if those responsible for the planning and execution of the GFIP have created this relationship.

2.4 OPERATIONALISATION

This final section of the chapter outlines the practical steps as to how the Gauteng e-Tolling project will be analysed in the chapters to follow. Bruzelius et al (2003) identify three main points of analysis for mega projects: economic sustainability, public support and environmental concerns. This analysis will not include a chapter on the environmental ramifications because the nature of the project is that of upgrading an existing network with no new environmental impacts other than a possible change in the volume of fuel emissions. A discussion regarding the economic ramifications will take place in Chapter Four.

Therefore, the practical steps for analysis will be:

Chapter Three: Background

- Introduction and motivation for the GFIP
- Upgrading Gauteng to world class standards
 - Construction goals of the GFIP
 - Traffic goals of the GFIP
- Relevance of the project to society
 - Original feasibility study
- Motivation for Open Road Tolling (ORT)

- Relevance of e-Tolling
- Financial goals of the GFIP
- GFIP submitted to cabinet
- Challenges to e-Tolling
 - Alternatives to e-Tolling
 - E-tolling
- Construction begins

Chapter Four: Economic

- Have construction costs for this project been underestimated and why?
- Have potential revenues been overestimated and why?
- What are the negative economic ramifications of the project?
- Have (or will) economic multiplier effects materialise as promised by the project promoters?

Chapter Five: Public interest groups

- What is the impact of the project on broader society and what has the reaction of these specific interest groups been?
 - Tariff announcement
 - Opposition to Urban Tolling Alliance
 - Political reaction
- Is the project sustainable?

2.5 CONCLUSION

To conclude this chapter, two main themes emerge. Firstly, the evolution of the different political eras and how these eras have gone about shaping the current state of mega projects. Secondly, the key indicators that have been outlined in Section 2.3 which can be referred to as a road map for the rest of the thesis.

This study determines the success of one of the largest road-traffic infrastructure projects undertaken on the African continent. With a total cost to date of over R20 billion (\$1.8 billion), the Gauteng Freeway Improvement Project is the largest road-traffic infrastructure

project undertaken in South Africa in monetary value. While the monetary value of this project pales in comparison to the money spent on energy generation,⁴ the GFIP is the most expensive road-traffic infrastructure project undertaken in South Africa.

⁴ Ingula pumped storage scheme cost R29 billion; Medupi and Kusile coal-fired power stations have been officially quoted as costing just over R30 billion each, but certain media reports have rumoured the projects to be costing over R100 billion.

CHAPTER THREE: CONTEXT AND GOALS OF THE GAUTENG FREEWAY IMPROVEMENT PROJECT

This chapter introduces the Gauteng e-Tolling project in as much detail as possible to gain an appreciation of the unfolding events. This sheds light on the two chapters that follow, that deal with the economic calculations of e-Tolling as well as the role of public support.

The chapter begins with a brief introduction of the motivation for the GFIP. Following this, is the need to upgrade to world-class standards followed by a description of the construction goals of the GFIP. These construction goals include the need to widen roads and bridges, decrease the need for cars having to travel across lanes by introducing loop onramps and flyovers, and median lighting improvement planned for the entire road network.

In the next section the traffic goals are outlined. These include the need to integrate different public transport initiatives, as well as to improve the management of accident scenes on the route. The implementation of an intelligent traffic system is the final traffic goal outlined in this section. Once the traffic and construction goals have been outlined, the relevance of the GFIP is questioned in Section 3.3 which outlines the original feasibility study commissioned by SANRAL. Once the feasibility study has been explained, this chapter deals with the motivation for open road tolling. In Section 3.4, the relevance and the challenges to e-Tolling are discussed before the chapter moves on to the financing goals of the GFIP which are discussed in Section 3.5 together with the merits of various alternatives to e-Tolls. Once the alternatives have been discussed, the benefits of the e-Toll system itself are analysed in detail. The chapter concludes with the finalisation of the planning phase of the GFIP. The process is ended when the GFIP is submitted to and accepted by the South African cabinet. Following this, construction begins.

3.1 INTRODUCTION OF, AND MOTIVATION FOR, THE GAUTENG FREEWAY IMPROVEMENT PROJECT

The Gauteng Freeway Improvement Project (GFIP) is the name given to the project outlined by the South African National Roads Agency Limited (SANRAL) as a result of its 2004 feasibility study. This feasibility study found that the roads in Gauteng were in need of a major upgrade and overhaul in order to support economic growth in the province. These upgrades were in line with normal estimates for road upgrades. It was also found that economic growth could slacken if sufficient provision was not made for population growth,

shifting trends in public transport usage and the attractiveness of the province as a destination for many job seekers from around the country.

The GFIP consists of upgrading and improving the existing road network in order to keep up with the growing traffic demands. There is a need to improve the physical road surface, which includes using new road paving techniques such as the incorporation of ultra-thin friction course (UTFC) asphalt, a technique that drastically reduces the amount of gravel used in the bitumen and asphalt when tarring roads. UTFC has been the dominant surfacing course used in the UK and most of Europe since the early 1990s. UTFC was introduced to South Africa in 1998 (Shell, 2003).

Furthermore, these upgrades entail measures that seek to combat traffic build-up, the removal or easing of known traffic bottlenecks and the improvement of road surfaces. Intelligent Transportation Systems and live traffic feeds were identified as necessary elements to reduce the burden of traffic build-up on high usage routes. Practical steps taken to ease the traffic problem included the widening of high-load routes and potentially the redirection of traffic onto alternate routes (Gauteng Freeway Improvement Project, South Africa, [sa]).

In terms of removing bottlenecks from the traffic network, there is the possibility of widening bridges, improving slipway areas and removing any traffic crossover sections that hinder free-flowing traffic. Slipways are the roads used to enter or exit major routes, such as when travelling from a regional road onto a main road. Traffic crossover sections are areas often found on bridges. When a road user is travelling north on a road, then wishes to proceed east, he/she would normally have to turn across the traffic travelling south. This cross cutting is removed by introducing traffic loops, as illustrated in Figure 3.1. Median lighting, the lighting that is provided in the middle of a road system with a gap between the two directions of traffic, was also highlighted as a distinct goal of the GFIP in order to improve the safety of road usage.

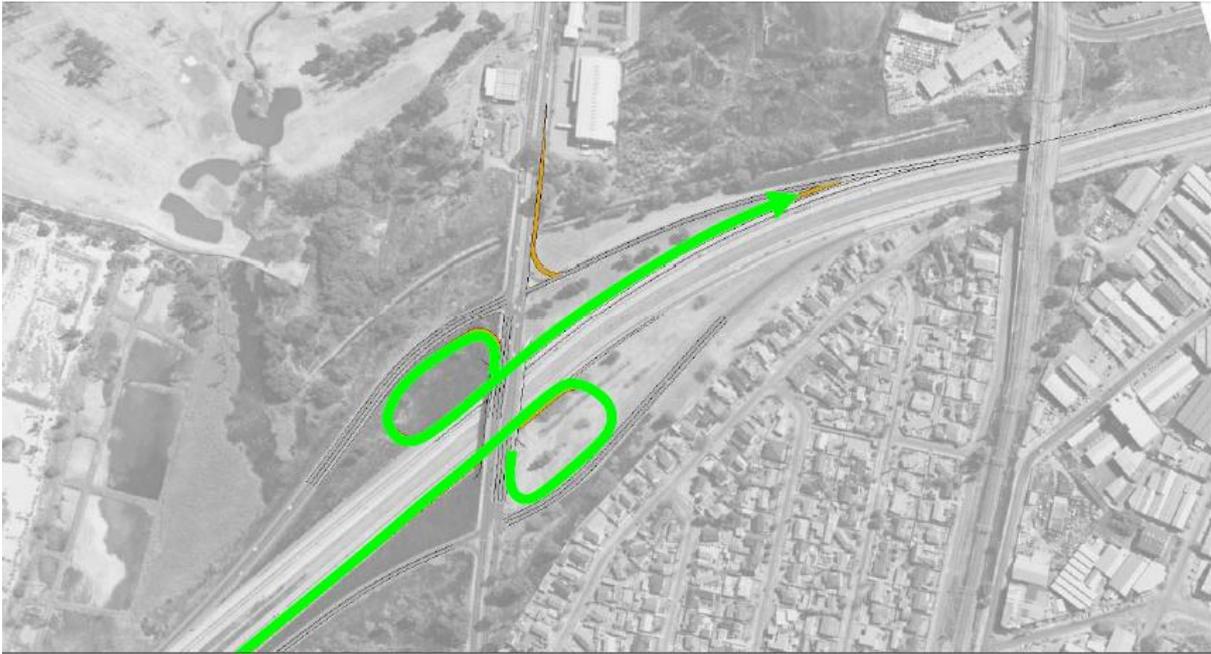


Figure 3.1: N1 Maraisburg interchange

(Source: SANRAL. 2008. *Presentation: Boosting Economic Growth, Reducing Traffic Congestion*. 12 November 2008)

3.2 UPGRADING GAUTENG TO WORLD-CLASS STANDARDS

UTFC was introduced to South African roads to keep up with the latest global trends. The benefits of this type of surfacing are that it improves the skid resistance of the road, while, at the same time, reducing the noise level experienced. In terms of water management, the UTFC used by SANRAL since its introduction to mainstream road construction in 1999, after the trial run in 1998, is exceptional as it increases the speed at which water drains from the surface of roads and has therefore reduced spray generated by cars. The final three benefits of UTFC are especially relevant in the South African case: firstly, it has a faster curing time than any other traditional road surface design such as traditional, rough-tarred roads especially when compared to concrete roads. This means that the road surface is able to be used more quickly once it has been laid, which decreases the time that road users have to wait during construction periods. A common cause for consternation amongst most South Africans is thus reduced, because the time that roadworks take is decreased.

The second and third of these three distinctly South African benefits is that the surface is both hard wearing and impermeable, meaning that the maintenance operations on the road occur at longer intervals than on a traditional road surface. This means that time is not lost by road users waiting in traffic congestion whilst roads are tended to. Naturally, this leads to an increase in productivity and an increase in quality of life for the affected road users (Roux,

Rossmann & Kannemeyer, 2011:2).

As a result of benefitting from an impermeable surface, the UTFC does not degrade in the same way as traditional road surfaces, which tend to have large amounts of loose gravel on their surface once the road surface begins to deteriorate. Obviously this leads to vehicle damage, which, once again, increases the cost of usage for road users. This is not an explicit goal of the GFIP, but is a secondary effect that links in with the overarching theme of trying to foster economic growth in the Gauteng Province.

The next section examines the original feasibility study done by SANRAL and completed in 2006, to determine the way forward for the proposed GFIP.

3.2.1 Construction goals of the GFIP

The explicit construction goals of the GFIP were to upgrade and expand infrastructure in order to maintain Gauteng's competitiveness on a regional and global scale. More specifically, the project looked to improve interchanges so that road crossing was minimised ensuring that the interchange became safer. Finally, median lighting improvement was also an explicit goal in the pursuit of increasing the safety of the roads affected by the GFIP.

Undoubtedly, the GFIP managed to increase and expand the infrastructure available to road users in Gauteng. The road surface has been improved and, in most parts of the project, the road has been widened to at least three lanes and, in some select cases, as wide as six lanes travelling in each direction. Due to the nature of the funding of this project, this first construction goal, to upgrade and improve infrastructure, was achieved before the project had been completed.

Road crossing, or more simply, travelling across lanes, has been identified as a major cause of car accidents across the world. This is because it relies on the driver's own judgement to determine when it is safe to cross a lane and when it is not (Erasmus, 2006:35-36). What the GFIP has attempted to do is to remove situations where cars have to turn across lanes to reach their destination. This has resulted in the construction of many "loop on-ramps". Figure 3.2 is a prime example of loop on-ramps (SANRAL, 2013).

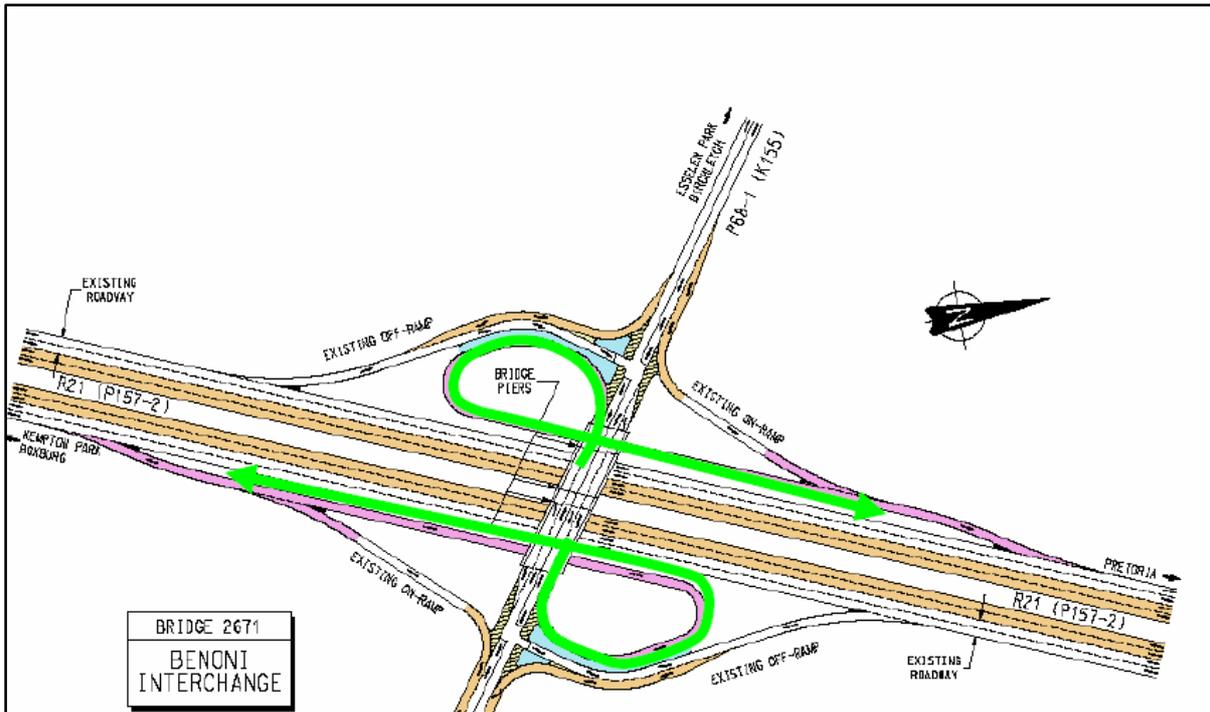


Figure 3.2: R21 Benoni Interchange: Example of loop on-ramps
 (Source: Hennie Kotzé Presentation, 12 November 2008)

These loop ramps, both on- and off-ramps, serve to increase the speed of traffic flow and also eliminate the need for road users to stop before turning. Increasing traffic flow and removing travel retardations allow the GFIP to offer time- and money-saving services outlined in this chapter.

Similar changes include the construction of flyovers at intersections that were previously heavily congested. The intersection of the N1 and the R21 is an excellent example of this, where the flyover was constructed. This flyover meant that people travelling from the airport on the R21 coming from a south-westerly direction now travel over the top of the R21 westbound and the N1 northbound before safely merging with the N1 northbound, without having to turn across any oncoming traffic (Figure 3.2).

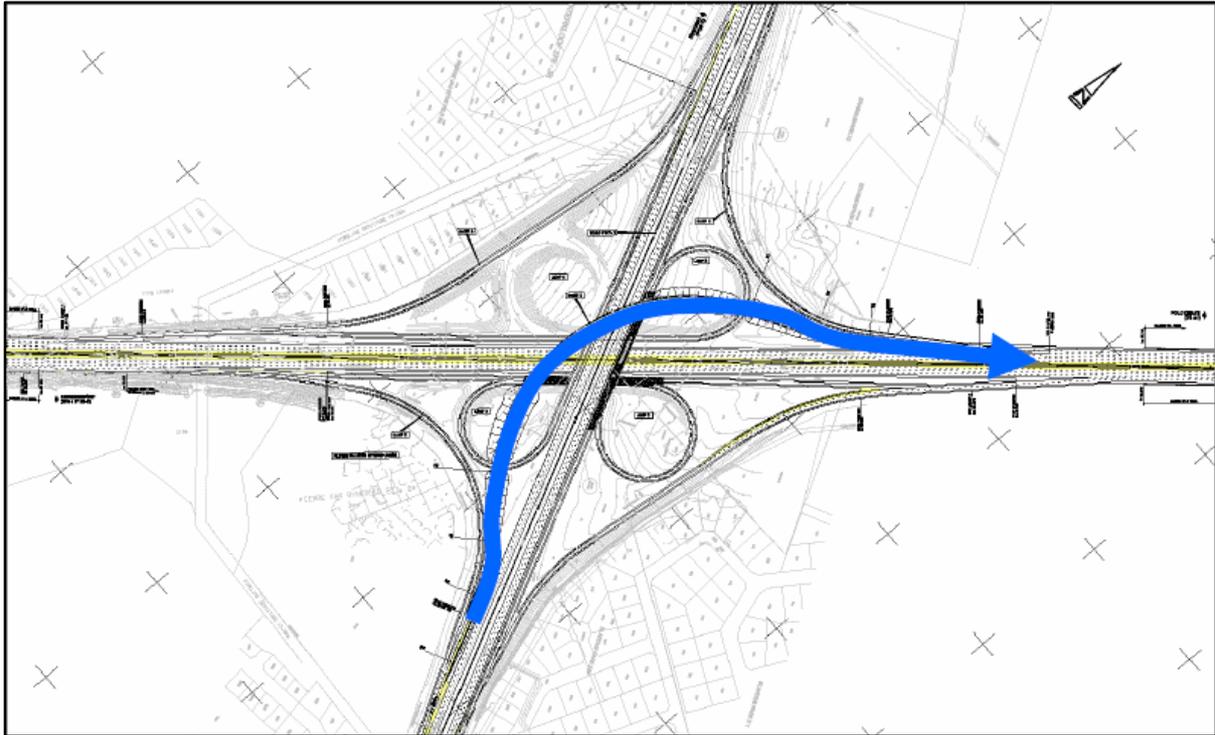


Figure 3.3: N1/R21 Interchange: Example of a flyover
 (Source: Hennie Kotzé Presentation, 12 November 2008)

The final construction goal of the GFIP was to upgrade and increase the median lighting present across the whole road network across the GFIP. This was done by increasing the amount of lighting available in the median itself, as well as installing additional lighting along the sides of the roads. Once again, this was done in the pursuit of safety and was completed on schedule (Weidemann, 2010:9).

In terms of the construction goals, the GFIP has achieved its goals: both the quality and quantity of the infrastructure was improved. The interchanges were all improved and have been completed. In addition to the reduction of cross-road turning activity, many bridges were widened to reduce the congestion found on Gauteng's roads and to cope with the increased traffic flow facilitated by the widening of the roads. The increase in median lighting has also significantly contributed to the roads becoming safer since the GFIP was implemented. Of the three overarching GFIP goals, construction was definitely the most successful.

The next section will assess the traffic-related goals of the GFIP.

3.2.2 Traffic goals of the GFIP

The three main target areas of the traffic goals of the GFIP were the integration of the various

transport initiatives in the Gauteng Province, the improvement of accident management and the implementation and use of an intelligent traffic system (ITS).

3.2.2.1 Integrating public transport

The Gauteng Province has many different strategies in place to facilitate the transport of the province's citizens to and from home and work. The GFIP, the Bus Rapid Transit (BRT) system, the High-Occupancy Vehicle (HOV) lanes, the Gautrain and Metrorail are the systems that the GFIP sought to integrate and to improve their potential to work together in dealing with the high volume of commuter traffic in the province (Kotzé, 2008:3).

The HOV has, to this day, not been successfully implemented, despite having a trial run in the past. The idea behind the HOV is to decrease the number of cars on the road by offering an express lane or two on the highway where cars with two or more occupants can drive. By offering the bonus of an express lane, it has the potential to entice more people to a carpool, thus reducing, not only the amount of cars on the road, but also decreasing journey times and carbon emissions.

Despite the implementation of an HOV lane in Gauteng in 2006 and 2007 as a trial period, the HOV lanes have failed to materialise as a permanent structure on Gauteng's roads. In 2007, shortly after the trial period had ended, Ignatius Jacobs, the then provincial minister for public transport, hailed the system as a success (ITS South Africa, 2007). Even though trial periods like this one have shown promise in the province, a lack of consensus as to how HOV lanes should be implemented have seen the HOV lane moved to the back benches of traffic management initiatives in the Gauteng Province (De Vries, Bester & Van Biljon, 2010). Note also that experts in the field cannot agree whether the HOV lane should be in the slow left lane or the fast right lane; each has its own benefits and drawbacks.⁵

The Gautrain system has been in place since before the 2010 Soccer World Cup and was set to gain massively with the introduction of the Open Road Tolling fees of the e-Toll system. Once the tolling had started, the use of the Gautrain was set to increase because it would become comparatively cheaper. The Gautrain has benefitted from the introduction of the GFIP tolling fees, however, the integration of the BRT system has not yet fully materialised,

⁵ See de Vries, Bester and van Biljon (2010:87-89) for a more detailed explanation.

even though the bus service offered by the Gautrain itself is exceptional.

Smith (2013) notes that Gautrain passenger numbers increased by almost ten per cent in the first week of GFIP tolling. Passenger numbers collected by the Gautrain Management Agency showed an increase of 5 000 passengers per day, from 47 400 on 3 December, to 52 400 on 4 December on the train. The travellers on the Gautrain bus service also increased from 18 000 to 21 000 in the same time period.

The Bus Rapid Transit system was introduced in the run-up to the 2010 World Cup with the goal of increasing the appeal of public transport within the Gauteng Province. Among many of the problems before-hand were that the bus system at the time was outdated, the buses used were not of the highest safety standards and generally the journey time was much longer by bus than by car (Wright, 2006:5). With the introduction of the BRT system, a fleet of new buses was purchased and road upgrades meant that there were dedicated bus lanes which would lead to reduced journey times. Although the system has been around since before 2010, it has not managed to take off as the promoters of the system have wished (Walters, 2013:34-36). Problems that have been associated with the slower than expected introduction of the BRT systems include changing the public perceptions of bus travel for the average commuter. The viability of certain routes and the price of the service were identified by provincial and municipal governments as issues that needed attention. These issues have been given attention through stakeholder interaction meetings. The outcome of these meetings has seen the BRT system becoming more viable.

Similar to the bus system, Metrorail has suffered from distinct class stigma in the recent past, due to its image of serving the lower class. As a result of this perception, Metrorail's services have not managed to achieve increased passenger numbers (Bester, 2009:75-76). Although the upgrade to the rail network prior to the 2010 World Cup served to improve the quality of the rail services, it is by no means viewed as a universal service for all commuters.

The first traffic goal of the GFIP, which was to integrate the different forms of public transport options, can be viewed as a failure. Although the amount of people using the Gautrain has increased as well as its bus service functions, there are still several shortcomings. The BRT service is by no means comprehensive in Gauteng and the fully integrated BRT systems are still not operational in either Pretoria or Johannesburg. Both the *A re Yeng* (the BRT system in Pretoria) and the *Rea Vaya* (the BRT system in Johannesburg)

are scheduled to be fully operational by early 2015 (Du Plessis, 2010:62-63).

Although it was an explicit goal of the GFIP to integrate and promote all forms of public transport, this integration has not yet occurred. Whether or not the project manages to integrate and promote these projects in the future remains to be seen. It is the opinion of this author that these goals of integration are far from being met.

3.2.2.2 Improving accident management

The second explicit transport goal of the GFIP was to improve the response to accidents on the roads, which was a logical step after all the upgrades had been made to increase the safety of the roads (UTFC implementation, loop ramps, flyovers and improved lighting). This entailed not only reducing the likelihood of accidents, but also warning road users of varying road conditions (through the ITS that will be explained in more detail in 3.2.2.3).

As part of their presentation to stakeholders in November 2008, both Hennie Kotzé and Alex van Niekerk made reference to the need for SANRAL to “provide effective service to road users ... improve(d) level of efficiency” (Kotzé, 2008:36). This was in reference to the need for the GFIP to introduce the incident management system (IMS) to customers, which needed to have a fast reaction to broken-down vehicles and minor accidents. This was needed so that secondary and more serious incidents did not occur as a result of the first minor accident. Seen as a major cause of accidents, the tendency of road users to “rubberneck” at a minor accident scene, often leads to lowered concentration, which can lead to more serious traffic collisions.

The IMS was not designed to replace existing emergency services but to offer a more localised service that would have a faster response time. This was necessary because of the massive amount of congestion that is often caused by even the most minor of car accidents. Kotzé and Van Niekerk further cited the importance of the “golden hour”, which is the first hour after an accident, when the biggest difference can be made in the event of a serious accident (Kotzé, 2008:36).

The IMS would be required to react quickly to incidents but also to perform a more comprehensive service than merely providing “first aid” style medical attention. The operators of the IMS service would also have to be able to secure the accident location, divert the flow of traffic if needed, tow away vehicles and provide customer services once an

incident had occurred. The patrolling of routes would be done in conjunction with the local traffic police force.

The GFIP construction upgrades were in place before the IMS service was launched and before the e-Tolling system had started in earnest. The IMS of the Gauteng area has been exceptional in the time period between 2011 and 2013. The accident response times on the tolled route has improved despite the shortcomings of the e-Tolling system itself and, more specifically, the Violations Processing Centre. The IMS has been well managed and the accident management has been improved.

3.2.2.3 Intelligent Traffic System (ITS)

The Intelligent Traffic System was implemented before the Open Road Tolling (ORT) system and was launched before the start of the 2010 World Cup. The rationale behind the ITS system was that, by providing road users with extra information, road users could make informed decisions regarding their choice of route and necessity to travel (Vanderschuren, 2008:811). The hope was that, once the road users had been furnished with additional information, they would be able to reduce congestion, especially when traffic flow had been disrupted as a result of a traffic collision, a stationary vehicle or something similar. Figure 3.4 is an example of a typical ITS sign that delivers information to road users.



Figure 3.4: ITS sign
(Source: Skyscraper City, 2013)

The ITS system is unique in terms of traffic technology because it has the ability to provide live, real-time feedback to road users and it places the power in the hands of the motorists. By placing the decision-making freedom in the hands of the motorists, the ITS system can run autonomously and does not require constant input by public service divisions such as the

traffic police or SANRAL officials.⁶

The ITS system has been implemented successfully in the Gauteng Province since 2009 although some experts have questioned if the system works as effectively as it should, due to the people operating the system not being fully competent with the technical aspects of the system. Some argue that there are not enough information boards along the route to sufficiently inform road users of the situation ahead and the information boards are not intelligent enough to react to changes in traffic patterns fast enough. The introduction of the Intelligent Traffic System has seen a slight decrease in congestion, although the system has not had the overwhelming effect that some of the systems proponents were hoping for.

The introduction of these systems, whether they be construction or traffic goals, have seen the experience of using the GFIP roads become more pleasant. The construction and traffic goals of the GFIP have outlined what the planners of the system wanted to achieve and the next section will investigate the relevance of the project.

3.3 RELEVANCE OF THE GFIP AND THE E-TOLLING SYSTEM

In order to determine the relevance of the GFIP and the accompanying e-Toll system, it is necessary to make a distinction between the two. Although Chapter Five will deal with the formation of the Opposition to Urban Tolling Alliance (OUTA) in greater detail, however, it is important at this stage to note its stance. Even though the organisation is vehemently opposed to the e-Tolling system being implemented in Gauteng, it agrees that the GFIP was a necessary and needed project.

The project is relevant to the people of both Gauteng and South Africa as a whole, because Gauteng is the figurative heart of the South African economy which generates growth for the whole country. In more literal terms, Gauteng produces upwards of 38 per cent of South Africa's Gross Domestic Product (GDP), more than any other single province. The GFIP is extremely relevant and should benefit all people in South Africa, although some more indirectly than others.

⁶ The ITS system can run autonomously meaning that once one person has updated the system from a central server, then all of the ITS boards can display the relevant information to the road users. This is as opposed to older road sign usage, which needed to be updated on site and at every point that the information needs to be processed to road users.

When compared with the local area, South Africa, specifically Gauteng, has arguably the best road network in the Southern African Development Community (SADC) region. Since its construction, the road network has been well managed and maintained. The area that the GFIP covers is also the most heavily used collection of roads in Southern Africa. This means that if the GFIP were not to have occurred, then the lifeblood of the South African economy would have become hamstrung by the traffic in the Gauteng Province. It is in light of these demands that the original feasibility study was commissioned.

3.3.1 The original feasibility study

A feasibility study for the GFIP was launched by SANRAL to determine what the cost of the programme would be. In 2006, the findings of the original feasibility study were presented to the SANRAL board, at which point the cost for the GFIP was estimated at around R6.8 billion. The goals for GFIP (as mentioned earlier) were to solve Gauteng's congestion issues and provide access to the neglected western and southern townships of Johannesburg. The implementation of an Intelligent Transportation System (ITS), as well as the Travel Demand Management (TDM) system, were also explicit goals of the GFIP.⁷ These improvements were necessary in order to facilitate the implementation of high occupancy vehicle lanes and the Bus Rapid Transfer (BRT) system (AA website, 2010). These were all central issues to the feasibility study at the time although some issues have fallen by the wayside, as described earlier.

Once the original feasibility studies had been completed to determine what would be needed for the GFIP to succeed, it was necessary to open up the tender process for the upgrading of these roads (not yet for the implementation of the electronic tolling system, but indeed the "normal" upgrades of the roads). These tender processes were concerned with the upgrading of the existing 185 kilometre road network, that has come to be known as GFIP Phase One. The companies that were invited to tender for the various sections and sub-sections of phase one included Aurecon, BKS, Africon, Civil Concepts, Nyeleti and Vela VKE (SANRAL website, 2014).

The tender process was split into two sections, which began with a pre-qualification phase.

⁷ These concepts have been explained in greater detail in their designated sections, specifically TDM: 3.2.2.2 and ITS: 3.2.2.3.

This pre-qualification phase ensured that only suitable companies were considered for tenders, those that would definitely be able to handle the workload of implementing the various sections of the mega project. The first section of the tender involved a wide array of companies, who were expected to present broad tender documents, to determine the validity of the tender documents. Each tender that was considered a viable option for the project was then inspected by an independent auditor, an industry specialist (often, more than one) and the SANRAL contracts committee (SANRAL Annual Report, 2011).

Once the validity of the tender had been established, the companies tendering for phase one of the different work packages of the GFIP (A, B, C, D1, D2, D3, E, F, G, H, I, J1, J2 and K) were allowed to submit a detailed technical analysis of the proposed work area (See Figure 3.5 for a detailed map of the work packages). This means that SANRAL had complied with their constitutionally mandated transparency processes which was implemented to counter the growing threat of fraud in construction tenders.

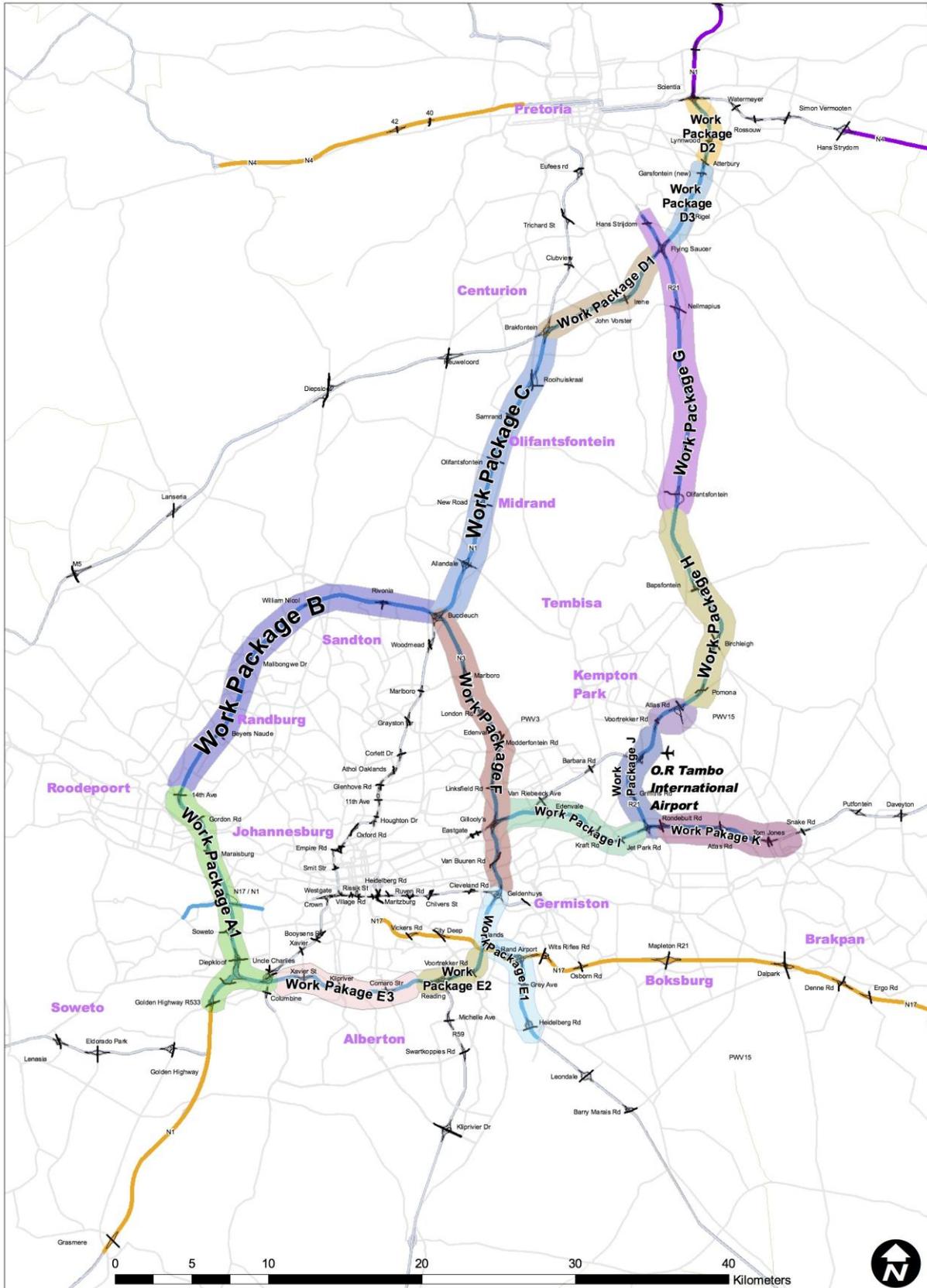


Figure 3.5: GFIP work packages

(Source: GFIP work packages

http://www.nra.co.za/content/GFIP_Work_Packages.pdf?Session_ID=76d5a2f77a1a9ab6f26ee42e3f6f847e)

3.4 MOTIVATION FOR OPEN ROAD TOLLING

During the preliminary stages of planning for the GFIP, the user-pay principle was identified as an effective way of dealing with the issue of funding the project. This was determined as a necessary principle, due to the budget constraints that had been placed on the national treasury in the wake of the 2007/8 global financial crisis. The weakening economy and its knock-on effect on the Treasury was paired with a decrease in public, private partnerships (PPP), which led to a radically reduced budget available to the GFIP (Burger, Tyson, Karpowicz, & Delgado Coelho, 2009:14-15). Naturally, a more equitable option had to be found or the idea of scrapping the project altogether had to be considered as an option.

Due to the project being viewed as crucial and necessary, there was never the option of postponing the GFIP. The massive amounts of capital required⁸ to finance the mega project determined that the project would have to seek funding outside the usual scope of government-funded projects. Due to the project only occurring in one province, it was deemed inappropriate that a national tax or levy (such as the fuel levy) could be implemented to finance the project (a point disputed by OUTA, details will follow in a later chapter).

As a result of this, the user-pay principle was identified as the most effective way of financing the GFIP. The motivation for GFIP is not only the two points mentioned in the previous paragraph, but also, under normal conditions, a road upgrade has to compete for funding priority with many other projects, such as housing, medical infrastructure, plumbing and sewage works, or even other infrastructure mega projects such as the Gautrain or the Soccer World Cup stadia (Van der Westhuizen, 2007). User-pay funding, on the other hand, ensures that the money collected by the tolled road is used only in the pursuit of improving the specific road network and does not force people to pay for something that they are not using (as would have been the case for people in Cape Town, who never use the Gauteng road network, had the price addition been made to the fuel levy) (Pienaar, 2012:4).

Tolplan toll road management and engineering consultants were responsible for the economic feasibility study undertaken in 2007. In this study, Tolplan was responsible for performing traffic investigation, modelling traffic reaction to tolling, estimating operating costs and performing detailed financial modelling for the repayment of GFIP (Tolplan website, 2014).

⁸ The specific amounts are discussed in far greater detail in Section 4.1.

It was during this study that the idea of Open Road Tolling (ORT) first came into the equation, because Tolplan had experience in implementing these systems in Greece, Poland, Hungary, Brazil, Malaysia and New Zealand. It was seen as the ideal company to perform the study, along with the added environmental and economic benefits of open road tolling, in comparison to traditional toll roads. The proposed e-Toll system was widely hailed as revolutionary for South Africa.

The Build, Operate and Transfer (BOT) toll system is viewed today as an outdated tolling system because of the manner in which it hinders traffic flow. Because of the fact that road users have to decelerate, come to a stop and pay the toll fee before accelerating once more, the BOT is viewed as an outdated system, especially when compared to the ORT system, which does not hinder traffic flow. It is in this hindrance of traffic flow where most of the negativity surrounding BOT systems emerges. When traffic flow is hindered, vehicles use more fuel, emit more carbon dioxide gases into the air and are more expensive to run over a long period of time.

The benefits that the ORT system brought to the table, when being compared with the more common BOT toll systems, include unhindered traffic flow and decreased emission levels (AA website, 2010). The ORT system leads to decreased emission levels because road users do not have to slow down and speed up again as they would have to with the traditional toll booths found on many of South Africa's tolled roads, especially the N1 between Johannesburg and Bloemfontein, the N2 that traverses the Eastern Cape and KwaZulu Natal, the N3 between Johannesburg and Durban and the N4 that essentially runs from the South Africa/Botswana border through the North West Province, Gauteng and Mpumalanga before continuing through the South Africa/Mozambique border post.

The investigations into the user-pay principle, the feasibility studies carried out by Tolplan and the specific investigation into ORT occurred before someone investigating the benefits of an e-Toll system noticed the key benefits of tolled roads as mentioned earlier in Section 3.1.1.⁹ By improving the flow of traffic and removing bottlenecks on main routes, the GFIP sought to improve the driving experience for all drivers who use the roads in Gauteng. These two factors, in addition to the introduction of a better road surface, led to significant savings

⁹ These key benefits include the sole use of the tolls collected for maintenance and upgrade of the roads and that the tolls collected do not have to compete for government spending priority.

for people using the roads, even though most of these savings are indirect and, as a result, less obvious to the media and the person on the street.

Improved traffic flow and fewer bottlenecks lead to less traffic, which in turn leads to better fuel consumption, which saves the user money, but also lightens the burden that is placed on the environment. Less traffic and a better road surface also reduce the amount of wear and tear that a car experiences under normal operating conditions which, once again, indirectly saves the user money. Not only does less traffic provide the user with an indirect economic benefit, but it also serves to improve the user's quality of life. Less stress is experienced by the driver and he or she has to spend less time on the road, which leads to an increase in time at home or at work, which directly boosts productivity.

The often overlooked knock-on effect of tolling is that it does not only provide the company managing the road (SANRAL) with increased access to funds and in a shorter time frame than would normally occur when a premium is placed on using the road (in the form of the toll), but the toll acts as a congestion charge, reducing unnecessary trips and lightening congestion (Haiden, 2003). Detractors of the GFIP have often noted the alternate route argument was flawed, because there are no directly alternate routes available. This is, however, not correct. There are many alternative routes to all the freeways involved in the GFIP. Naturally, the journey times are going to be longer, but that is the point of paying for preferential road use, so that one benefits from paying. Finally, the benefit of increased safety cannot be underestimated, as this arises from the improved road surface and reduced congestion. Furthermore, fewer traffic collisions occur on higher quality roads. All of these benefits will be discussed in more detail in Chapter Four, where the economic analysis of the GFIP and the Gauteng e-Tolling scheme will be analysed in more detail.

3.4.1 The relevance of e-Tolling

In general, the GFIP has been welcomed by all sectors of society. It is with the open road tolling system that the majority of people have voiced their grievances. The e-Tolling scheme has been accused of being unconstitutional and not in the best interests of South Africans. Insofar as the e-Tolling scheme is concerned, despite its increase as a chosen method of toll collection across the world, the people of Gauteng are most unhappy with the system. The people of Gauteng feel that, not only does the e-Tolling system tax them unfairly (Section 5.3 will refer to the "double tax" argument), but that the government is in dereliction of its duty

of providing South Africans with a functioning and well-maintained road network.

While the South African public is often very fickle, no single issue has been better able to get the South African public focusing on the same issue than the Gauteng e-Tolling system. While Sections 5.3 and 5.4 will serve to analyse in depth the response of the public and the sustainability of the project, the e-Tolling project is relevant because it has had the ability to draw a public reaction from so many different groups of people in South Africa. The list of civil organisations that have taken issue with the e-Tolling system is exhaustive; political parties such as the Democratic Alliance, the Freedom Front Plus, the Economic Freedom Fighters and even the ANC in Gauteng have weighed in with their respective opinions and problems.¹⁰

The Congress of South African Trade Unions and the National Union of Mineworkers (NUM) have all noted the effect that the e-Tolling system has on their workers. The e-Tolling system has achieved such widespread criticism that some branches of the Catholic Church in South Africa have spoken out against the system. In May 2013, the *Mail and Guardian* reported that the “Southern African Catholic Bishops Conferences (SACBC) ... supported [the] Opposition to Urban Tolling Alliance in its case against e-Tolling” (SAPA, 2013).

The relevance of the e-Tolling issue is overwhelming; it affects every single person in the country on varying levels and has united government opposition in a way that no policy decision ever has. Section 5.1 analyses why the ruling party decided to push through with this highly unpopular system right before the 2014 General Election, even though it knew that it would inevitably cost it at the ballot box.

3.4.2 Challenges to e-Tolling

As early as 2008 there were challenges to the e-Tolling system, which were outlined by the management of SANRAL in a presentation in November 2008. Hennie Kotzé and Alex van Niekerk outlined the potential challenges that would be facing the e-Tolling system if it became operational. In the presentation, the many benefits of the system were outlined, along with the practical steps that would have to occur to reach the goal of completing the GFIP in order to “boost economic growth by reducing traffic congestion” (Kotzé, 2008:1).

¹⁰ For a detailed description of these political parties’ list of grievances, refer to Chapter 5.

These challenges were outlined as follows: public acceptance, reconciliation between affordability and financial viability, tag penetration, differing payment options, instilling payment discipline in road users, accommodating non-permanent users, traffic management and, as is the norm with most construction projects, time constraints (Kotzé, 2008:39-40).

The problems described by Kotzé have far-reaching implications and are some of the problems on which Chapter Five of this thesis will focus. These problems were addressed during and before the construction phase for GFIP began and the problem of public acceptance was addressed during the “intent to toll process”,¹¹ with the various advertisements appearing in mainstream media, as SANRAL has claimed.

The problem of attempting to reconcile affordability and financial viability is a problem that is further discussed in Chapter Four of this thesis where it is investigated in much more detail. However, the basic premise of the user-pay idea was always going to be a difficult idea to sell to the public who often do not understand the finer workings of governments and government departments. The main thrust of most of the opposition to e-Tolling has come about as a result of people who mistake the fuel levy or traditional taxes as sufficient payment mechanisms for funding the GFIP.

The problems of tag penetration, how to manage different payment options and the enforcement of payment discipline are all interlinked problems that are unique to the GFIP in the South African context. In a country where the provincial traffic departments often face struggles enforcing the payment of traffic violation fines and where a culture of effective bureaucracy is perceived as largely absent, the problem of non-payment was always going to be an issue. Additionally, the management of different payment options was larger in South Africa than in many other developed countries. Due to the fact that South Africa does not yet have universal penetration of modern banking facilities, many users still rely heavily on a cash-based financial system, they do not have access to bank accounts and often do not even occupy formal dwellings, the task of collecting the toll money was always going to be a major challenge. Not to mention the challenge presented by the use of sophisticated information technology in the collection of tolls.

¹¹ The intent to toll process by which SANRAL sought to fulfil the constitutional requirements of public engagement before a new tolled route can be proclaimed

Traffic management is a problem, not only during the construction phase, but also once the upgrades to the roads were in place, because of the promise made by SANRAL that the GFIP would remove congestion and that road users would be paying for this service. This meant that most, if not all, of the traffic congestion problems had to be suitably solved. If this was not the case, road users could not realistically be expected to pay for a service that they were not receiving.

As with all large-scale construction projects, time constraints were always going to be an issue. An aggressive construction timetable, which expected large amounts of work to be completed in short time periods, in no way aided this. An aggressive timetable was established due to the extra problem of no road improvements being allowed to occur during the country's hosting of the 2010 FIFA World Cup.

The next section will seek to outline the financial goals of the GFIP and the Gauteng e-Tolling system.

3.5 FINANCING GOALS OF THE GFIP

The GFIP had very clear funding goals when the project was in the design stage. The most important of these goals was the need for sustainable long-term financing. Due to SANRAL being a state-owned company that is run like a private company, financing was always going to be a large stumbling block, as was described earlier in the thesis. The decision to make use of the user-pay mechanism will briefly be evaluated in this section, by analysing the other options available to SANRAL. Once the alternatives have been examined, a short analysis of the financial aspects of the e-Tolling system will be made to determine if the system achieved its financial goals.

During the preparation and planning phase for the GFIP, Hennie Kotzé and Alex van Niekerk, both from SANRAL, placed emphasis on the fact that the GFIP should be analysed over a thirty-year period, as is the norm for private projects in the construction field. This means that parts of this chapter will have to forecast future developments and not all the information can be drawn from empirical data. This section of the chapter will explore the alternatives to e-Tolling before analysing the e-Tolling system and explaining why the e-Toll option was chosen instead of some of the alternatives.

3.5.1 Financial alternatives to e-Tolling

During the planning of the GFIP, many options were discussed other than the user-pay principle. These options including a fuel levy, placing a levy on licencing or vehicle registration fees, using money accumulated from traffic fines, development impact fees, shadow tolling and conventional tolling. These will be briefly discussed and outlined in this section of the chapter.

The fuel levy is often cited today as a much more equitable financing solution for the GFIP. The main proponent of this solution is the Opposition to Urban Tolling Alliance (OUTA) that argues that if a fuel levy had been placed on commercial fuel sales when the project had started, then it would have sufficiently covered all the debt accumulated by SANRAL in constructing the GFIP. OUTA argues that this fuel levy would only have needed to be nine cents per litre to sufficiently cover the total construction costs of the GFIP (Botha, 2013). This claim by OUTA would have required the fuel levy addition across the whole country and, commencing in 2006, would have collected enough revenue to fund the GFIP.

The counter-argument on this point by SANRAL was that it would be unfair to place a fuel levy on the fuel for the entire country if the benefits of that fuel levy would only serve the people in Gauteng. The fuel levy was thus viewed as an inequitable solution by SANRAL because it shifted the burden away from the people using the roads onto others, who might never even see the road upgrades. Similarly, Vanderschuren (2012:11) noted that

[t]he collection of fuel levies is the most obvious choice for this. However, this is not possible in the South African context, and earmarking any of these funds is not possible under the current status quo.

The option of using vehicle registration or licence registration fees as a funding mechanism was also dismissed by SANRAL because it could not accurately predict whether certain road users would use the tolled roads or not. Even if someone lives right next to a tolled road, it does not necessarily mean that that person would make use of the road. Once again, it presented an unfair solution because people would be charged for merely living in the same province as the upgraded roads. Using registration fees as a funding mechanism also posed problems because it would drastically increase prices of these documents and this may push people to ignore these requirements and drive illegally, with unregistered vehicles.

Traffic fines are also problematic as a funding mechanism, because they are harder to accurately forecast. For example, it would be very difficult to accurately forecast what the total money generated from traffic fines would be in the future. As is also the case with the licence and registration fees, these fees are already being used to pay for a specific service, thus it is impossible to channel all the income that the funds generate towards the road upgrade project.

Development impact fees were also mooted as a possible funding option. Development impact fees are fees paid by companies that wish to construct new buildings, such as houses, shopping centres, business parks or anything else that falls outside the scope of government-backed infrastructure development. The fees are then charged based on the impact that the project will have on the infrastructure network. For example, a new shopping mall that expects five thousand customers per day, can be argued to increase traffic by at least two thousand cars per day in that area. The fee would then be determined by estimating the impact that an increase of two thousand cars will have.

The development impact fee was also dismissed as an ineffective method of funding because, once again, the amount raised is not guaranteed. Even if development is rampant in a certain area, the imposition of a development impact fee may make the area too expensive to embark on construction projects. Finally, development impact fees are usually charged to developers in order to cover the increased infrastructure costs, which would essentially be running the system in reverse (Clarke & Evans, 1999:282). In other words, charging the developer today for infrastructure that will only be needed in the future, is completely the opposite of what the e-Tolling system has done. The e-Tolling system has charged people today, for work done in the past, which will only be needed tomorrow.

Shadow tolling was also investigated as a payment method. Shadow tolling is an exceptional way of postponing toll payments during the construction and early usage phase. Shadow tolling involves a company building the specified set of roads with very little or no financial input from the government during the construction phase (Bain, 2009:478-479). Once the road use begins, the government is then responsible for paying a set amount of money to the building company per car that uses the road for a 20 to 30 year period.

This idea has been successfully implemented in the United Kingdom; other examples of shadow tolling also exist in the Netherlands and Finland (Haynes & Roden, 1999). The

option is, however, unlikely to succeed in a South African context, because there is not an established culture of private companies taking on the financial burden of generating the massive capital to embark on such a project. Similarly, the risk for government is also increased, because payment takes place over at least twenty years and contains an inherent risk, because it is impossible to know what the trajectory of road usage will be in the future.

Conventional tolling was also suggested as a financing option, but was excluded from discussions early in the planning process, due to the comparative advantages inherent in the open road tolling mechanism.

3.5.2 e-Tolling

In 2008, Hennie Kotzé and Alex van Niekerk (from SANRAL) outlined some potential challenges to the ORT system, known as the e-Tolling system. Overcoming these problems can thus be seen as goals for those involved in the GFIP. The five main problems outlined by Kotzé and Van Niekerk in 2008 were: public acceptance (which will be discussed in Section 5.1), effective revenue collection, instilling payment discipline, tag penetration and the effectiveness of the Violations Processing Centre (VPC).

There has been much dissent from the public regarding the way in which money is collected for the GFIP's capital repayment. Many have argued that the R10.1 billion awarded for the operations and maintenance of the toll collection systems for a period of five years was a poor choice of fund allocation. This was viewed as an ineffective means of revenue collection because it required the creation of additional infrastructure to collect these funds. This point is reinforced by the work of Vanderschuren (2012), who argued that, although the fuel levy cannot be used at this point in time because the legal framework does not allow it (as described in Section 3.5.1), the fuel levy would have been a better option. The reason for this is because the fuel levy increase does not require the creation of a new mechanism with which to collect the money.

An extension of this problem is the priority of instilling payment discipline in people affected by the GFIP. As with any new regulation that comes into force, those using the system have to become accustomed to it. This was highlighted as a problem facing the GFIP as far back as 2008. The lack of public acceptance and, in particular, the reasoning of many social activists

in South Africa encouraging people not to pay e-Tolls, have caused payment discipline to be very poor.¹² A good example of this was the declaration by the South African Catholic Bishop Conference's decision to urge their members not to pay e-Tolls.

A connected problem with that of payment discipline is the problem of e-tag penetration. The e-tag (as pictured in Figure 3.6) has not been selling as well as those involved with the GFIP would have hoped, because the people of Gauteng have been encouraged not to buy it and some claims made by OUTA have demonised the entire e-Tolling system.



Figure 3.6: An example of an e-tag
(Source: www.techcentral.co.za)

A lack of public support for the e-Tolling system has caused these social activist groups, such as OUTA and the opposition political parties, to gain a following for their campaigns against the e-Tolling system. The problem is symbiotic in nature: because there is a lack of public support, groups such as OUTA and others opposing e-Tolling gain a following. As these campaigns grow, public acceptance diminishes even further.

The lack of tag penetration means that there are more people who have to be served accounts

¹² Chapter Five will discuss in greater detail lack of public support for e-Tolling.

via the South African Postal Network than are willingly registered on the system and who have bought and registered their e-tags. Furthermore, the lack of tag penetration has meant that the Violations Processing Centre has had a massive amount of work to do.

The Violations Processing Centre (VPC) was built with the goal of recouping toll money owed to SANRAL and the GFIP project when a car uses the roads without having been registered with an e-tag. The VPC has had difficulty in this operation because the non-payment of notices has been high, a problem that is exponentially increased when there has not yet been a unified statement by either national or provincial government as to how people who refuse to pay the tolls will be prosecuted.

Road users who have not registered for an e-tag are photographed when passing under gantries. Following this, the number plate of the vehicle is matched to the make, model and colour of the car, to ensure that the details are correct and in accordance with the data on the AARTO and e-Natis systems. These systems are responsible for the identification and prosecution of road users in South Africa.

Before the e-Tolling system was launched in December 2013, some laws had to be amended in order to make allowance for the e-Tolling system to operate legally. This has caused some unforeseen problems, one of which is that there is no single clear stance on prosecuting people who refuse to pay for e-Tolling even after they have received accounts.¹³

Despite the plethora of problems that SANRAL faced in implementing the e-Tolling system, the decision was made to go ahead with the implementation of the system. The next step in this process was for the proposal to be submitted to cabinet for approval. Some of these problems, such as tag penetration, instilling payment discipline and the effectiveness of the VPC would come back to haunt SANRAL at a later stage but, due to financial constraints,¹⁴ the system could not afford to wait any longer before going online.

3.6 GFIP SUBMITTED TO CABINET

Before cabinet could approve the GFIP, SANRAL had to embark on the “Intent to Toll”

¹³ At the time of writing, this problem had not been decisively solved however, SANRAL claims that they are close to beginning the process of prosecuting people who refuse to pay.

¹⁴ As outlined in Section 4.2, which deals with overestimated revenues

process, which included advertisements for a public awareness programme. In addition to the advertising, SANRAL had to earmark the proposed toll points, detailing where these toll points would be situated and when they would become operational. The expected toll tariffs, which had to be approved internally by SANRAL and then by government before appearing in the Government Gazette, and the comments on the article, had to be considered by the Minister of Transport before being approved and the roads declared as tolled roads (Overview of the Project, [sa]).¹⁵

In July 2007, the Department of Transport (DOT) submitted the GFIP proposal to cabinet, which was presented with a statement that the cost of the ORT system would be approximately thirty to fifty cents per kilometre. The Minister of Transport officially launched GFIP on 8 October 2007, with the relevant toll fees being published in the Government Gazette four days later (TechCentral, 2013). The article published in the Government Gazette called for comment regarding the e-Toll tariffs, the period for comments by the public was open for one month, and was accompanied by a public engagement process launched by SANRAL. The process was described by e-Toll detractors as “One unclear advert in six Gauteng-based newspapers” (Botha, 2013) but, nevertheless, it was viewed as the public engagement process that the constitution stipulates. Following this public consultation process, SANRAL received only 28 responses from an estimated 3.5 million road users. In 2012, the transport minister, Sibusiso Ndebele, in response to a formal question in parliament, stated that the “implementation of the Gauteng toll scheme was widely communicated in the media since 2006” (SabinetLaw online, 2012).

The SANRAL website claims that the proposed tolling scheme was widely advertised in the media and yet the Opposition to Urban Tolling Alliance (OUTA) claims that it was hardly advertised at all, an interesting point of debate which will be attended to in detail later in this thesis.¹⁶

In 2007, the completion of the environmental impact assessment for the e-Tolling project was concluded. No significant environmental concerns were raised, due to the fact that the GFIP

¹⁵ Although this section does seem somewhat out of place in this part of the chapter, it is important to note these developments so that one can fully understand the context of the GFIP and e-Tolling before the chapters on economic ramifications and public support are discussed.

¹⁶ Specifically in Section 5.1.2

was essentially an upgrade of existing networks and not the promulgation of a new road network. SANRAL commissioned the University of Cape Town's Graduate Business School to undertake a feasibility study surrounding the GFIP (Parliament of South Africa, 2011). In short, it found that the ORT system would be beneficial to the South African road user, as it would mobilise capital for the GFIP and related infrastructure projects. Additionally, the study found that the ORT system would be well served to recoup the initial investment by SANRAL in the GFIP and that it would be more effective than regular taxation.

The year 2008 saw the price escalation of the GFIP to R11.4 billion, almost double the original estimation of R6.8 billion, which was made only two years earlier. On 28 March 2008, six of the seven major roads that would have been affected and upgraded as planned in the GFIP outline, were announced as toll roads in the Government Gazette, with the final road (the R21), following at the end of July, due to the fact that the road needed to have its status changed from a provincial to a national road. In May 2008, the last remaining sections of the GFIP awarded tenders to their respective companies, the most notable of which was the awarding of a R6.6 billion contract to the Electronic Toll Consortium (ETC), which was expected to facilitate the e-Toll collection once the system became operational. The tender was awarded to the ETC and its parent company, KAPSCH telecom, who own a majority share in the company. This was the first mention of the e-Tolling system in the GFIP programme and was still to be confirmed by parliament and cabinet, because certain law changes were needed in order to implement the process. It is only once the relevant toll fees were announced in 2011 that the public outrage took shape. The awarding of this tender contract was largely overlooked by most citizens in South Africa and could perhaps have formed a more adequate opposition to the tolling system, had opposition been mobilised at this time.¹⁷ With construction ready to begin, SANRAL launched a radio marketing campaign to raise awareness for the work that would shortly commence on Gauteng's freeway network.¹⁸ The goal of this radio marketing campaign was to both highlight the benefits of the GFIP and how it would impact the average road user during the construction phase.

3.7 CONSTRUCTION BEGINS

¹⁷The public opposition to the e-Tolling system is explained in greater detail in Chapter Five.

¹⁸http://www.nra.co.za/live/content.php?Session_ID=8da4c602617d978618a472228f652bff&Category_ID=183

Construction commenced in July and August 2008, with completion tabled for early May 2010 (shortly before the commencement of the FIFA Soccer World Cup). Following the completion of the feasibility study carried out by the UCT Graduate Business School, SANRAL published the findings of the study. The study determined that the GFIP and its related upgrades to roads in the Gauteng area would increase Gross Domestic Product (GDP) by R29 billion nationally, of which R13 billion would be accounted for on a provincial level. Following the findings of the feasibility study, the cost benefit analysis of the GFIP found benefit to be at 8.4 to 1, or more simply, for every rand spent on the GFIP, R8.40 would be made by the country. These benefits would come in many forms, as mentioned earlier. Safer roads equate to faster journey times and less spent on vehicle maintenance; similarly, better roads lead to fewer accidents and the associated financial burden that it places on individuals and on the country (Standish, Boting & Marsay, 2010).

The GFIP and its upgrades to roads were also accompanied by investment in smart traffic management systems, improved lighting, real-time signage and incident management systems that would improve the overall road experience for users (GFIP fact sheet, 2008)¹⁹.

By the time of the 2010 FIFA Soccer World Cup, most of the road improvements had been completed. These improvements can be seen on Figure 3.2, and included the William Nicol interchange, the N1/N17 link at Soweto, the Maraisburg ramp, the Rivonia interchange, the R21 flyover towards Polokwane and the R21/Hans Strijdom interchange (SANRAL Annual Report 2011:4). These projects were fast tracked in order to be completed before the soccer tournament took place.

Although not all of the projects were completed on time but the concrete barriers which had been put in place to increase worker safety had been removed in order to facilitate an environment where road users could enjoy the newly upgraded roads to their full potential. The remainder of the work recommenced on 12 July 2010, after the World Cup had ended and all construction work was planned to be completed in time for the original launch date of June 2011 (Hale, 2014).

The following chapter will discuss in detail the economic ramifications of the GFIP, the operationalisation of which has been set out in Chapter Two. Once the economic situation has

¹⁹ www.roadsandtransport.gpg.gov.za/media/Category%20Media/GFIP%20fact%20sheet.pdf

been analysed, Chapter Five will look at the role that public support has played in determining whether or not the Gauteng e-Tolling project can be viewed as a successful or failed mega project.

CHAPTER FOUR: ECONOMIC RAMIFICATIONS OF THE GAUTENG E-TOLLING PROJECT

This chapter will seek to outline the economic ramifications of the Gauteng e-Tolling project specifically in relation to the construction phase of the project up to the present day. The analysis will be completed using the analytical framework that was outlined at the conclusion of Chapter Two. This framework for analysis focuses on four main points: underestimated costs, overestimated revenues, negative economic effects and a lack of promised economic multipliers.

4.1 COST UNDERESTIMATION

The nature of mega project analysis is that a mega project is a very large and very expensive project, as was the case with the Gauteng Freeway Improvement Project (GFIP). When it was first mooted in the time period between 2004 and 2006, the initial cost of the GFIP was set at R6.8 billion. The first phase of the GFIP comprised 15 separate work packages and sought to improve the 185 kilometre section outlined in Figure 4.1.

As outlined in the literature review, it is not always possible to make allowances for extenuating circumstances when planning urban mega projects. The size of the cost escalation on the GFIP however is massively high, even for a mega project. After being introduced to cabinet at R6.8 million, the GFIP increased to R11.4 billion by 2008, with a further upward adjustment by 2011, shortly before the proposed start date of the e-Tolling system.

It is obvious that there was some definite cost underestimation when looking at these statistics in isolation. The goal of this chapter is to identify why these price escalations occurred. Bruzelius et al (2003) identified strategic misinformation, lack of accountability, perfect world estimation and costs of mitigation as potential reasons why costs are underestimated. These factors, in addition to unforeseen circumstances, are the main reasons for cost underestimation. The rest of this section will seek to identify which, if any, of these problems were responsible for the massive cost escalation of 254% on the GFIP.

The easiest of these factors to analyse is that of the unforeseen circumstances, because of the timing of the GFIP. After the initial costing of the project was completed in 2006, the world suffered the largest economic recession in its history. Although the South African economy was seen as robust throughout the crisis and did not suffer losses as large as in other

countries, the economy was still hit hard. This was illustrated by figures released by the Reserve Bank, which noted that in the time period from 2003 to 2008, the average annual real GDP growth was 4.6 per cent (Kganyago, 2012:2).

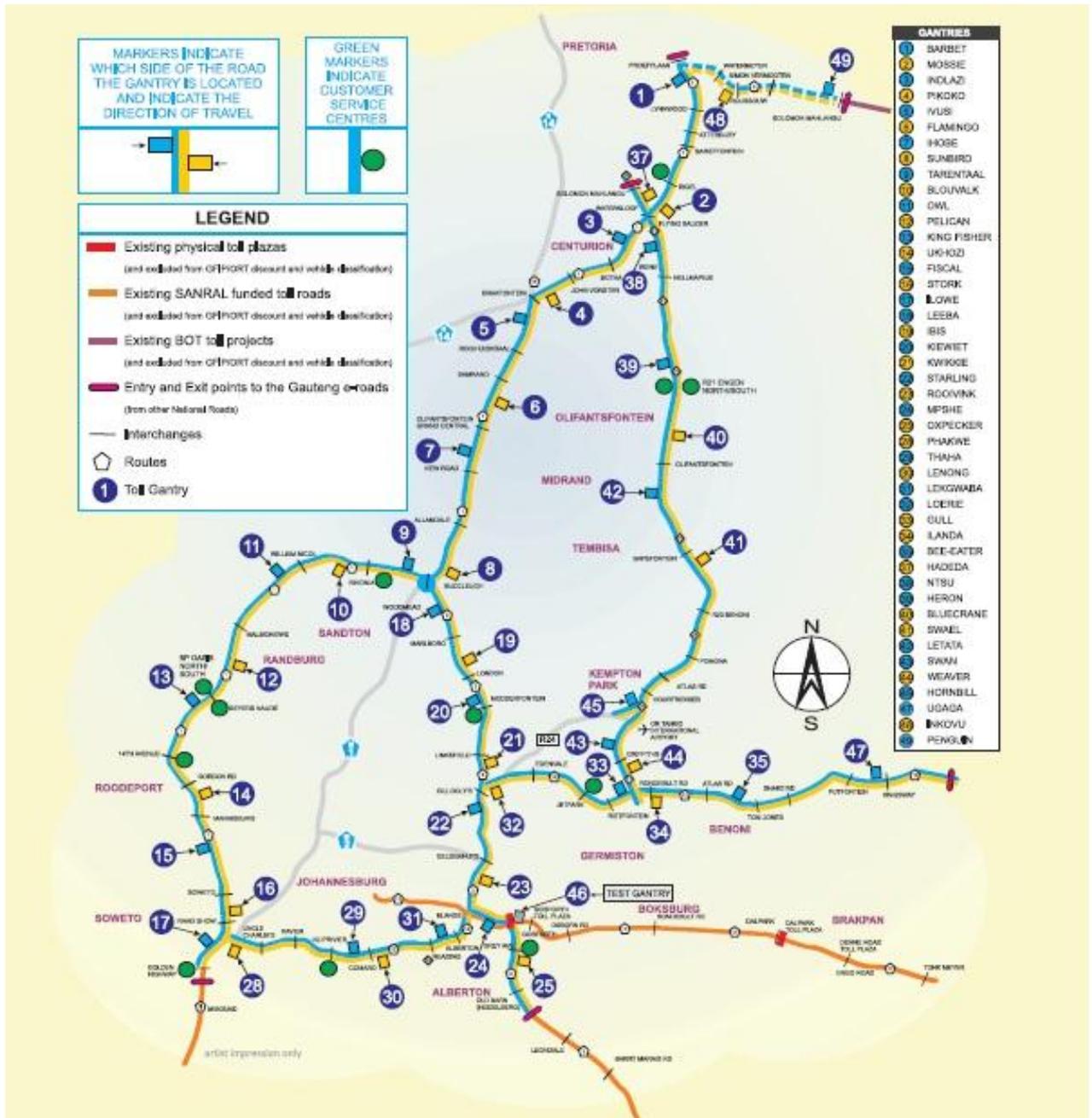


Figure 4.1: GFIP Section 1

(Source: SANRAL website:

http://www.nra.co.za/live/content.php?Session_ID=44a685d229bc7061938cc3c3eef39ae0&Item_ID=272)

Following the financial crisis that began to emerge in the United States in 2007, global markets began to weaken, but it was the bankruptcy of one of America’s largest financial institutions, Lehman Brothers, that was the final straw that broke the camel’s back. Following this bankruptcy in October 2008, an already struggling South African economy was hit hard

which led to growth shrinking to a negative 6.3 per cent in the first quarter of 2009 (Kganyago, 2012:3).

The direct impact that this had on the GFIP project was that unit labour costs (the cost of labour per worker, on average) increased sharply. This came about as a result of rising commodity prices, inflation increases and general cost of living becoming more expensive. In addition to this, “[f]rom 2008 to 2010, roughly 800 000 net jobs were lost in South Africa. Job losses were heaviest in construction, retail and financial services” (Kganyago, 2012:4). This meant that the cost of building the GFIP upgrades had sky rocketed at precisely the same time that all inputs into the construction process were also increasing. Machinery, labour, secondary products (cement, bitumen, asphalt) and even fuel became more expensive, not to mention the weakening of the South African Rand against the US Dollar.

Following the global financial crisis and its after effects, there were further extenuating circumstances which caused the price of the GFIP to increase. External political adversities also served to weaken the South African economy and increase the construction costs on the GFIP. The tsunami in Japan and the subsequent shut down of the Fukushima nuclear reactor,²⁰ the rising price of Brent Crude oil in the wake of the Arab Spring, certainly did not help keep a lid on construction costs (Kganyago, 2012:3-4). The European sovereign debt crisis also served to weaken the economy. This crisis caused European banks to contract the amount of credit that they had been extending to clients, which meant that it was more difficult for companies like SANRAL to get the credit needed to carry out projects such as the GFIP.

Strategic underestimation, perfect world scenarios and a lack of accountability can all be analysed as a homogenous whole. All three of these factors are intertwined due to one having an influence on the next. Estimating a building project in a perfect world scenario, as outlined in Chapter Two, is the act of not taking potential anomalies in the building of a project

²⁰ The tsunami that hit the Japanese coast and the associated leaking of radioactive material into the ocean have raised serious economic concerns regarding the safety of nuclear technology. This re-evaluation of nuclear technology has caused market instability in countries where nuclear power is commonplace. As a result, South Africa has suffered due to the uncertainty seen in its trading partners. One can imagine if a South African company was on the verge of making a large deal with a German nuclear power supplier and Germany announced a massive scaling back of its nuclear operations, this German company would have much more urgent matters to attend to than settling a trade deal with a South African company.

sufficiently into account. This can often be masked in the proposal or tendering phase by knowingly underestimating costs, because at the time of the tender the information is seen as correct and, to an uninformed observer, the scenario is often seen as plausible.

A lack of accountability also feeds into this argument, as the punishment for making these mistakes is often very light in contrast to the gain achieved by making these mistakes intentionally. An incident of cost underestimation was brought to light by a competition commission investigation in 2011 which found that the GFIP had been the victim of cost underestimation, but not in the most obvious way of simply submitting incorrect information in a tender document. A case of collusion was brought against major construction companies in South Africa for deliberately driving up the price of construction prices by agreeing that all submitted bids be higher than their actual worth (Benjamin, 2014).

This case of collusion opened a can of worms in the construction industry, as it came to light that most of the large construction firms in the country were involved in the collusion. The process of collusion is not one that is easily picked up in South Africa because it involves increasing the profit margins on a construction project by sometimes as little as one per cent.

Depending on the scale of the project, this can of course have massive repercussions for those involved. For example, if a project has a profit margin of R100 million, a one per cent increase represents R1 million. The reason why this practice has continued for so long in South Africa is because all of the companies were involved. There are even reports of secret contracts being signed, where construction companies decided on who gets what project, even before government tenders had been finalised. The process for completing this ruse was to decide amongst themselves who would want a specific project the most; companies not interested in the project would then submit bids similar to those that wanted the project. The companies that did not want the project would submit comparatively weaker bids so that the company that wanted the contract always received it correctly (Nicholson, 2013).

The Competition Commission launched an inquiry into suspected acts of collusion that occurred between 2006 and 2011. The practice was found to be rampant in South Africa. The Commission decided to open an amnesty process for companies that wished to acknowledge their guilt and receive only a fine (and thus escape criminal prosecution).

This led to a collection of 15 different construction firms being fined R1.46 billion (As shown in Table 4.1).

Table 4.1. Companies fined by the Competition Commission and their amounts fined

Company	Amount Fined
Wilson Bayly Holmes Ovcon (WBHO)	R311.29 million
Murray & Roberts	R309.05 million
Stefanutti – Stocks	R306.89 million
Aveng Group	R306.57 million
Basil Read	R94.94 million
Raubex	R58.83 million
Haw & Inglis	R45.31 million
Rumdel	R17.13 million
Giurcich	R3.55 million
Vlaming	R3.42 million
Tubular Technical Construction	R2.63 million
G Liviero	R2.01 million
Hochtief	R1.32 million
Norvo	R714 897
Esorfranki	R155 850
Total	R1.46 billion

(Source: Engineering News (24 June 2013))

This fine was not only for the price collusion that took place in the GFIP tender process, but was a cumulative fine for a wide-ranging array of construction projects, such as the construction of 2010 World Cup stadia, the Gautrain and the Cape Town International Convention Centre upgrades, amongst others. In total, the over 300 cases identified by the commission were worth over R47 billion (Allix, 2014). Although the consequences of cost underestimation are usually not very serious, these consequences tend to get lost in the larger picture of completing the mega project. This case of price collusion is even more lenient than usual because the competition commission gave the companies accused an option of reaching a settlement.²¹ The consequence of the collusion investigation was that the GFIP was

²¹ The fine is described as lenient because the total value of projects involved in the collusion was R47 billion.

shrouded in doubt before it even had a chance to reach its construction completion. Civil rights associations such as the Opposition to Urban Tolling Alliance (OUTA) have called for parliament to inquire how much of the collusion fines would be returned to SANRAL.

When compared to traditional toll roads in the South African context, the additional challenges posed by ORT, such as gantry erection, complicated software processes and the problem of having to bill such a large number of people meant that the cost estimation was always likely to be poor. The large numbers of unknown variables that the forecasters had to take into account meant that making an accurate forecast was always going to be a close to impossible task.

Construction costs on the GFIP had been underestimated and it can be concluded that this had been done intentionally, because all of the companies involved in the construction of the GFIP stood to gain financially from the price collusion and would also gain from having received the contract.

The following section will seek to address the problem of overestimated revenues.

4.2 OVERESTIMATED REVENUES

The nature of the GFIP is that it was suggested and established to run as an improvement project that would use the user-pay principle to recuperate the majority of its funds. This was done so that only people who physically used the roads would have to pay for using this upgraded infrastructure. This section identifies whether the revenues expected by the operators of the GFIP have been, or are going to be, sufficient in order to pay back the massive amounts of money that have been spent improving the road network.

Before delving into solving the mystery of whether or not revenues have been overestimated and the reason for this, it is necessary to look at the facts that have caused the e-Tolling system to start off badly. Firstly, when tolling was first submitted to cabinet in 2007, the proposed rate of tolling was approximately 50c per kilometre, per vehicle. The tolling process was originally planned to commence in July 2011, but only started in December 2013, which means that, according to the original estimates of SANRAL of R250 million per month,

Therefore the fine can be characterised as lenient because it is only 3.1% ($4700000000 \div 1460000000 = 3.1\%$) of the total costs involved.

SANRAL would have lost out on R7.25 billion before the system had even begun (Slabbert, 2014). This was an overestimated revenue, due to unforeseen delays in implementation that could not have been forecast during the planning phase.

By the time tolling actually began, SANRAL had already lost the amounts of revenue highlighted earlier. Also, the decrease of the minimum toll fee from 50c per kilometre to 30c per kilometre obviously impinged on the company's ability to accurately forecast its potential revenues. SANRAL was already in a difficult situation regarding the estimation of revenues due to the changes that occurred after their initial feasibility study and before the tolling became operational.

The extenuating circumstances present in the e-Tolling process have definitely hampered the accuracy of the demand predictions. The factors responsible for inaccurate cost estimation, according to Bruzelius et al (2003), are that forecasting techniques (demand prediction) lack accuracy, many different jobs compete for an allocation of a finite budget, as well as the influence of outside factors. Demand prediction failures, or the inaccuracy of demand prediction, can result from the use of the incorrect methodology or working with a poor database. The fact that many different projects compete for a budget allocation means that project promoters are inclined to describe their expected demand (and, in turn, their expected revenue) as more than it realistically could be. This is done so that the project is accepted by the authority responsible for commissioning the project (in the case of the GFIP, it would be SANRAL and Department of Transport (DoT)) and, once the project has been accepted, only then do the errors in forecasting come to light. Outside factors that could influence demand over estimation include unexpected political activities. This could include a change in personnel or a drastic policy shift, which could impact the amount of revenue that a tolled road might generate. In addition to the political changes, unexpected changes of any other nature may also pose a problem, such as technological advances, bad press, law changes or fuel prices, to name but a few.

The two factors that served to weaken the accuracy of the revenue estimation for the e-Tolling project were the decrease of price per kilometre and the delayed start of the tolling. These factors were both of a political nature and could also be viewed as unexpected occurrences.

4.2.1 Demand prediction failures

When the issue of demand prediction failures in this specific case is considered, it becomes necessary to bear in mind that the e-Tolling project in Gauteng is the first of its kind in South Africa. Although the user-pay principle has been in operation in South Africa for many years, the specific idea of Open Road Tolling (ORT) has never before been used in South Africa. This immediately shows that there are no hard and fast models for revenue estimation that have been adapted to the South African context. In light of this, it is possible to understand that there could have been errors made in the demand prediction.

Although the tolled routes in South Africa are mainly on the national highways, these highways can serve as benchmarks or indicators to researchers. The lack of ORT planning and revenue forecasting in this specific field indicated that the possibility of making mistakes is more likely than in other developed nations. Another problem with revenue estimation is that the project team could, at no point, gauge during the planning or construction phase how the public would react to the system and what the penetration of the system would be. This second point shows that the research done into the ORT scheme could not have accurately predicted the lack of enthusiasm with which the system was received. Although the feasibility study had predicted the benefits of the ORT to the GFIP, it was not with the system that issue was taken, but with the implementation of the seemingly high tariffs and, later, with the fact that the company elected to run the ORT system (KAPSCH telecom, 2014) would take the profit made from ORT to foreign shores. OUTA disputes this point, citing the lack of meaningful engagement with the public as the main reason for these demand failures (www.oua.co.za). Chapter Five will explain the occurrence of this resistance in greater detail.

4.2.2 Influence of outside factors

This chapter deals exclusively with the economic ramifications of the e-Tolling system particularly the factors that have contributed to the system overestimating its potential revenues. The inefficiency of the Administrative Adjudication of Road Traffic Offences (AARTO) (2014), the role of the Electronic Toll Consortium (ETC) and the influence of OUTA are the most notable outside factors influencing the overestimated revenues in the Gauteng e-Tolling case.

Supplementary factors influencing the overestimated revenues are bad press and a weak economy which exist as a result of actions by outside factors, but are important enough to

discuss individually.

The AARTO system is responsible for the prosecution of all traffic offences in South Africa and it has the explicit goal of “alleviating the burden on the courts (by) establishing a procedure for the effective and expeditious adjudication of infringements” (AARTO website). The non-payment of e-Toll fines also falls under its jurisdiction. Even though the e-Tolling system has been operational, the system has thus far only collected payments from people with e-tags in their cars. SANRAL has recently warned motorists who do not pay their e-Tolls that they will be prosecuted to the full extent of the law in the near future (Slabbert, 2014). This should go some way in reaching the revenue goals estimated in the original feasibility studies. Some media reports have claimed that tag penetration is as low as 28% of Gauteng motorists, when one excludes the vehicle fleets of large companies. In the original feasibility study, the effectiveness of AARTO was overestimated and has led to an increase in non-compliance to e-Tolling. If there is no swift, tangible response from the government in enforcing e-Toll fines, this feeling will continue to grow amongst motorists.

The role played by the Electronic Toll Consortium (ETC) is very closely linked to the role performed by AARTO. The two companies are inextricably linked and their roles are often confused by the average citizen. It is the responsibility of the ETC to manage the administration surrounding the collection of toll fees within the e-Tolling system. This includes all toll fees issued, the management of disputed toll claims, cases of mistaken identity and all other toll-related issues.

The ETC is not responsible for the pursuit and prosecution of users who are non-compliant. Once a toll has been issued to a road user (in this case, road users who are not registered with e-tags) and the user does not pay the fee, that case will then be handed over to the AARTO system, once prosecution for non-payment comes into place. It is in this way that the ETC and AARTO are linked.

The eight-year contract for the creation of complaint management centres and the running of the system was tendered for at R6.6 billion, almost a third of the total budget for the GFIP. The problem of overestimated revenues is enhanced by the fact that the ETC cannot legally pursue users who have not paid their toll fees and the money will not be received from non-registered users until such time that the AARTO system criminally pursues non-paying users. There are some legal experts who have argued that even once the AARTO system does begin

prosecuting non-paying users, this system can easily be brought to a standstill. The laws put in place for dealing with e-Tolling have not been well formulated and can be challenged in court. Chapter Five will elaborate more on this point (Slabbert, 2014).

The formation of OUTA in 2012 and the subsequent court challenges that it has brought have led to the problem of revenue overestimation being exacerbated. As outlined earlier, SANRAL failed to receive over R7 billion due to the late launch of the e-Tolling system. OUTA has caused SANRAL to lose even more than this in the time spent in court and their battle in the press regarding the legality and constitutionality of the e-Tolling system. This will also be examined in greater detail in the following chapter.

The supplementary outside factors of bad press and weak economic conditions have been difficult to quantify in terms of how much money they have cost SANRAL. Bad press, particularly that generated by OUTA and many social media users, has no doubt changed the public's perception of the GFIP and the e-Tolling system. This bad press has caused many marginal citizens²², who may have paid the toll fees simply because they are law-abiding citizens, to oppose the tolls.

In a similar way that the bad press caused marginal voters to become anti-e-Tolling, so too, the weak economic conditions in South Africa has led to people questioning the e-Tolling system. In developed countries where the economic conditions are more stable and tend to be more affluent, people with more disposable income are inclined to pay higher taxes. In South Africa, however, a weak economy and high inequality causes people from all walks of life to avert or oppose the e-Tolling system, because they do not have extra money to spend on something that has not always been there. A large majority of the anti-e-Tolling campaigns focus on the point that the government has always built and upgraded roads, but never had the need to implement an ORT scheme, so why now?

These factors all lead to the estimated revenue, which was forecast before construction began, to be less in reality than it was in estimation. The reason for the returns being lower than predicted are not all together unexpected now that outside factors on e-Tolling have been

²² In this context, marginal citizens can be defined as those who 'sit on the fence', who were neither fully committed to paying the toll, nor opposing the toll. These marginal voters can also be those who are undecided or can be influenced.

analysed.

4.2.3 Unexpected political activities

The GFIP and the accompanying e-Toll system were approved by cabinet in 2007, after consultation between SANRAL and the Department of Transport (DoT). It would take four years before the GFIP would become a political issue but, in June 2011, questions submitted to the national assembly by MPs of the Democratic Alliance (DA) led to ramifications that would greatly hamper the chances that the GFIP had for economic success.

When revised e-Tolling tariffs were published in February 2011 by the Director-General for Transport, a massive public outcry followed. As a result of this public outcry, the minister announced that a steering committee would be formed to deal with the public's issues. It was this steering committee that decided to lower the cost of the toll from 50 to 30 cents per kilometre and impose the monthly ceiling that had been explained earlier.

As a result of questioning by the opposition parties, certain aspects of the GFIP were queried, such as the nature of the tender processes and the financial impact that the e-Tolling system would have on the citizens of Gauteng. It was as a result of these series of questions that the GFIP was put temporarily on hold, so that a committee might investigate the potential benefits of the GFIP that had been outlined in an earlier feasibility study (Parliamentary Monitoring Group, 2011, Question 2598).

An additional unexpected political activity that may have had an impact on the revenue underestimation was the way in which all the allies, such as the Congress of South African Trade Unions (Cosatu), the South African Communist Party (SACP), and the opposition of the ANC were united against the system. The opposition parties used the e-Tolling system as a platform from which to launch attacks on the ANC in the run-up to the general election. The Congress of South African Trade Unions (Cosatu), an ally of the ANC, also criticised its implementation in public. Both of these complaints may have added to the pressure that decreased the toll tariffs, which led to lower than expected revenue.

4.3 NEGATIVE ECONOMIC EFFECTS

In the analytical framework on which this chapter is based, Bruzelius et al (2003) noted that the economic ramifications of a mega project may include negatively affecting an entire country's economy, or placing that country in debt for years to come. This was the case with

Japan in the 1990s when this “lost decade” or asset price bubble caused the Japanese economy to stagnate and contract into a recession that lasted into the late 1990s (Krugman, 2009). Although the asset price bubble bursting was not as a result of a failed mega project, if one were to add up the value of all the assets that were lost in the bubble bursting, one would get to a figure near to the mega project minimum threshold of \$250 million.

There are worrying signs that emerge when unpacking the saga of the GFIP and the accompanying e-Toll project. SANRAL received a special appropriation from the national treasury of R5.8 billion in 2012; the same company has over R41 billion of debt; has more than once in recent years received a downgraded credit rating; and had over R500 million in unpaid e-Toll bills by the end of March 2014.

When the GFIP was submitted to cabinet in 2007, the project was approved with the user-pay principle being identified as the main reason why the project received such strong support from government. During the construction phase of the GFIP, SANRAL and its associates raised capital for the project by selling high yield bonds to the public as well as borrowing money from various banks and the treasury. This included a joint loan from ABSA and the Oesterreichische Kontrollbank Aktiengesellschaft, which is an export credit agency backed by the Austrian government (SANRAL, 2013:147). A loan from the European Investment Bank for just over R1.1 billion was also taken out in 2012. All of the loans borrowed and bonds issued are guaranteed by the South African government.

The fact that the South African government guarantees the finances is the most worrying part of all, because SANRAL was created to run as a private company in order to competitively finance the upkeep of South Africa’s roads. Yet SANRAL has access to government funding and this funding is guaranteed by the South African government, which means that if the company were to default, the government would have to bail out the company.

As of December 2013, SANRAL had R41 billion of debt, which is all guaranteed by the government. This means that if e-Tolling does not recuperate the money as the original architects of GFIP had hoped, it is the South African state and ultimately the taxpayers that will suffer. Not only is SANRAL R41 billion in debt, but it also received a special appropriation from the national treasury for R5.75 billion rand in 2012 (SANRAL, 2014:13). The official motivation for the special appropriation was so that the tariffs could be lowered as outlined in Section 4.2.3. However, the money was also necessary so that SANRAL did

not default on their loans.

The result of the financial trouble that SANRAL finds itself in is that the credit rating agency, Moody's, has successively downgraded SANRAL's credit ratings in 2009 and 2011 (Stanlib, 2012). This means that investor confidence has also receded and that SANRAL is struggling to raise the capital to keep its current projects going. A knock-on effect of this problem could be that the credit ratings agencies may choose to once again downgrade the credit rating of South Africa as a whole, because the debt that SANRAL has incurred is just over 1.1% of GDP. In addition to the unrest and lost productivity in the platinum belt last year, Moody's cited the speculation surrounding the GFIP as a major reason for downgrading South Africa's credit rating in 2013 (Moody's Global Credit Research).²³

As a result of the delay in launching the project, the company was placed under severe financial strain. However, the future is looking almost as grim as the recent past. In response to a question in parliament, the Minister for Transport, Dipuo Peters, said that "[a]s at 1 March 2014 an amount of R543 544 574 worth of invoices had been transferred to the Violations Processing Centre (VPC)" (Davies, 2014). In addition to this, Peters said that only just over R50 million of the R543.5 million had been paid as at 28 February 2014, whilst just less than R55 million had been spent "for postage and printing of invoices" and "the cost of debt collection purposes" (Davies, 2014). This means that the company is currently spending more collecting debt than it has received for overdue accounts.

It would seem obvious to most observers that SANRAL is working with a business model that does not appear to be very successful. The problem comes back to the fact that the company's debt is guaranteed by the state, which means that if SANRAL does not get its financial situation back on track, then the state, and ultimately the people, will suffer as a result.

4.4 ECONOMIC MULTIPLIERS

Of the original motivation for the GFIP, the most relevant and enduring motivation was that the freeway network needed to be upgraded in order to provide stable transport infrastructure to foster economic development and growth. A feasibility study conducted by the UCT

²³ www.moody.com/research/Moodys-downgrades-South-African-National-Roads-Agency-to-Baa2a2za-negative--PR_244607

Graduate Business School in 2007 (and published in 2010) found that, as a result of the improved road network, the national GDP would increase by R29 billion. The provincial domestic product would increase by approximately R13 billion. This feasibility study also concluded that the cost to benefit ratio of the GFIP was approximately 8.4:1, meaning that for every rand spent in the construction of the GFIP, R8.40 would be made by the country (Standish et al, 2010).

The feasibility study further expands on this range of impressive findings by stating that the GFIP is “set to return society a positive net present value of R210 billion over the next 20 years” (Standish et al, 2010). Tolling is also explicitly mentioned in the study, stating that “the advantage of the tolling approach is that it relieves government of the financial burden of direct funding” (Standish et al, 2010).

Frequent user discounts and the exemption of public transport vehicles are noted as economic multipliers as they enable two population segments to receive an economic benefit from the improved roads. The poor are often the worst impacted when cost of living rises; by excluding them from paying the toll (through not charging tolls on public transport), one is enabling them to make use of the improved roads at no increased cost (through tax, fuel levy or toll). Similarly, high frequency users create wealth in other sectors of the economy, while implementing a maximum affordable monthly fee also benefits these road users.

4.4.1 Effect on business

One cannot examine economic multiplier effects without dealing with the explicit goal of the GFIP i.e., decreasing congestion and improving the quality of the roads in order to grow the economy. According to the UCT Graduate Business School study (Standish et al, 2010), “effects on business would generally be strongly positive because of the improved accessibility”.

The study does also indicate the negative economic effects that the improved road network may have on some businesses. Examples of businesses that may suffer as a result of no longer having passing traffic include rest stops and petrol stations located right next to the highway that had benefitted in the past from clients tired of being stuck in traffic, who would stop for a cup of a coffee or simply a break. Any businesses that were located on alternative routes may also suffer, because if the main highways should no longer be congested, people will not take alternative routes. The businesses located on alternative routes may also benefit

from the tolling of the routes, because there would be road users who are unwilling or unable to pay the tolls, and who would frequent the alternative route.

International research has suggested that the upgrading of the road network in a developing area like South Africa, specifically Gauteng, would be more of a benefit than in traditional, stable economies. In terms of economic growth, the upgraded and expanded road network would lead to increased efficiency in the labour force. This means that the economy would grow thirty to fifty per cent more than as a result of road upgrade, when compared to more industrialised nations (Standish et al, 2010). This has, at the time of writing, not yet materialised.

Business owners were also set to gain substantially from the improved freeway network with, for example, reduced congestion and distributors of goods being able to complete more trips per day. More business appointments can be met, leading to increased productivity. With congestion reduced, journey times will be shorter and the chances that workers will be on time is greatly improved, once again leading to increased productivity.

4.4.2 Benefits to the individual

The economic multipliers in effect for the individual are minimal at first and are limited to fuel and tyre wear savings, whereas longer term savings include factors such as maintenance costs that are reduced. These costs have to be multiplied over all road users in order to get a clearer picture as to how much of a saving occurs. Tolling of the road was set to cost the average user only 43 cents per R100 of disposable income; fuel savings alone would probably cover that amount and result in a net gain for the province and the country (Standish et al, 2010:xiv).

Improved accessibility to residential areas would cause house prices to rise in areas that had been considered “too far” when congestion caused longer journey times, while some properties would lose value because it was no longer so advantageous to stay very close to a highway or a highway entry/exit point.

Negative effects must not be excluded and the problem of captive communities and businesses (communities that would have no option but to take tolled roads to reach their

home or work) would have increased living costs.²⁴ This increased cost of living would be minimal, as the UCT feasibility study estimated this increased cost of living at a mean rate of 0.29% over a spectrum of households, with lower income households obviously affected more than the wealthier households, but only minimally so (0.31%).

4.4.3 Contributions to GDP

One of the often forgotten benefits of infrastructure development is the impact that capital investment spend has on the country. This leads to an increase in GDP because of the massive amounts of money spent on the project. The estimates for how much the GFIP will contribute to GDP are summarised in Table 4.2.

In addition to the contributions made by capital expenditure, there are also additional economic effects. These come from the expected R160 million per year that will be spent on routine road maintenance, while rehabilitation of the roads will begin in 2019 and continue to add to the GDP until at least 2030. Furthermore, the maintenance of the ORT system will increase from R610 million in 2010 to R1.9 billion by 2030.

Once the toll roads have become operational and all of the systems are in place to provide road users with the benefits outlined earlier, the “business time savings” will increase periodically, starting with R3.27 billion in 2010 to an estimated R7.69 billion in 2030 (Standish et al, 2010:xx). Capital expenditure covers a wide array of money spent that can be grouped under the umbrella term of economic multipliers.

²⁴ Although there are alternative routes, these routes are often longer or in a worse condition. As a result, people opt to pay the toll rather than bearing the increased journey cost.

Table 4.2: GFIP contribution to GDP

Year	GDP Contribution by GFIP Capital Expenditure
2008	R 7.4 billion
2009	R 9.9 billion
2010	R 11.0 billion
2011	R 2.2 billion
2012	R 194 million

(Source: Standish, Boting & Marsay, 2010. “An Economic Analysis of the Gauteng Freeway Improvement Scheme” in *The Graduate School of Business, University of Cape Town, special report*.

Job creation in the construction and maintenance of the roads will also help grow the economy and decrease unemployment. Direct jobs (employment on site) and indirect jobs (any other jobs created that are not directly related to construction) have amounted to the amounts outlined in Table 4.3.

Table 4.3: Total jobs created by the GFIP

Year	Total jobs created
2008	23 499
2009	31 552
2010	37 351
2012	13 734 (estimated)
2030	35 128 (estimated)

(Source: Standish, Boting & Marsay, 2010)

Once the feasibility study had been completed in 2010 and handed to SANRAL, all government departments involved in further decision making regarding the GFIP were satisfied that the project was destined to be a success. What was to transpire in mid-2011 would make for uncomfortable reading for the people involved with the research in the UCT report. The criticism of the feasibility study done by the UCT Graduate Business School by the Minister of Transport, Mr Ndebele, was discussed in parliament.

4.4.4 Feasibility study challenged in parliament

In February 2011, Sibusiso Ndebele (Minister of Transport) suspended the implementation of e-Tolls and established a committee to review the e-Toll tariffs. Following a public

consultation process, the committee recommended that e-Toll tariffs be lowered to 30 cents per kilometre (SAPA, 2014).

On 24 June 2011, Democratic Alliance (DA) member of parliament, Mr de Freitas submitted a question to the Minister of Transport questioning the feasibility study that had been submitted to the Department of Transport (DoT) not more than a year earlier. Mr de Freitas' questions were directed to the Minister of Transport in an attempt to determine the validity of the way in which the consultants for the feasibility study had been appointed.

The Minister noted in his written response that Goba, Tolplan, the UCT School of Business and the University of Johannesburg (UJ) had been appointed to complete the feasibility study. Tender proposals had been received from the Gauteng Toll Consortium (Arup, Africon, PD Naidoo, Plan Associates and Deloitte), a joint venture from BKS and Stewart Scott, another joint venture from Tolplan and Goba (which was eventually accepted), the Urban Toll Specialists (ITS, LTE, Steer Davies Gleave) and a proposal from Vela VKE (Parliament of South Africa, 2011:3). UCT, Arup and UJ had been appointed on a time and cost basis for the economic and social impact studies.

The effect of these questions in parliament was that the Minister of Transport decided to halt all e-Tolling related activities so that further public consultation could take place. In addition, the altering of the e-Toll tariffs in early 2011 meant that many of the estimates made in the feasibility studies (specifically UCT's study) were done with an expected toll rate of 50 cents per kilometre. Following the adjustment of the toll rates (to 30 cents per kilometre), much of the data that had been forecast was incorrect. As a result, the feasibility study was broadly questioned both in parliament and by citizen action campaigns, which would lead to ordinary citizens showing their displeasure at the GFIP and the e-Tolling system. The formation of OUTA in March of 2012 was the most obvious manifestation of this.

4.5 CONCLUSION

This chapter sought to outline the achievements of the GFIP in terms of the framework set out in the work of Bruzelius et al (2003). The GFIP has suffered from cost underestimation, more so than in other projects, due to the discovery of the collusion practice that existed between the major construction companies in South Africa. Similarly, the overestimated revenues have proved problematic to the project, as the average expected return has failed to deliver, pushing the parastatal to the brink of bankruptcy. The associated downgrade in credit

rating has hurt not only SANRAL, but also the broader South African economy.

The apparent lack of impact of the potential economic multipliers, as well as the negative effects on the broader economy, have severely maligned the chances of the GFIP being regarded as a successful mega project. Looking at the economic effects of the GFIP in isolation, one has little choice but to accept the fact that this specific mega project has to be viewed as a failed mega project as judged from this point in time and with the knowledge that is now available to the researcher.

The next chapter will analyse the role of public support in the mega project.

CHAPTER FIVE: THE ROLE OF PUBLIC INTEREST GROUPS IN E-TOLLING

This chapter will seek to analyse and explain the role of public interest groups in the Gauteng Freeway Improvement Project (GFIP). The accompanying e-Toll system will also be assessed because the two cannot be analysed independently of one another, because the e-Tolling system is the funding mechanism for the GFIP.

This will be done by answering the questions outlined in the model presented by Bruzelius et al (2003). In this model, the authors ask how the public has reacted to the project, what has been the reaction of public interest groups such as political parties and whether any social activism has arisen as a result of the mega project. Finally, the question will be asked whether the project is sustainable going forward or not. All these questions will be answered with the goal of better determining whether the GFIP and associated e-Tolling project can be viewed as a failed mega project or not.

This section of the chapter will discuss the reaction of society to the e-Tolling system. After the GFIP upgrades had taken place, SANRAL had to recoup the money that had been spent on building the infrastructure. The e-Toll system had been approved by the South African cabinet and on 11 February 2011, the Director General for Transport, George Mahlalela, published the proposed tariffs for the e-Tolling system in the Government Gazette.

5.1 IMPACT ON BROADER SOCIETY AND THE REACTION OF PUBLIC INTEREST GROUPS

This section of the chapter analyses the public outcry that occurred as a result of these proposed tariffs being published, specifically looking at major public interest groups such as Opposition to Urban Tolling Alliance (OUTA) as well as reactions by political parties. Finally, this section of the chapter will conclude by investigating the reaction of the ruling African National Congress.

5.1.1 Reaction to tariff announcement

Although public consultation was proposed and carried out in 2007, it was only after the announcement of the e-Tolling tariffs in February of 2011 that the e-Tolling project was met with immense public outcry. This outcry came about because members of the public felt that the tariffs were too expensive and they had, up until this point, not been fully informed about

the nature of the e-Tolling system.²⁵ Following this public outcry, the Department of Transport (DoT) decided to form a steering committee that would listen to, and address, the grievances that the public held (Tubbs, 2012). The steering committee was formed to address the issue of the toll fees and not the tolling system as a whole, a fact often omitted by many e-Tolling detractors. The steering committee, “consisting solely of people in government and SANRAL” (Automobile Association, 2011),²⁶ was accused by Gary Ronald, head of Public Affairs at the AA, of being biased. Ronald further stated in reaction to the steering committee that

the composition of the committee was limited to government officials only and we believe that this has led to a bias towards an already decided outcome while the consultation process was merely a measure to appease aggrieved organisations and the public (Automobile Association, 2011).

Public outcry was voiced by various sectors of society, most notably the Congress of South African Trade Unions (Cosatu), who called for strike action, a public stay away and a universal boycotting of the system (SAPA, 2011).²⁷ The result of these various forms of public outcry is that Sibusiso Ndebele, the transport minister at the time, suspended all activity relating to e-Tolls. This was done so that the steering committee was able to do its work without the pressure of an impending system launch. From March through to early June 2011, the steering committee met with groups of concerned citizens. In June, the committee announced that e-Toll tariffs would be reduced. Toll fees were lowered to an average price of 30 cents per kilometre, with a monthly payment cap of R550 per month for normal (class A1) road cars (SA, 2013:17).

Following this consultation process, the new tariffs were submitted to cabinet, who duly approved the revised toll tariffs. After the tariff increases had been approved by cabinet, the validity of the e-Tolling system was again questioned, which led to Ndebele once again suspending all work related to the e-Tolling system. The demographics of those questioning

²⁵ The majority of the publications by SANRAL that were outlined in Section 3.6 had extolled the virtues of the GFIP, had only mentioned the e-Tolling system in passing and had not made the public fully aware of the proposed tariff rates.

²⁶ <http://www.aa.co.za/about/press-room/press-releases/more-Tolls-coming.html>

²⁷ The cartoon in Figure 5.1 accompanied the report on the Cosatu strike action.

the e-Tolling system have been diverse but they have all had more or less the same area of concern. A spokesman for the Automobile Association (AA), Gary Ronald, called for the project to be stopped immediately, because it had the potential to create a recession in the country if the cash flow in the country was heavily impinged. Additionally, the “extreme cost of collecting the money” that accompanied the e-Tolling system could also increase the likelihood of a recession (Philp, 2011).

Jeremy Cronin, of the South African Communist Party (SACP) and Ndebele’s deputy at the time of these inquiries, had often publicly questioned the validity of the e-Tolling system. The Democratic Alliance was amongst the political parties to also examine the e-Tolling system, through parliamentary questioning.²⁸

Public hearings relating to e-Tolls were held, beginning in November 2011. The public hearings did not, however, have the effect that members of the public were hoping for and the system was given the go-ahead once again. Members of the committee inquiring into the problems surrounding the GFIP had found that although “the need for public participation and infrastructure development” was important, “not all agreed on the funding method for such projects”, according to the committee chairman Jacob Khawe (Wheels24, 2011).

The system received a massive credibility boost in the 2012 budget speech, when Finance Minister Pravin Gordhan announced that a special allocation in the budget of almost R5.8 billion would allow the e-Tolling system to become operational in April of that year (SAPA, 2013). The special allocation was made in order to allow SANRAL to stay up to date with repaying the debts that it had accrued in the construction phase of the GFIP, due to the fact that the GFIP had already missed out on potential income due to the system coming online later than expected (see Section 4.2).

²⁸ For more on the DA’s opposition, see Section 5.2.1.

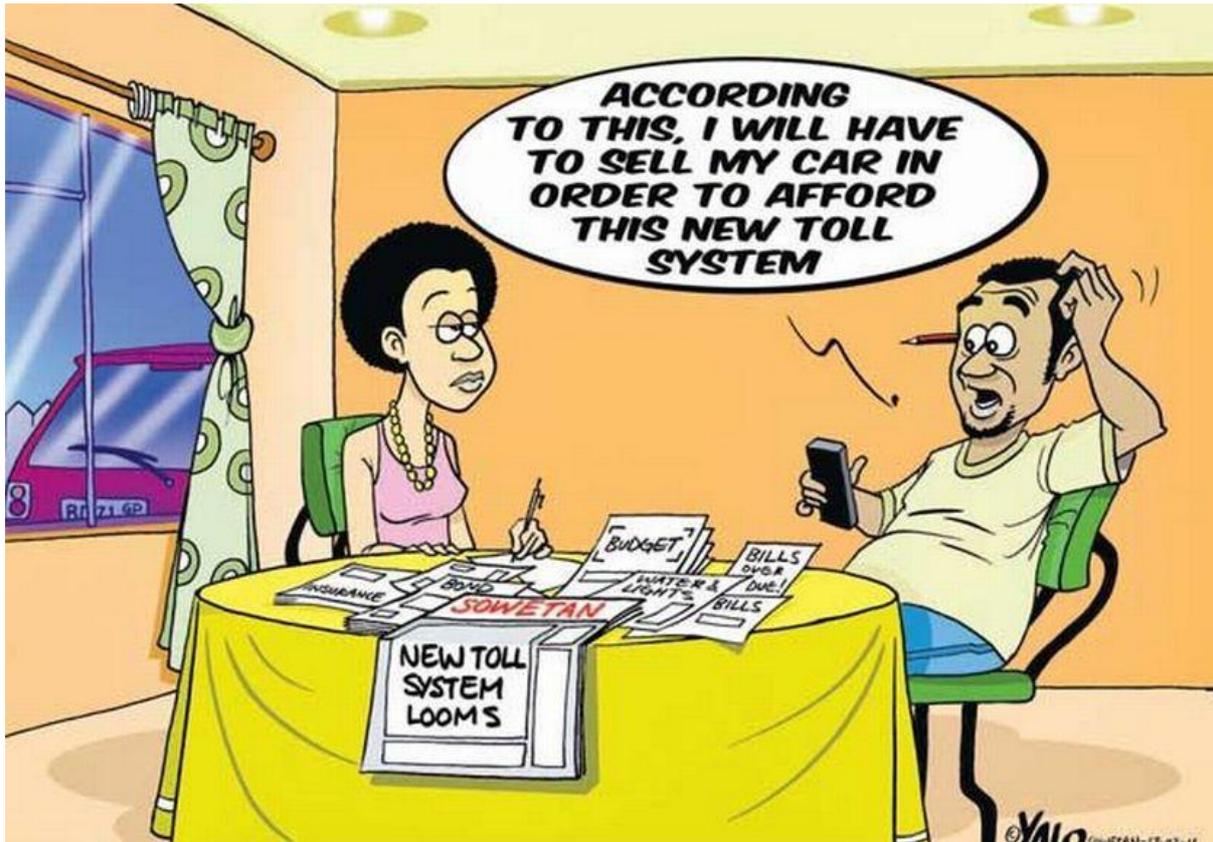


Figure 5.1: Cartoon accompanying e-Toll tariff announcement
 Source: SAPA. 2011. Cosatu strike threat over e-Tolls. *Sowetan* 18 February.

The Congress of South African Trade Unions (Cosatu) had dismissed the public consultation process as a “waste of time”. Despite such accusations, the Gauteng provincial government accepted the report and the public consultation process was summarily ended. This apparent lack of concern with the issues raised by concerned interest groups would lead to the establishment of a non-profit organisation with the sole goal of fighting e-Tolls.

5.1.2 Formation of the Opposition to Urban Tolling Alliance (OUTA)

According to their own website, the Opposition to Urban Tolling Alliance (OUTA) is an organisation that was created by a “collective of concerned business associations and individuals to form a co-ordinated strategy to oppose e-Tolling of Gauteng’s Freeways” (OUTA, 2012)²⁹. OUTA is a

public, non-profit organisation established for the sole purpose of the advancement of the interests of motorists in general including private motorists, public interest groups and

²⁹ www.outa.co.za/site/about-outa/

businesses including but not limited to businesses engaged in the commercial conveyance of both goods and persons (Opposition to Urban Tolling Alliance, 2012)³⁰.

OUTA was instrumental in mobilising a legal team, which applied for an interdict against the launch of e-Tolling in April 2012. This meant that it was successful with the attempt to make the e-Tolling system unworkable, which according to it, is inherently flawed. Most of the rhetoric provided by OUTA focuses on the double taxation argument.

The double taxation argument is the idea that people are already paying normal taxes such as value added tax (VAT), personal income tax, business tax, and others which are traditionally used to finance infrastructure upgrades. As this thesis has attempted to describe in earlier chapters, this argument does not apply to e-Tolling because the user-pay principle creates a separate revenue stream for the project it is taxing, allowing infrastructure to be built faster and more regularly.

The focus for OUTA was the process of how the e-Toll act had become law. Its argument centres on the fact that the public consultation process engaged in by SANRAL and its associates was not in-depth or far reaching enough. To inform the public of the GFIP, SANRAL had advertisements placed in both print media and on the radio.³¹ As described earlier, SANRAL had claimed that they had embarked on a comprehensive and all-encompassing public consultation process by placing advertisements in newspapers and the radio, advertisements that are on their website. The court found that this public consultation process was not comprehensive enough and would need to do more to inform the people of its intentions, especially when launching a new type of toll collection system.

After its initial success of having an interdict placed against the e-Tolling system, the battle being waged by OUTA would be successively weakened. The National Treasury filed an appeal against the interdict in the Constitutional Court. The basis of the appeal is that the GFIP and the associated e-Tolling system had been approved by different government departments and, were it not for the court action by OUTA, the project would have been allowed to go ahead. Before the case reached the court, SANRAL embarked on measures to

³⁰ www.outa.co.za/site/wp-content/uploads/2012/10/outa-constitution-final.pdf

³¹ Audio clips of SANRAL radio adverts can be heard at:
http://www.nra.co.za/live/content.php?Session_ID=bf960a9358fcc04751397c904679da87&Item_ID=366

inform the public to a greater degree about the details of the e-Tolling system. Public consultation, such as that done by the Gauteng Department of Transport (DoT), was cited in court. The case was heard in the Constitutional Court and the interdict was set aside by the court. Following a full judicial review of the case, the Pretoria High Court ruled against OUTA (TechCentral, 2013).

OUTA chose to appeal this decision at the Supreme Court of Appeal, arguing that the GFIP and the e-Tolling system is inherently flawed and unconstitutional, often referring to the role played by the Austrian KAPSCH Telekom company, which owns the majority shares in ETC, the local company appointed to run the e-Tolling system.

PERIOD 1: April 2012 to 31 Oct 2013 COURT INTERDICT, REVIEW & APPEALS	PERIOD 2: 1 Nov 2013 to FUTURE (Proj. to Dec 14) CIVIL ACTION CAMPAIGN & POSSIBLE COURT CHALLENGE
Administration: R883 464	Consultant & Marketing / Social Media Fees R540 000
Legal Expenses: R12 585 000	Other Administration, Finance & Contingency Costs R132 000
TOTAL: R13 468 464	Expected Legal fees for a defensive challenge on lawfulness of e-tolls in 2014 R5 000 000
Amount Raised: (To 30 Nov 2013) R11 530 000	TOTAL: R5 672 000
Surplus / (Shortfall) (1 938 464)	Amount Raised : Since 1 Nov 2013 R47 034
OUTA has arranged with our attorneys (Cliff Dekker Hoffmyr - CDH) to settle this if and when we are able to, but only after we have raised sufficient funds to address our current and immediate needs, based on activity in the second period reflected on the right.	Updated: 8 Jan 2014
	Directors of OUTA do not draw a salary. OUTA will appoint specialists, consultants and accountants to conduct the required work and governance functions on behalf of the organisation and the public.

Figure 5.2: Moneys collected by OUTA
Source: OUTA website <http://www.ota.co.za/site/cost/>

SANRAL and its associated government departments recognised the threat that OUTA could pose to the GFIP and embarked on a large scale process to correct any of the shortcomings that had been identified in the initial court case. OUTA duly lost its appeal in an October 2013 ruling, where the presiding judge argued that it was outside the scope of the judiciary to tell the government executive (cabinet) how to make its decisions because “the duty of determining how public resources are to be drawn upon and reordered lies in the heartland of executive-government function and domain”. (Appeal Court Bloemfontein, Oct. 2013). The ruling by the Supreme Court of Appeal effectively ended OUTA’s resistance.

The strength of the values that OUTA was espousing can be seen in the fundraising success that it had in the period up to the end of October 2013, shortly after the Supreme Court of Appeal ruling. Figure 5.2 shows the monies collected by OUTA. Period 2, from November 2013 going forward, shows a time period where OUTA has been distinctly less successful in obtaining funding for their cause.

While the opposition of OUTA to the e-Tolling case is not fading, the focus of its challenge is changing. Following the judgement by the Supreme Court of Appeal, OUTA decided to pursue a “Rule of Law” campaign as follows:

In terms of this campaign, OUTA argues that the government has not followed the correct procedure in bringing the e-Tolls into effect and that the tolls themselves are unconstitutional.

OUTA lists the following as the faults in the legal process:

- i. A public participation process was not properly conducted,
- ii. The transport minister did not adequately estimate the high cost of the e-Toll collection system,
- iii. Both the transport minister and his department did not properly consider available alternatives that were available to them and, finally,
- iv. That the process of e-Tolls is wasteful, a massive administrative burden and almost impossible to enforce (OUTA, 2014)³².

Following the rejection of OUTA’s campaign against the e-Tolling system, it would seem that most people have chosen to place their trust in different forms of representation. Despite the numerous setbacks, OUTA has continued to oppose the e-Tolling system, although there are some distinct critics who believe it is time for OUTA to give up its cause. SANRAL is one of these critics who, in a press release in January 2014, stated that “OUTA has lost every time it has gone to the courts and does not have a good track record when it comes to this” (SANRAL, 2014).³³

Political parties have become more and more vocal in their opposition to the e-Tolling

³² http://www.uta.co.za/site/wp-content/uploads/2014/08/Rule_of_Law_Campaign_V7.pdf

³³ http://www.nra.co.za/live/content.php?Session_ID=956d44a20c50ef628d2dc35ec98364e6&Item_ID=4722

system. Although political parties such as the Democratic Alliance (DA) have been vocal in their opposition to the e-Tolling system, the majority of these organisations initially chose to support organisations such as OUTA. Since OUTA was defeated in the courts in 2013, political parties (with the exception of Cosatu) have come out in criticism of the e-Tolling system. While many criticised the e-Tolling system or spoke out about it, most political parties have significantly increased their criticism of the system since the decrease in stature of OUTA.

5.2 REACTIONS TO E-TOLLING BY POLITICAL PARTIES

When the public outrage regarding the e-Tolling system became apparent in 2011, one would not have imagined that the issue would still be making the headlines three years later, in an election year. Although it is the unofficial duty of political parties to criticise their fellow political parties, almost without exception most political parties have used the e-Tolling issue as a campaigning platform. This section of the chapter highlights the way in which political parties have sought to decrease the political support of the ANC using the problems presented of the e-Tolling system. They often place emphasis on the fact that the problems associated with the e-Toll system came about as a direct result of poor decisions made by the ANC.

5.2.1 Democratic Alliance

As the official opposition in South Africa, the Democratic Alliance (DA) has the responsibility of questioning the decisions that the government makes. Arguably, there is no single issue in South African politics (apart from the Nkandla scandal, perhaps) that has received as much attention in the media as the e-Tolling scheme in the years 2011, 2012 and 2013.

The most obvious manifestation of the DA using the e-Toll scheme as a point of departure in its election campaigning has been the use of billboards next to the highways that proclaim slogans such as “E-tolls, proudly brought to you by the ANC” as can be seen in Figure 5.3. Apart from the billboards, the DA also highlighted the problems caused by the e-Tolling system for the people of Gauteng.

In addition to the billboards, the DA have made the e-Toll problem very clear in the rest of their election campaign material. Further examples of this can be found in press releases on the DA website, which seeks to illuminate the amount of money spent on “propaganda” by

SANRAL in their defence of the system (DA Website, 2013).

On a more practical level, the DA have also pledged large amounts of money to the cause opposing e-Tolls. In June 2013, the DA donated R1 million to OUTA in order to support its court bid which, at the time, was in the process of returning to the Supreme Court of Appeal (SAPA, 2013).

In addition to its election campaigning, the Democratic Alliance has also been active in criticising the ANC and the e-Tolling system in parliament. In 2012, the DA's Jack Bloom submitted a request to the Public Protector's office asking for full disclosure of all 33 sub-contractors possibly involved in the fee collection process on the GFIP's highways. In a statement by Mr Bloom at the time of the probe being announced by the Public Protector, he placed emphasis on the fact that "we need to know if any high-level politician was unjustly enriched in this process" and that "it is vitally important that the truth is revealed, with no cover-ups" (Bloom, 2012a).



Figure 5.3: DA billboard
(Source: Pressly, 2013)

The motivation for the call for investigation stems from the fact that the DA, under the guidance of Bloom, has alleged that the parent company of the Electronic Toll Company (ETC), KAPSCH, has unsavoury links with the South African arms deal. In a statement on the DA's website, Bloom stated that

Swedish KAPSCH TrafficCom holds 40% of ETC while Austrian principal KAPSCH has the remaining 25%. The Swedish Arm was previously part of Swedish manufacturing company SAAB Aerospace and later became part of KAPSCH AG (Bloom, 2012).³⁴

SAAB Aerospace was involved in a scandal surrounding the controversial South African arms deal in the early 2000s. It has been claimed that SAAB Aerospace set up companies specifically for the purpose of paying bribes to South African politicians.

The concern of both Bloom and the DA is that these companies have, once again, embarked on similar campaigns, this time in the tender process for the GFIP and the e-Tolling system. The Public Protector announced shortly after the application by Bloom that her office would determine whether any other institutions were investigating similar allegations and would co-ordinate a response based on that (Clarke, 2012).

The money donated to OUTA is not the only way in which the DA has legally been fighting against e-Tolls as, in 2014, the DA brought an application to the Constitutional Court to have the Transport and Related Matters Amendment Bill declared unconstitutional. This was for reasons similar to those outlined by OUTA in their "Rule of Law" campaign: that the public consultation period was not adequate, that the key role players did not adequately research other financing alternatives or that they had not practised due diligence when signing off on a system that would cost so much money to operate. The court dismissed the application on the grounds that "it was not in the interest of justice for the Constitutional Court to hear the matter at this stage" (SAPA, 2014).³⁵

The argument for the case being thrown out of the Constitutional Court was due to the amount of time that the e-Toll saga had already taken up in South African courts. The

³⁴ <http://www.polity.org.za/article/da-statement-by-jack-bloom-democratic-alliance-caucus-leader-on-the-party-decision-to-refer-gauteng-toll-contracts-to-the-public-protector-03052012-2012-05-03>

³⁵ www.fin24.com/Economy/ConCourt-rejects-DAs-e-Toll-bid-20140603/

Constitutional Court did not feel that the DA was coming forward with radically different information to what had been brought to court earlier by both the DA and OUTA. This followed a similar application being dismissed in the Western Cape High Court three months earlier (SAPA, 2014).³⁶

As is often the case in party politics, it is impossible to know for certain whether the DA embarked on this court bid with the genuine goal of having the e-Toll system challenged and removed from the GFIP. It could also be that it was a tactical ploy by the Democratic Alliance that would make it seem strong in standing up to government, but with no real hope of winning the court case.

The DA has made a concerted effort to decrease the support of the ANC and, in turn, boost its own electoral support. The conclusion of this chapter will discuss the wider-ranging ramifications of e-Tolling for the 2014 general elections. Another source of opposition to the e-Tolling system has come from an ally of the ANC, the Congress of South African Trade Unions.

5.2.2 Congress of South African Trade Unions

As one of the leading trade union organisations in the country, the Congress of South African Trade Unions (Cosatu) was always expected to raise awareness about an issue that affects every level of society in South Africa. Due to the e-Tolls affecting the cost of delivering goods and services, the poor were always expected to be hit the hardest.

Although SANRAL have made certain concessions aimed specifically at the poor, such as the exclusion of minibus taxis from paying tolls, organisations representing the poor, such as Cosatu, have not taken warmly to the e-Tolling idea. The argument from Cosatu is that the most straight-forward effect of the toll is not the most damaging.³⁷ Even though people who use minibus taxis will not have to pay e-Tolls, by placing an additional toll on the road, all products, goods and services that are transported on that road become more expensive. This is why Cosatu has been so vehement in its opposition to the e-Tolling scheme.

³⁶ www.fin24.com/Economy-Why-the-DAs-e-Toll-case-was-rejected-20140313/

³⁷ The straightforward effect of paying the toll is not the most damaging economic effect; the increase in the price of goods and services is far more devastating, especially on the poor, because, in all likelihood, the poor will not pay for the tolls because they do not, in general, own cars, but still have to purchase goods and services.

Although there will always be arguments and counter-arguments on any debatable point, SANRAL argues that the improved quality of roads will actually bring down the price of goods and services, despite having to pay the toll. Cosatu does not agree with this idea at all and has actively pursued a campaign that has ranged between polite criticism of the GFIP and its financing scheme, to fully-fledged strike action against the e-Tolls.

Cosatu is an organisation that claims to represent the workers of South Africa with their slogan, “An injury to one is an injury to all”. Cosatu has sought to protect all of its members from exploitation and unfair treatment. It is for this reason that Cosatu has taken such a strong stance against the e-Tolling system.

Cosatu has protested against the e-Tolling system by claiming that all its workers in South Africa would go on strike to show their displeasure with the system. Similarly, Cosatu has orchestrated numerous “go-slow” strikes on the Gauteng freeways, such as on 6 December 2012 and 24 June 2013. The intention of these strikes was to show its dissatisfaction with the e-Tolling system as a whole and to prove that it is committed to opposing the system (Tau, 2013).

Although the go-slow strikes had the intended effect of slowing down the traffic flow on the GFIP highways, the long-term effect of the Cosatu go-slows has been largely negligible. Cosatu has also frequently threatened to embark on strike action against the e-Tolls and the increased cost of living that it represents to its members. There have been no Gauteng-wide strikes that have shut down the highway system, despite plans for these strikes and the occurrence of strikes on a smaller scale (Gernetzky, 2013).

A less obvious result of the e-Tolling system on Cosatu has been the strain that it has placed on the tri-partite alliance between Cosatu, the ANC and the South African Communist Party (SACP). In the run-up to the ANC presidential election conference in Mangaung in 2012, there were very distinct disagreements between the three members of the tri-partite alliance.

The ANC was committed to implementing the scheme in its current state, with the SACP agreeing with the infrastructure goals of the GFIP, but not the e-Tolling system. Cosatu was the most outspoken of the three members, arguing that the e-Tolling system should be scrapped and the GFIP process should be investigated. There was also suspicion between all three members of the alliance that the other two members gained financially from the project and that the system was poorly implemented from the start (Molele, Letsoalo & Pietersen,

2012).

Although the reaction to the e-Tolling system has been uniform by Cosatu, the harm that it is doing to the tri-partite alliance has far-reaching consequences. Similarly, the go-slow action has done much to raise awareness regarding the e-Tolling system and has caused untold frustration for the average Gauteng motorist. Although many Gauteng motorists are, in all likelihood, sympathetic to the cause of opposing e-Tolls, the go-slow strikes have the effect of drastically increasing congestion and increasing journey times tremendously on the days that they occur.³⁸

At the time of OUTA's court cases when it seemed that it was the most successful in fighting the e-Tolling system, Cosatu proclaimed its support for OUTA. This is, once again, an example of a political organisation backing a civil protest organisation. As with the Democratic Alliance, Cosatu decided initially that it would be better served by supporting OUTA than embarking on its own protest campaigns. However, much earlier than the DA, Cosatu decided to embark on actions of its own, in order to oppose the e-Tolling issue and indeed grow its own profile on South Africa's political landscape.

Cosatu has been the most vocal critic of the government in recent times, as was mentioned earlier. General Secretary Vavi came out to criticise the public engagement campaign run by the Gauteng transport department, arguing that it had been an utter waste of time. Despite its committed opposition to the e-Tolling system and its large membership base, e-Tolls continue to this day. Some members of Cosatu have even gone so far as to burn their e-Toll accounts that they receive in the post, in order to protest against the system.

Cosatu has arguably been the most outspoken critic of the e-Tolling system, managing to mobilise people from different sectors of society in its opposition to the e-Tolling system. In May 2013, Cosatu was able to mobilise a vast variety of actors to oppose the e-Tolling system. At one meeting in the Cosatu boardroom, there were members from the South African Catholic Bishops' Conferences, members of the Treatment Action Campaign (TAC), Shaun Pfister, the leader of the Bikers Against Tolls non-profit organisation, as well as members from the National Association of School Governing Bodies and the Gauteng Taxi Association (Nicolson, 2013). The ability of Cosatu to mobilise such a large and diverse

³⁸ See Figure 5.4.

collection of people shows that its commitment to opposing the e-Tolling system has not gone unnoticed.



Figure 5.4: A Cosatu anti-e-Toll protest

(Source: Times Live, 2013

http://www.timeslive.co.za/incoming/2013/04/12/0000183913.jpg/ALTERNATES/crop_630x400/0000183913.JPG)

Despite having such a wide variety and number of allies in its struggle against the e-Tolling system, Cosatu has not been able to halt or reverse e-Toll implementation on its own. In the concluding remarks to this chapter, the effect of these actions will be discussed in the larger scheme of South African politics. The next section will discuss the effects of another political party on the e-Tolling system and the GFIP mega project.

5.2.3 Economic Freedom Fighters

After Julius Malema was removed as the leader of the ANC Youth League, he decided to return to found and lead his own political party (economicfreedomfighter.org, 2013).³⁹ The Economic Freedom Fighters (EFF) party was founded on 17 August 2013 and the left-wing, anti-capitalist, anti-imperialist and Pan-Africanist party made no bones about its

³⁹ <http://www.economicfreedomfighters.org/malema-takes-command-of-economic-freedom-fighters/>

disillusionment with the ruling ANC and its shortcomings in certain areas. The EFF members were especially critical of the lack of support provided for the poor and vulnerable by the ruling party since 1994, as well as its lack of commitment to the socialist principles on which the ANC was founded (Munusamy, 2013).

One of the key bastions of the EFF's election campaigning was the commitment to opposing the e-Toll scheme for the effect it would have on the poor and the lack of public consultation that had taken place during the construction phase. The EFF went so far as to say that it would "physically remove the e-Toll gantries" from Gauteng Highways if they were elected (Ngoepe, 2014).

Although this might be viewed as an extreme opinion by some, it does signify the lengths that people have gone with their political rhetoric to show their opposition to the Gauteng e-Tolling system. It was as a result of statements like this, followed up by concrete protest action, that the EFF was able to garner as much electoral support as it did.

1 November 2013 saw the EFF organise a protest march to the office of the Premier of Gauteng. At this march, EFF members handed over a memorandum of understanding to the Premier's office that it was not prepared to pay for what it called "Zuma's debt" (Lesole, 2013). The party further expanded on its reasons for protesting by saying that the system was unjust and said that it would disadvantage the poor. Furthermore, the EFF members committed themselves to using every skill and tactic that they possessed to render the system dysfunctional. Figure 5.5 shows a photo taken on the day of the protest march to the offices of the Premier of Gauteng.



Figure 5.5: EFF protest against e-Tolls

(Source: Eye Witness News, 2013 <http://ewn.co.za/-/media/920661D17700495F920F89AC33A938A5.ashx>)

Although it was not the only point on the political agenda of the EFF, the EFF did manage to accrue over one million votes in the 2014 General Election.

The next section of the chapter will examine how another smaller political party in South Africa, the Freedom Front Plus has reacted to the e-Tolling scheme.

5.2.4 Freedom Front Plus

The Freedom Front Plus (FF+) has always been regarded with some trepidation by most voters in South Africa since 1994, due to its apparent links to conservative Afrikaans culture. This association arguably came about as a result of the founding of the party in order to safeguard the interests of Afrikaners in a democratic South Africa. The traditionally Afrikaans party has remained active and relevant in South Africa, despite the collapse of other Afrikaans political parties such as the New National Party and the Reformed National Party (Herstigde Nasionale Party).

On the GFIP and the associated e-Tolling saga, the FF+ has been very vocal in its criticism, not only with regard to the system itself. The FF+ has even gone so far as to criticise the way in which other political parties criticise the e-Tolling system.⁴⁰

⁴⁰ See the final paragraph of this section for an explanation of how the FF+ has criticised the DA for its criticism

Unlike Cosatu, that has used its overwhelming numbers to drum up opposition against the e-Tolling system, the much smaller FF+ has followed the route of addressing parliamentary portfolio committees in order to have certain parts of the e-Tolling system amended. This can be seen in the actions of February 2013, where the FF+ addressed the parliamentary portfolio committee on transport, with the intention of having the e-Tolling system postponed (Polity.org.za, 2013).⁴¹

In this particular instance, the FF+ brought to light the fact that the economic and traffic studies that had been completed by SANRAL should be made available to the public. Furthermore, the validity of including the national credit act's consumer protection clause in the e-Tolling system was unconstitutional, with the FF+ arguing that it was unfair to prosecute road users who refused to pay, because they did not sign up for the toll. Finally, on a technical and legal point, the FF+ insisted that the Transport Laws Amendment Bill be reclassified as a Section 76 Bill (provincial) as opposed to a Section 75 Bill (national), because the bill only had impact on the provinces (Polity.org.za, 2013).

All of the opposition to the e-Tolling system by the FF+ before its implementation was on a similar track to that of the DA and OUTA, in that they all wished to legally oppose the bill. As time wore on, the FF+ increased its opposition to the e-Tolling bill, with a final bid of court action to halt e-Tolling being served the night before the system went live. Unfortunately for the FF+, the e-Tolling system went live and its opposition to the system appears to have been in vain.

The FF+ does not share this opinion as it has continued to oppose the e-Tolling system even after the system went live in December 2013. A press release on its website in January 2014 seeks to commend its own efforts in its struggle against e-Tolling. The launch of a national petition campaign against the e-Tolling system and the support of the National Consumer Commission have kept its resistance against the e-Tolling system alive (FF+, 2014). By the time of writing, the FF+'s toll gate petition had over 80 000 signatures.⁴²

of the e-Tolling system.

⁴¹ <http://www.polity.org.za/article/vf-statement-by-anton-alberts-freedom-front-plus-parliamentary-spokesperson-ff-plus-succeeds-with-submission-in-parliament-on-e-Toll-amendment-bill-19022013-2013-02-19>

⁴² <http://www.tolheketisie.org.za/>

In a press release of November 2013, Advocate Anton Alberts, speaking for the FF+, criticised the court application that the DA had prepared, arguing that

the DA are being dishonest with road users about their e-Toll court application in Gauteng. The public's overwhelming opposition against the e-Toll system in Gauteng is being used as a cheap way for the DA to gain votes in the run up to the 2014 elections (Alberts, 2013).

This statement by Adv. Alberts came about because, he argued, the decision to go to court and challenge the constitutionality of the e-Tolling system was in direct contradiction to the parliamentary caucus of the DA. The DA parliamentary caucus had committed itself to fighting against the e-Toll system by working parliament to get the process resolved. Alberts went further still, by personally attacking the DA premier candidate for Gauteng, Mmusi Maimane, by saying “[t]he facts however clearly show that Maimane is not expressing his party's policy with this court application” (FF+, 2013).⁴³

The abundance of opposition to the GFIP and the associated e-Tolling has had an effect on the nature of South African politics. The next section of this chapter will analyse the reaction of the ruling party to the bad press and the diminishing support that it has suffered as a result of the project.

5.2.5 African National Congress

The African National Congress (ANC) has been attacked from several different angles and by a plethora of political parties, civil action campaigns and public interest groups for its decision to support and finance the GFIP and the associated e-Tolling scheme. Although most concerned parties and individuals agree that the GFIP is necessary and justified, it is with the e-Tolling system that most people find fault.

Some political commentators have asked the question of why the ANC did not wait until after the 2014 general election before implementing the much maligned e-Tolling scheme. The fact of the matter is that, economically, the ANC, the government and SANRAL could not afford to wait that long. As was illustrated in Chapter Four, the e-Tolling system should

⁴³ <http://vfplus.org.za/media-releases/e-Tolls-da-court-application-clashes-with-their-parliamentary-policy-and-actions-of-caucus-members>

generate a large amount of crucial income for SANRAL in order to repay the massive debt accumulated in the construction phase of the GFIP. Therefore, every month that the system was not online, cost SANRAL massive amounts of lost income, so much so that the ANC could not afford to postpone e-Toll implementation by an additional six months until after the elections.

In the lead-up to the 2014 election, the ANC released an internal policy document, which highlighted the threat posed by opposition political parties and how this may affect the ANC's electoral dominance in Gauteng. The rising voting percentage of people from the black middle class and the youth were identified as key areas of concern for ANC politicians. The document reads

The black middle class and first-time voters of five years ago who voted for the Congress of the People are not coming back to the ANC but going DA. There is a clear and present danger that we have lost or are losing the black middle class (Ndlangisa, 2013).

The report went on to highlight the Gauteng e-Tolling system and the furore surrounding the security upgrades to President Jacob Zuma's private home in Nkandla as being alienating factors to voters, especially the black middle class and young voters.

Although it is by no means the only reason for the decline in support for the ANC, the decrease in votes for the ANC stems at least partly from the widespread resentment to the e-Toll system. The ANC lost eleven per cent of its support in the Gauteng Province when compared to the 2009 election result (SAPA, 2014).⁴⁴ In addition, the DA gained almost nine per cent in the province, increasing its support in the province from 21.86% in 2009 to 30.78% in 2014. This, in addition to the EFF garnering 10.30% in its first election, less than a year after its founding, shows a significant decline in public support for the ANC (Mataboge & Letsoalo, 2014).

As a result of the poor performance by the party at the polls in 2014, the ANC-led government responded by forming both a provincial and national task team. This task team would involve itself with public consultation. These committees, set up to investigate the drop in support for the ruling party, would attend to the issues raised by members of the

⁴⁴ <http://www.citypress.co.za/politics/anc-wins-gauteng-support-drops/>

public. The e-Tolling is naturally an issue that was raised early in proceedings. A specific e-Toll panel has been set up so that the system can be made more equitable and create a better image of the e-Toll in the eyes of the public. David Makhura, the Premier of Gauteng announced in July 2014 that an advisory panel would be created to evaluate the “socioeconomic effects of the system” (Stone, 2014) and to present feedback to the ruling party. This follows an inter-ministerial task team, headed by former president, Kgalema Motlanthe, that was established in May 2014 to address the issues presented by the GFIP in general and, more specifically, the e-Tolling system (SAPA, 2014).⁴⁵

It has been questioned by political commentators whether either of these task teams or advisory panels will have a tangible impact on the e-Tolling system. This is because the system has been described as too big to fail. SANRAL has accumulated debts of over R40 billion and the next section of this chapter will delve into whether this system is, or will be, sustainable.

5.3 IS THE GFIP AND E-TOLL SYSTEM SUSTAINABLE?

Looking purely at the economic factors present in the GFIP and the e-Toll system, one would have to agree that the system has already been classified as too big to fail. SANRAL is a private company that has financial guarantees from the South African government. This means that if SANRAL cannot repay the massive debts that it has incurred, then the South African government will have to foot the bill.

The problem with this system is that the burden will fall onto the taxpayer if SANRAL’s business model struggles any further than it already has. The inherent problem with the e-Toll system, as highlighted by many of its opponents, is that it is very expensive to collect the toll fees. Consequently, SANRAL does not receive as much revenue as forecast.

Furthermore, the system has been accepted by parliament and the government for so long that, even though the system is proving highly inefficient, the government cannot immediately halt the use of the system, because various long-term contracts are already in place. For example, KAPSCH trafficcom (KAPSCH is the company that owns 85% of the South African Electronic Toll Consortium) has a contract with SANRAL to provide the GFIP

⁴⁵ <http://www.news24.com/SouthAfrica/News/Busa-welcomes-e-Tolls-task-team-20120505>

with a National Transaction Clearing House, the Violations Processing; this contract is worth R1.16 billion (Kapsch, 2014).⁴⁶ In addition to this, KAPSCH, an Austrian company, has received a tender worth a further R8.4 billion for the operations and maintenance of the e-Toll system for a period of five years. This represents huge financial burdens that SANRAL is contractually obligated to pay.

The detractors of the e-Tolling system have also suggested various other alternative forms of payment as outlined in Section 3.5.1. The problem with the implementation of any of these systems is that it is too late to effectively run these funding mechanisms as they will present an even larger financial loss to SANRAL and the government.

In April 2014, it was reported by the *Mail and Guardian* that SANRAL was owed over R500 million in outstanding e-Toll debt, a mere five months after the system had become operational. After further questioning on the matter in parliament, Transport Minister Dipuo Peters stated that only 9.21% of unpaid fines had successfully been recouped by the VPC.

If the GFIP does not change its practices, then the chances of the project becoming sustainable are very small. The issues that the system is grappling with are massive; every day of non-payment by road users drives SANRAL further into debt. The system in its current guise is definitely unsustainable and changes are needed as soon as possible.

5.4 CONCLUSION

The problem at hand is to determine if the e-Toll system is sustainable.⁴⁷ The short answer is that it is not, but once the facts have been considered, no other conclusion than that the government is facing many difficulties moving forward is possible. The options available to the government and SANRAL are to more rigorously enforce payment discipline amongst road users, to scrap the system in its entirety, which would naturally have massive economic repercussions, or to indeed rebrand the system or combine it with something else.

These options will be investigated in more detail in the concluding chapter where forecasts

⁴⁶ http://www.kapsch.net/za/ktc/about_us

⁴⁷ A sustainable project is one that can be perceived to realistically continue. In this case, the question is whether the system is sustainable in terms of public support. The sustainability of the GFIP is directly linked to the ability of SANRAL to increase the amount of people who pay for the e-Tolling system.

into the likely future of the e-Tolling system are made. At this stage of the investigation, it has been determined that the system has largely failed in terms of the role played by the public interest groups factor, due to the overwhelming opposition provided by political parties and the formation of civil opposition, specifically to fight this project. The system has by and large achieved its construction goals and many of the traffic goals that it set itself.

It is in the public reaction and lack of public acceptance where the GFIP and the e-Tolling system fall short on more than one count. The e-Tolling system has represented one of the few broadly encompassing problems to cross racial and party lines in South African party politics since the advent of democracy in 1994.

The reaction by the ruling party has shown how seriously it takes the damage that the e-Tolling system is doing to its party image. Almost all opposition political parties and even some of the allies of the ANC have used the e-Tolling system as a campaign platform that has arguably resulted in diminished support for the ANC in the 2014 elections.

CHAPTER SIX: CONCLUDING REMARKS

The goal of this thesis was to determine whether or not the Gauteng Freeway Improvement Project (GFIP) and the associated e-Tolling programme can be viewed as a mega project failure.

This concluding chapter of the thesis will begin with a brief overview of each chapter so that the reader is reminded of the contents of each chapter. Once the overview is concluded, the major questions posed by the introduction and framework of this thesis will be answered in Section 6.6. Once this has been completed, the concluding remarks will be addressed.

6.1 INTRODUCTION

The introduction to this thesis saw the description of the holistic mega project analysis idea as well as introducing the problem statement and research question. Furthermore, it outlined the aims and purpose of the research, the research design and methodology. The introductory chapter also highlighted the limitations of the study and provided an overview of the thesis.

6.2 LITERATURE REVIEW AND KEY INDICATORS

The literature review was necessary to investigate the background of mega project development. This was done through predominantly analysing the work of Altshuler and Luberoff (2003), who split up mega project history into four main time periods. Due to their work being published more than ten years ago, it was necessary for this author to include an additional time period.

The five eras that were discussed in the literature review are split up as follows: up to the 1950s, public works schemes were expanded and infrastructure projects were broadened. The great mega project era ran from the 1950s until the late 1960s and was split into two major categories, the first, public transport and urban renewal, the second, the space race and military technology. The revitalisation of the inner city through increased public transport, slum clearance and the development of tourist attractions and central business districts sparked urban renewal.

The next era (late 1960s to early 1970s) is called the era of transition and is characterised by an increase in citizen participation as well as the rise of environmentalism. This time period was the first time in mega project history that project planners were tempered by public

opinion. The mid-1970s saw the rise of the era of “do no harm”, which came about because of the massive increase in inflation and the economic stagnation that accompanied it. This stagflation, combined with the vehemence of civil action groups and the rising concern for the environment, meant that only projects that would cause minimum disruptions were considered.

The final political era is the post-2001 world order, which has seen the landscape of mega projects drastically altered. With terrorist attacks an ever-present threat, mega projects have been identified as potential targets and have caused some of the most ambitious projects to be scaled back.

The final section of Chapter Two saw the explanation and development of the framework for analysis that would be used throughout the rest of the thesis.

6.3 BACKGROUND TO THE GFIP

Chapter Three introduced the GFIP and its motivation which can be summed up briefly as the need to ensure that the Gauteng Province had sufficient road infrastructure to ensure that its economic growth would continue. Furthermore, the use of high quality road surfaces was justified, followed by a description of the initial feasibility study conducted by SANRAL.

The second section of the chapter focused on the construction and traffic goals of the GFIP. These goals included the provision of world class infrastructure, the increase of free-flowing traffic and a focus on safety in road use. The provision of an Intelligent Traffic System, decreased reaction times of emergency services and better integration of different forms of public transport were the focus of this section.

The motivations for open road tolling were discussed later in Chapter Three and described the need for, and the benefits of, the ORT system, more specifically, how the user-pay ideal allows money to be collected specifically for infrastructure development. Once completed, the chapter moved on to the time period when the GFIP was submitted to cabinet for approval.

The challenges to the e-Tolling system were also outlined in this chapter: public acceptance, tag penetration, payment options, payment discipline, traffic management and time constraints. The chapter concluded with a brief description of the beginning of construction.

6.4 ECONOMIC GOALS OF THE GFIP

Chapter Four dealt with the economic goals of the GFIP. This chapter had four main points of interest, namely, cost underestimation, overestimated revenues, negative economic effects and economic multipliers.

In the work of Bruzelius et al (2003), the first section discussed was that of cost underestimation. The analysis found that cost underestimation was a massive problem, with the final budget for the GFIP being 254% higher than initially estimated. Not only was the GFIP the victim of the regular cost underestimation that seems to afflict any mega project, but the presence of collusion among construction companies extrapolated this problem. Although the companies have been fined for the infringement, the money will probably never return to the SANRAL coffers.

Many critics of SANRAL are calling for the further investigation of the companies involved in the collusion. Prosecuting the companies involved in collusion would be an effective way for SANRAL to recoup some of the money that now forms its huge amounts of debt. The news surrounding the Competition Commission investigating engineering firms in South Africa for collusion emerged in June 2013. Only in January 2015 has SANRAL indicated its intention to pursue the matter further. SANRAL has asked the Hawks⁴⁸ to further investigate the collusion in relation to the GFIP, in order to apply for compensation (Bruce, 2015).

Overestimated revenues are found to have been a problem from the beginning of the project, with the project beginning 29 months later than first expected. At an estimated revenue of R250 million per month, this represents an immediate overestimation of R7.25 billion. Due to the struggle to get the e-Tolling system implemented and running at 100%, there have been dramatic revenue overestimations that were not forecast during the planning phase. The massive debts that are facing SANRAL make any healthy financial future, from this point going forward, all the more unlikely. A combination of demand predictions being inaccurate, unexpected external factors and the political activities described in more detail in Chapter Five, have all led to the revenue estimations being inaccurate.

Negative economic effects have also played their part in detracting from the economic

⁴⁸ South Africa's Directorate for Priority Crime Investigation unit

success of the GFIP. The massive debt that has been incurred by SANRAL has caused the parastatal to struggle financially and reasons why the system is potentially on the brink of failure were discussed. The massive debts that the parastatal carries have led to some credit rating agencies believing that its debt may influence the entire South African economy negatively.

Economic multipliers that were expected to arise as a result the GFIP have largely been positive, although they have been tempered by the perceived price of paying for the tolls. The GFIP has and will continue to contribute greatly to GDP in its capital expenditure and, in later years, spending on maintenance. However, there is the inescapable fact that some goods and services have become more expensive due to the tolls.

6.5 PUBLIC SUPPORT FOR E-TOLLING

It is in the analysis of the role of public interest groups that this study makes its most relevant findings. Whereas the analysis of the economic side of a project has been done for many years, it is in analysing the role of public interest groups that this thesis wishes to make a difference. In Chapter Five, the relevance of the project was discussed and it was found that the project is very relevant to the people of both Gauteng and indeed the rest of South Africa, because there is hardly a person who is not touched in some way by the GFIP and the e-Tolling system.

Chapter Five discussed the public support for the e-Tolling project and highlighted contributions made by these various actors—OUTA, political parties and even trade unions—who have added to the e-Toll discourse.

The establishment of the Opposition to Urban Tolling Alliance (OUTA) represented a bold move by members of the public, showing that they were serious about opposing e-Tolls. Initially OUTA enjoyed success in court proceedings, managing to slow down the e-Tolling process, but ultimately its efforts came to nought. When President Zuma signed the so-called “e-Toll bill” into law in September 2013, OUTA’s challenges were seriously stunted. Although OUTA does continue to fight against the e-Tolling system, it has been hamstrung by a lack of funds⁴⁹ and is seemingly fading from public imagination since e-Tolling became

⁴⁹ See: Figure 5.1: Moneys collected by OUTA.

operational.

The reactions of political parties became more direct in the run-up to the 2014 elections. This section of the thesis highlighted what the opposition parties resorted to in order to degrade the electoral majority of the ANC. One of the best examples is from the DA who posted billboards such as those found in Figure 5.2 that proudly proclaim “E-tolls. Proudly brought to you by the ANC”.

Cosatu, the Economic Freedom Fighters and the Freedom Front Plus have all mounted their own campaigns of dissent and resistance to the e-Tolling system. Cosatu has blocked off highways and embarked on various other forms of strike action. In addition, Cosatu has also been one of the ringleaders in opposition to the e-Tolls as, at one stage, it was hosting anti-e-Toll meetings with a crowd so diverse that it saw bishops, bikers, taxi drivers and school officials sitting around the same table.

The EFF has made a variety of claims regarding its intentions about e-Tolling, from saying that it would physically remove the e-Tolls if elected to peacefully marching to the office of the Premier of Gauteng to hand over a list of grievances to the officials. Similarly, the FF+ has also been outspoken in its criticism of the e-Tolling system and has even gone as far as to criticise fellow opposition parties for the way in which they chose to oppose the e-Toll system.

The voices of dissent have not only come from the opposition; even the ANC’s tripartite ally, Cosatu, has voiced its dissatisfaction with the e-Tolling system. Similarly, the South African Communist Party (SACP) has also voiced its unhappiness at the way in which the ANC is handling the GFIP and the e-Tolling system.

For its part, the ANC has tried to defer some of the criticism of the e-Tolling system by appointing an inter-ministerial task team in order to assess the effects of the e-Tolls. The issues surrounding the e-Tolling system did considerable damage to the ANC at the polls, with the ruling party losing eleven per cent of its support in Gauteng compared to the 2009 elections. Although the e-Tolling system is not the only issue that would have changed voting behaviour, it has been noted by many as being the major detractor from ANC votes in Gauteng. Although the ANC majority shrank to its smallest size since the advent of

democracy,⁵⁰ the eleven per cent drop in ANC votes in Gauteng is far more significant and can arguably be linked to the e-Tolls.

In a speech to the Extended Public Committee on Transport in July 2014, DA representative de Freitas said:

By far the biggest transport issue on the lips of South Africans at present is the e-Tolls issue, which the public, almost unanimously, has rejected. This issue has been handled poorly from the very beginning. The voters of Gauteng have been making their feelings felt with their peaceful resistance campaign by not signing onto the e-tag system. Their feelings were further clearly demonstrated when they reduced the ANC's support from 64% in the 2009 election to 53% in this year's⁵¹ election.

The final section of the chapter on public support sought to determine if the GFIP is sustainable. The definitive conclusion has been that the GFIP has the potential to be sustainable but, at this time, it seems unlikely that the e-Tolling system will prove to be sustainable. The problem for the e-Tolling system is that it has reached a point where it can almost be classified as "too big to fail".

If the GFIP is to be successful, then the government, in conjunction with SANRAL, is going to have to find a way of improving not only the image of the e-Tolling system, but also buy-in. In Chapter Five, the points that need to improve were outlined. These included the tag penetration and the effectiveness of the VPC. Public support for the e-Tolling system is very low and, if these problems are not solved, then the system will prove to be unsustainable in the long run. The financial implications of the non-payment of e-Tolls also greatly threatens not only SANRAL, but the whole South African economy.

If SANRAL reneges on its contractual commitments, there will be massive financial penalties, not to mention the money that would have been wasted on the erection of the gantries and the VPC. Similarly, the problem exists that any alternative funding methods such as the fuel levy or licence fees would have to have been implemented a while back to be successful. It will be an interesting academic exercise to see what SANRAL, in conjunction

⁵⁰ ANC majority at National General Elections: 1994: 62.65%; 1999: 66.35%; 2004: 69.69%; 2009: 65.90% and 2014: 62.15%.

⁵¹ 2014

with the government, does to minimise the financial problems caused by the GFIP and the e-Tolling system.

6.6 ANSWERING THE MAJOR QUESTIONS

The major aims that have been addressed in this thesis are to provide the tools to understand the difficulties behind mega project planning, construction and operation, followed by the explanation as to why mega project failure is not necessarily final. The mistakes that have been made in the planning and implementation of the GFIP mega project have been highlighted. Alternatives to these poorly made decisions have been proposed and attempts have been made to establish important guidelines that can be applied in future, so that the same mistakes are not repeated. Finally, this thesis sought to highlight the effect that this mega project has had on political outcomes in South Africa.

In answering the first question posed by this thesis, providing the reader with the tools to understand the difficulty behind mega projects, the author has looked at the two main pillars of this thesis which are the economic sustainability and the effect of public support on which the framework of Bruzelius et al (2003) is built. The reasons for mega project failure in terms of economic sustainability, as outlined in Chapter Four are: cost underestimation, overestimated revenues, economic multipliers and negative economic ramifications.

Public support is the second pillar that holds up the framework of Bruzelius et al (2003) in this thesis. Key mistakes that have been highlighted in this thesis are: the lack of consultation with the public and attempting to implement a system without public approval.

The explanation of the problem statement, research question, research aims and research purpose once again draws on the two main pillars of the framework of Bruzelius et al (2003). The research question asked whether or not the Gauteng Freeway Improvement Project (GFIP) and the associated e-Tolling project can be viewed as a failed mega project. Table 6.1 provides a concise summation of each of the factors used for analysis and whether or not the GFIP and associated e-Toll project passed or failed, according to the analysis.

Table 6.1: Summary of the framework for analysis

Factor used for analysis	Pass / Fail
Economic	Fail
Cost underestimation	Fail
Overestimated revenue	Fail
Negative economic ramifications	Fail
Economic multipliers	Fail (may change in years to come)
Public Interest Groups	Fail
Reaction to tariff announcement	Fail (poor consultation)
OUTA	Fail
Political party reaction	Fail
Overall	Fail

(Source: Author's own)

The additional aims that may serve as lessons learnt for mega project analysis are the focus of the next question. The two additional aims of this thesis were, firstly, to provide an identification of key mistakes and successes in this project, with the aim of limiting or even eliminating the mistakes made in future projects. The second additional aim was to try and form a “best practice” hypothesis based on the lessons learnt from this thesis.

The key mistakes made in the process of planning, construction and operation of the GFIP and the e-Tolling system are as follows: poor forecasting of prices, future revenues, potential economic multipliers and negative economic effects have hamstrung the development of the project. As outlined in Chapter Four, there is a strong chance that some of these incorrect estimations may have been done on purpose so that the project stood a better chance of being selected as a priority project. These claims are hard to substantiate, but are an ever-present danger. In addition, the emergence of the collusion case against major construction companies has brought this possibility even more to light.

The second key mistake that was made in this project was a lack of public engagement in the planning phase, which led to the massive outcry once the toll fees were published. Specifically in the case of this project, it was extremely difficult for the people managing the GFIP operation to change their approach in the face of public outcry, because the project was so far along by the time the public outcry against the e-Tolling tariffs emerged.

Poor research is also a key mistake that emerged out of this project, specifically, the feasibility study that was conducted by the team from the University of Cape Town's Graduate Business School. This report by the UCT Business School made key mistakes in its analysis, such as placing the cost benefit analysis of the GFIP at 8.4:1, which was a very optimistic estimation. As a result of this flawed analysis, major decisions were made to continue with the project that have not materialised, increasing the discontent towards the project by members of the public.

The final key mistake in the GFIP was the way in which the minister Sbu Ndebele reacted to the criticism of the e-Tolling scheme. By halting all work on the e-Toll in order to review the system, Ndebele caused massive amounts of potential income to be lost. Although Ndebele arguably had very little room to move, his response to the problem could have been handled in a better way. The comments by the minister lent legitimacy to the criticism of the GFIP and the associated e-Tolling system; they further motivated the average person to believe that the system is not wholly legitimate. The minister would have been better advised to qualify his statements and act with less haste, which could potentially have avoided the increase of SANRAL's debt to such massive amounts.

Unfortunately for the supporters of the GFIP, there have not been too many key successes that could add to the best practice hypothesis. One key success was the way in which work was done on the highways. By erecting barriers in the middle of the highways and working within these barriers, the construction teams on the GFIP minimally disrupted traffic.

To formulate the "best practice" hypothesis, one can take information from each of the key mistakes and successes and conclude that it is important to improve forecasting techniques to minimise the effect of under- or over-estimation. Engaging the public earlier and more effectively is key to the success of the mega project. Poor research can have dire knock-on consequences for the mega project and, if criticism does start to emerge on the project, it is important to have an effective and well-co-ordinated response that does not further negatively impact the project. Finally, future road infrastructure mega projects would do well to employ the concrete barriers in order to minimally disrupt traffic.

The final major question that this thesis posed in filling the research gap was by asking what the effect of public support can be on mega projects, both in terms of slowing down implementation and how the project is run. The four main points that this thesis has

concluded are as follows.

The first is that public opposition can greatly slow down a project's implementation, as was seen in the wake of Ndebele deciding to halt all GFIP and e-Toll work once public outrage had emerged. Similarly, the second point is that a lack of public support can cause a policy rethink, such as the decision to reduce the amount of the tolls and fill in the difference with a massive monetary injection by the Treasury in 2012. Thirdly, public support can be manifested in different ways; arguably the most significant way that this has occurred on the GFIP was by the shift in voting patterns in Gauteng in the 2014 elections. The final result of a lack of public support is that SANRAL is struggling with tag penetration, because the e-tag has almost become a symbol of a flawed government policy. There are a plethora of anti-e-tag protests, not least of all the effort by OUTA.

6.7 CONCLUSION

During the course of this thesis, the research questions, "Can the Gauteng Freeway Improvement Project and associated E-tolling project be considered a failed mega project?" and "What have the political consequences been as a result of the GFIP?" have been dealt with in many different ways. The work of Bent Flyvbjerg was often referenced in this thesis and it is as a result of his work that the researcher embarked on this thesis.

To answer the research question, the GFIP and the e-Tolling project are definitive failures, both in terms of economic means and in terms of public support, and as outlined in the analysis of Bruzelis et al (2003).

The major result of this project is that the South African public has begun to treat SANRAL with suspicion as an organisation. Ordinary citizens are arguably of the opinion that SANRAL relies on the road user to pay for its poor decision making. The e-Tolling saga is one of the first political issues in post-apartheid South Africa that has managed to cross the race divide as a major issue.

Looking to the future, it is difficult to recommend the way forward for the GFIP, and SANRAL as a parastatal organisation. As outlined in this chapter, the alternatives to e-Tolling do exist, but any solution will have to be taken knowing that the economy will suffer as a result. The problems with the e-Tolling system have seen South Africa's credit rating downgraded and could still potentially place massive pressure on the economy.

The first point of departure for SANRAL and the government would be to try and get e-Tolling working more efficiently, by increasing the effectivity of AARTO and the VPC. Furthermore, the road upgrades themselves are good; now the financing of the scheme needs to complement these upgrades.

To conclude this thesis, it would seem that although the user-pay option has been identified as the way forward, in future it would serve SANRAL better to explain a system and its repercussions in totality, before imposing a payment system that is maligned and misunderstood on the South African people.

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