Urban Transport Analysis for the Urbanisation Review

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January 2018

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Summary of main findings

1. South Africa has very dispersed urban form resulting in average morning commuter trip times to work in the five biggest metros of between 61 and 53 minutes in 2013. Public transport users spend a high proportion of their household income on travel, especially on getting to work. For the lowest income quintile in 2013, in 98.9% of cases average per capita transport costs to work exceeded 20% of per capita household income. For the same percentile average per capita public transport costs for all purposes exceeded 20% of per capita household income in 66.6% of all cases.

2. The ‘DNA’ of urban form in South Africa has been determined in the second half of the 20th century during a time of apartheid and automobile driven planning, and is unlikely to change substantially, although incremental improvement is possible and ought to be pursued.

3. For many decades public transport in South Africa has been seen as mainly for those who cannot afford private vehicles. However, rising congestion is also strengthening the argument for providing public transport to avoid a significant deterioration in urban efficiency through containing the number of vehicles using the road network.

4. The costliest completed urban mobility projects since 1994 have been the Gautrain and the Gauteng Freeway Improvement project. These have helped contain congestion in Gauteng over the last seven years; however, there are indications that this may have been a relatively short, temporary hiatus.

5. Peak period congestion has climbed significantly in Cape Town in recent years, with a sharp rise in the last 24 months likely attributable to a significant deterioration in commuter rail services. The significant adverse impact arising from a reduction in rail service usage is a reminder of the importance of current services to existing levels of urban efficiency.

6. In the context of rising congestion, if public transport is given a significant travel time advantage through prioritized rights of way (road or rail) it could become an attractive option for choice users. If this occurs at reasonable scale it will begin to affect the location decisions of middle class households and could have a significant positive incremental impact over time on the transit orientation of urban investment.

7. Globally, urban transport appears to be on the cusp of a revolution which could substantially change the nature of urban mobility. Mobile phones, which offer a highly efficient mechanism for matching supply to demand in real time through digitization; and linked mobile technologies such as payment mechanisms, have the potential to alter public transport profoundly in South Africa, with other technologies such as driverless vehicles possibly offering further important innovation potential in the long term.

8. A wide variety of demand patterns based on widely differing urban typologies, income levels and access priorities will continue to exist for many decades and therefore requires a mixture of many different modes able to differentially service the market.

9. Effective solutions require well capacitated city wide urban government institutions that are able to manage land use and mobility so as to optimize access across the city. These institutions are required, inter alia, to facilitate the emergence of a mixture of appropriate transport services that are able to integrate but also compete in an overall optimal manner. Giving primary responsibility for city public transport solutions to modally based suppliers with an interest in promoting their own particular mode as opposed to an integrated solution is sub-optimal and wasteful of resources.

10. South Africa has made some fundamental strides since 1994 in creating the constitutional and legislative framework for appropriate urban transport governance, and building a program aimed at strengthening metropolitan governments as the key locus of responsibility for public transport. However, while very significant capacity has been built in some instances where none existed before, overall progress in building institutional capabilities at both city and national level has been patchy and slow. Most public transport resource allocation in South Africa provided by the fiscus still tends to be supply/modally driven rather than overall demand/solution driven.

11. Different institutional arrangements are required in different parts of the country. The existence of three adjacent metropolitan areas in Gauteng with significant movement between them requires a degree of integration amongst them in public transport governance, network design and operations which nevertheless recognizes the primary role of urban local government in the physical interface between transport and the built environment. A failure to adequately resolve these issues in Gauteng is one of a number of factors undermining the emergence of public transport capacity in South Africa’s economic heartland.

12. The minibus-taxi industry, which benefits from only a limited capital subsidy and no operating subsidy provides two thirds of all metropolitan public transport trips in the country. It could be enhanced in significant ways; however, there are profound risks in intervening in this industry since a poorly designed and/or poorly implemented intervention could increase costs substantially without achieving significant service enhancement.

13. Apart from a possible increase in the capital subsidy amount, key enhancements to the minibus taxi industry that are less risky include prioritized road and intersection infrastructure and better ranking/drop-off/pick-up facilities. Its flexibility and small vehicle size offers the minibus-taxi industry a comparative advantage in on-demand and demand responsive services. It is well placed to capitalize on e-hailing and other mobile phone based innovations
to enhance services, including finding significant new markets (e.g., premium and unrevealed demand). However, this will require significant business and institutional innovation.

14. Public transport subsidies do enable a limited proportion of public transport users to affordably commute long distances to work. However, subsidized services have been carrying a reducing proportion (and even a reducing absolute number) of workers in recent years. Attributing increasing urban dispersion to these subsidies is thus very tenuous. Such dispersion is much more likely attributable to the construction of new highways, middle class housing and commercial development, and new, dispersed formal and informal low income housing unsupported by public transport subsidies.

15. South Africa has a significant commuter rail network, which in some parts of the country transport workers long distances to work at very low fares. However, commuter rail services accounted for only 6.6% (and declining) of the total morning peak modal share in the metropolitan areas in 2013. Despite a re-vitalization program resulting in the passenger rail sector being much the largest recipient of subsidies over recent years only the Gautrain (which carries only 55 000 passengers per average weekday) has seen rising passenger numbers. Over the last two to three years absolute numbers on the Metrorail network have fallen quite sharply. This is attributable to significant institutional weaknesses in Metrorail/PRASA, the burning of trains, and the fact that the new investments have a long lead time and have not yet translated into improved services.

16. Nevertheless, the rail network represents a very significant investment which could, once again, play an important role in future urban mobility. The networks are anchored in the old city centres, but often pass through large areas of relatively low cost land. This network may offer new options for the provision of low cost housing with linkage to urban opportunities.

17. The Public Transport Network Grant has represented the first major injection of public transport funds to city level institutions in South Africa’s history and has been a key instrument in beginning to build city level capacity. Unfortunately, the funding was, in effect, initially conditional on the implementation of BRT systems, which were not always appropriate to the context and difficult to design and implement successfully. In some instances this has disrupted rather than help build local capacity.

18. BRT is clearly a very good solution in the right urban context. It has the potential to support the creation of relatively dense mixed use urban corridors, which is the type of urban land patterns that enhance urban efficiency. In these contexts it has the potential to operate with limited ongoing subsidies. The new Phase 1C BRT which Johannesburg is currently implementing along Louis Botha Avenue between the CBD and Sandton, via Alexandra, if well executed has the potential to become such a corridor. However, many of the BRT systems introduced thus far have been aimed at connecting townships to city centres or other key nodes where in many instances on much of the route this type of urban typology is only able to be achieved over a long period with significant effort and investment. Furthermore, the cost of building at the densities a BRT is best suited to supporting tends to constrain combining BRT corridor development with the provision of low cost housing.

19. At an average of 66 115 passenger trips per day in 2016/17 Cape Town’s MyCiTi carries more passengers than Gautrain (55 000 per day). Johannesburg’s Rea Vaya carries volumes more or less similar to Gautrain volumes although accurate figures have been difficult to ascertain because of shortcomings in the fare system. The MyCiTi project is popular amongst diverse income groups partly because of its significant travel time saving; while the trunk service, which carries the bulk of trips covers a good proportion of operating costs.

20. Tshwane has begun a starter service which is currently attracting low ridership but may grow. Other cities anticipate taking between one and five years to start operating.

21. Formal, conventional bus services, which are currently mostly subsidized via provincial government are well suited to the township to town commuter route, with its limited seat renewal along the route. Given the subsidy, they tend to be more competitive with minibus-taxis over longer route distances. These services have changed relatively little over the last 20 years. Many of the townships served (e.g., Soweto, Khayelitsha), which used to be well on the urban outskirts, have now been subsumed into the growing urban agglomerations. The average national trip length of PTOG funded services is 38.9 kms, ranging from some quite short trips to others which are over 100 kms each direction.

22. There have been attempts to restructure contracting and subsidy arrangements, with little success, which has resulted over the last decade in contracts being extended continually for very short periods (from one month to three years), while subsidy increases over the last decade have tended to be somewhat lower than public transport inflation.

23. There is significant, established capacity amongst the bus companies, and in some contexts, despite the uncertain institutional and funding environment, the contracted companies have innovated and

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1 About a third of these trips are constituted out of more than one leg; if each leg is counted as a separate trip the figure is higher.
invested in their fleets resulting in marked efficiency improvements. In other cases companies have not been able to do so and are struggling to maintain operations with aging fleets.

24. The institutional separation between the PTOG services which are provincially managed and PTNG funded services, which are locally managed, militates against the most appropriate allocation of resources amongst these services.

25. National government’s stated policy has been to consolidate road based public transport responsibilities at city level. This approach is embodied in the National Land Transport Act, which was passed in 2009. However, actual progress has been slow for reasons that are not always clear. Devolution of responsibility for the commuter rail service to metropolitan governments and, in the case of the three adjacent metropolitan governments in Gauteng to a combined authority, is also supported in the recently published draft White Paper on rail.

26. The failure to devolve PTOG funded services in the context of the National Land Transport Act means that critical adjustments and extensions of contract that are now urgent cannot be easily addressed, and is contributing to a crisis in these services.

27. As indicated above, city governments (with appropriate arrangements in places such as Gauteng) are the best placed institutions to ensure appropriate public transport solutions, so long as they have the institutional and financial capacity to do so. Some cities have made significant progress in building capacity in the public transport sector over the last decade, stimulated mainly as a result of the new activities financed by the injection of resources through the Public Transport Network Grant. As pointed out in the draft Rail White Paper, metropolitan governments currently manage and operate fixed assets valued at six times that of the Metrorail commuter network.

28. However, the inter-governmental fiscal context within which cities are taking increasing responsibility for public transport presents very serious risks. In particular, cities are implementing public transport projects and operations which are dependent upon ongoing operating subsidies from national government which, while not unreasonably large for national government, would create severe local fiscal shock if terminated.

29. The amounts of resources required for sustainable, efficient solutions are not substantial in relation to the urban economies. It is noteworthy that through a dedicated fuel levy South Africa already collects for Road Accident Fund insurance an amount larger than it spends on all public transport services combined (including the very large rail investments). In 2016/17 the annual income to the Road Accident Fund from the fuel levy was R35.2 bn. The Fund paid out R31.9 bn in cash, while a further R8.5 bn was finalized for payment but could not be paid because of cash restrictions. Government is attempting to address this massive and growing liability. For comparison, total national government spend on public transport during the same year was R5.4 bn for PTOG, R5.6 bn for PTNG, R18.9 bn for rail (includes Mainline passenger rail), R0.4 bn for capital subsidies for minibus-taxis, and the Gauteng provincial government paid R1.0 bn for Gautrain operating subsidies, giving a total of R31.3 bn.

30. A new more secure revenue source (a good option may be a share of VAT generated within the metropolitan/city area) needs to be provided to those cities meeting certain capacity and other requirements to replace a significant portion of the resources currently given in the form of grants, which could too easily be terminated. As public transport responsibilities are increasingly consolidated at city level this instrument should be expanded rather than further increasing the reliance on grants.

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2 It has also created an unhelpful binary between the two technologies of conventional bus and BRT as to which is ‘better’ – whereas, in reality, different technologies are better suited to different contexts.

3 For example, both the City of Cape Town and the Provincial Government of the Western Cape have, with support from a number of national government departments (NT, COGTA, FFC) sought the assignment of the provincially funded bus services to the city for a number of years – as provided for by the National Land Transport Act. However, this assignment has not been granted.
1. Introduction

This paper on public transport in South Africa’s metropolitan areas has been written as a contribution towards the Urbanisation Review.

The objectives of the Urbanisation Review ‘are to (a) clarify the economic, social, and fiscal implications of the evolution of the national urban system and individual metropolitan areas; (b) identify key policies that are most likely to promoted inclusive economic growth, and highlight policies that need to recalibrated; and (c) provide a framework for prioritizing and sequencing policy initiatives and institutional reforms’.

The Urbanization Review ‘seeks to investigate the implications of the evolving spatial structure of South Africa’s urban areas on the national and local fiscal situation. The analyses are intended to examine the interplay between infrastructure investment decision-making and the character of the urban spatial structure’. A central hypothesis that it seeks to examine ‘is whether a vicious cycle has emerged wherein costly urban infrastructure and urban service subsidies (e.g. capital transport subsidies, commuter subsidies, water subsidies) are provided to mitigate the costs to households and firms of an inherited, spatially inefficient urban structure. These subsidies, in turn, consolidate – and aggravate – this spatial structure, generating the need for further subsidies and driving up production costs (the urban wage) for firms’.

This paper aims to summarise the findings of the transportation component and convey key messages from the analysis while offering relevant policy recommendations. The analysis pays particular attention to metropolitan governments and their transport programs, since this is a central focus of the Urbanization Review.

Chapter 2 is a summary of the key messages from the analysis and provides a set of policy recommendations. In doing so it refers to the remaining chapters in the document. The essence of this analysis and set of policy recommendations has been distilled above in the ‘Summary of main findings’.

Chapter 3 describes travel characteristics in the metropolitan areas. It draws mainly on statistics from the 2013 National Household Travel.

Chapter 4 summarises national government policies and legislation from the 1996 Transport White Paper, a seminal document that has set policy direction since then – although, as this document reveals, the essence of this policy direction has been implemented to a relatively limited degree.

Chapter 5 outlines national resource allocation to public transport, providing for comparative purposes some statistics on related transport expenditure.

Chapters 6, 7, 8 and 9 describe the modes and their key related grant funding sources. Chapter 6 addresses the commuter rail service run by the Passenger Rail Agency of South Africa (PRASA), an independent agency reporting to national Department of Transport. Chapter 7 is about the commuter bus services contracted to provincial government and subsidized through the Public Transport Operating Grant, while Chapter 8 describes and analyses the Public Transport Network Grant, which is the first significant flow of resources to metropolitan governments for public transport. This grant was, in practice, contingent upon cities implementing bus rapid transit systems, although it has now changed so as to be much less prescriptive. Chapter 9 analyses the minibus-taxi industry.

One of the objectives of the Urbanisation Review has been to make a high level assessment of fiscal implications of current and alternative trajectories for metropolitan governments for the major built environment related costs, such as transport and housing. For the transport figures this was done using Cape Town figures as a basis for estimates since this city has much the most developed, costed long term plan for public transport. Chapter 10 provides a summary of the Cape Town case.

There is no concluding chapter, since the essence of the conclusions is contained in the above summary of key messages from the analysis and in Chapter 2.

The Appendix reproduces some tables that have been included in the text that are useful to read together, rather than distributed as they have been in different sections of the text. The Appendix also includes the projection noted above of 10 years of municipal spending on public transport under current conditions to be used for modeling of the overall fiscal system for urban services.

This document is based on various resources at national and city level. Significant amongst these has been a re-analysis of the raw data contained in the 2013 National Household Travel Survey conducted by Statistics South Africa. The analysis of the data by Statistics South Africa is on a provincial basis, which unfortunately hides most of the key issues because it combines metropolitan, urban and rural contexts differently in each province. This study has re-analysed the raw data to present the findings by each of the eight metropolitan areas, and collectively for the 13 cities which are in receipt of the Public Transport Network Grant.

The study has also drawn significantly on Hunter van Ryneveld (2014) Expenditure and Performance Review of South Africa’s Public Transport and Infrastructure System.

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A re-analysis of this kind was initially done for Hunter van Ryneveld (2014) however, now a wider set of analyses has been done, the two smaller metros of Mangaung and Buffalo City have been included, as well as the data for the 13 cities.
conducted for the Presidency and National Treasury, while the section on the PTOG funded commuter bus services uses data currently being collected and analysed through a separate World Bank SECO funded project for CSP.

2. Key arguments

2.1 Urban form

2.1.1 Nature and impact

South Africa has a notoriously dispersed urban form. The graphic on the following page, which is reproduced from Hunter van Ryneveld (2014), and is a slightly reworked version of a graphic from Alain Bertaud (2005) Order without Design, shows the densities of Johannesburg, Cape Town and Gauteng in the context of a number of cities internationally.

This urban form translates into lengthy trip lengths and travel times, as shown, for example, in Table 6: Average travel time to work and for education purposes by metro, 2003 and 2013, where average morning trip times to work in the five biggest metros were between 61 and 53 minutes in 2013, up from 53 to 45 minutes in 2003. The average length of commuter bus trips subsidized through the Public Transport Operating Grant in Gauteng is 52.88 kilometers.

Public transport users spend a high proportion of their household income on travel, especially on getting to work. As shown in section 3.4.2, for the lowest income quintile in 2013, in 98.9% of cases a household member’s average commuting costs exceed 20% of the per capita household income, while in 66.6% of households in the poorest quintile the average cost per person of public transport – including trips to work and education – exceed 20% of per capita household income. The lower figure for the whole household is as a result of trips to school being generally less costly, and the fact that some household members do not travel at all. The proportion of households in the second lowest quintile where travel per person was in excess of 20% of per capita income was 96.2% for work trips and 41.9% for all trips.

2.1.2 Cause of dispersed urban form

South Africa’s dispersed urban form is often attributed to apartheid, where black townships were established at long distances from city centres and places of work. This was clearly a contributing factor; however, arguably significantly more important was that at a critical growth period for South African cities – i.e. the second half of the 20th century – the dominant mode of mobility internationally became the private motor car, supported by an extensive network of freeways. Not only did South African cities, for the most part, have space to grow, but partly because of a strong construction sector, the country was able to build a more extensive network of urban freeways than was characteristic for an economy at its stage of economic development.

The Gauteng Freeway Improvement Project which was completed within the last decade is a reflection of this continuing capability.

In a comparison of free-flow urban vehicle speeds\(^5\), as shown in Table 13: Congestion levels in a selection of South African and world cities based on Tom-Tom survey data 2017, South African cities are all amongst the highest.

\(^5\) The free-flow speed is the speed at which traffic moves on average when there is no congestion – for example, at 3.00 am.
Figure 1: Comparative average population densities in the built up areas of selected metropolitan areas (from Alain Bertaud)

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<th>City</th>
<th>Population Density (people/hectare)</th>
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<td>Atlanta</td>
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<td>Mumbai</td>
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Population density (people/hectare)
Because of the convenience of using a car, and the inconvenience of public transport, as incomes rise car use is rising fast too. Of all the metropolitan cities the biggest rise has been in Tshwane, where the proportion of households with access to a car has risen from 33.7% in 2003 to 48.2% in 2013, and the proportion of people over 18 with a driver’s licence has risen from 30.0% to 42.7%.

It is the lower middle income earners who have switched to using private cars who have been experiencing the impact of higher fuel costs and have been most affected by road tolling – a rationale, perhaps, for the very strong opposition to road tolling by the main trade union federation, the Congress of South African Trade Unions (COSATU).

This automobilization of South African cities is then re-enforced by the residential and retail sectors, which, in most cases, prioritise a market whose mobility is oriented to the motor-car.

The argument that the increasing urban dispersion is driven by transport subsidies is unlikely. In the conceptualization of the transport component of the Urbanisation Review part of its purpose is expressed as follows:

The central hypothesis that will be examined is that a vicious cycle has emerged wherein costly urban infrastructure and urban service subsidies (e.g. capital transport subsidies, commuter subsidies, water subsidies) are provided to mitigate the costs to households and firms of an inherited, spatially inefficient urban structure. These subsidies, in turn, consolidate – and aggravate – this spatial structure, generating the need for further subsidies and driving up production costs (the urban wage) for firms.

There is no doubt that urban public transport subsidies are an element in sustaining the system, and arguably, consolidating it. However, they are by no means the drivers of the system. Between 2003 and 2013 the proportion of morning commuter trips on the subsidized bus and train services fell from 14.6% to 12.8%, while users of unsubsidized minibus-taxis and cars rose from 22.5% to 25.1% and from 28.5% to 34.2% respectively (see Table 2: Overall modal split: daily travel to work & for educational purposes in 2003 and 2013).

In recent years, with constrained bus subsidies on the one hand, and a severe decline in rail services on the other, the actual number of subsidized passengers has been falling. For example, Metrorail lost a quarter or 73 million of its passengers in the first six months of 2016/17 against the same period in 2014/15 (see Table 22: PRASA’s current service difficulties). The number of passengers carried by the PTOG subsidized bus services fell from 321 million in 2011/12 to 301 million in 2016/17.

These declines in passenger numbers on subsidized services are no doubt making conditions worse for urban workers, but are unlikely to be making a significant impact on urban form.

### 2.1.3 Characteristics of efficient urban form

From a public transport perspective density is not necessarily the key factor in determining how costly it is to provide services. South African cities are characterized by somewhat dense origins and destinations, but they are situated far from one another. The typical pattern is that commuters board vehicles in the morning and all travel relatively long distances to work in the morning, and do the reverse in the afternoon. They will in many instances have to travel more than one leg, often making a transfer between modes, but the general pattern is the same. If a vehicle is returned to the origin to carry more than one load of passengers in the peak it will do so empty. Being able to do more than one peak trip reduces fleet size and costs significantly, but in many cases the trip takes too long to return quickly enough. As a result, many of the commuter fleet buses do one morning trip inward bound, park for the work day, and return with one afternoon trip. Expensive capital thus stays idle for much of the day.

In contrast, a corridor with many origins and destinations along its length, where movement is in both directions over relatively short distances can be very profitable. Fares can be higher per kilometer if journeys are shorter, so a demand pattern that allows an operator to sell the seat multiple times along the route – referred to as seat renewal – can earn significantly higher fare income for the same length of bus route operated. If demand is constant throughout the day and in both directions profitability is even higher.

This contrast was illustrated in Hunter van Ryneveld (2014) thus:

#### Figure 2: Typical public transport route in South African metro areas

All passengers travel long distances, in the morning peak, from residential areas to centres of employment and return in the evening; densification on this basis is not efficient.

#### Figure 3: Ideal public transport route

Passengers make short trips - some in the forward direction and others the reverse - along a corridor throughout the day.

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6 This is based on analysis of raw data for the PTOG currently being undertaken by the Transport component of the SECO/CSP project.
This kind of analysis has been one of the factors that have influenced a strong emphasis on the creation of transport corridors. Given long trip distances between townships and commercial centres or nodes the logical approach appears to be to seek to concentrate development along such corridors in an attempt to shift the inherited development pattern towards a new, more efficient urban form.

2.2 Bus rapid transit and the Public Transport Network Grant

2.2.1 Characteristics of bus rapid transit

Bus rapid transit, which has been a keen focus of national policy, is very well suited to the ‘ideal’ form. Stations are provided so that fares can be verified on entry to the station. Vehicles with wide doors can then allow large numbers of passengers to board or alight in quick time with very little dwell time, especially if there is level boarding. This, together with dedicated roadways results in fast journey speeds, which, besides being convenient to passengers, allows vehicles to return to origin quickly and provide another trip.

Using the median rather than the curbside for the dedicated lane avoids general traffic having to enter the dedicated roadway to make left turns (where vehicles drive on the left-hand side of the road) and reduces interference; right turning vehicles have to anyway cross oncoming traffic. Median stations not only reduce the number of station pods required (it is not necessary to have one each side of the route), but also mean that passengers can make transfers to other vehicles running other routes without leaving the station.

Bus rapid transit has grown substantially as a transport technology in many parts of the world over the last two decades.

2.2.2 Bus rapid transit and the Public Transport Network Grant program

National government’s 2007 Public Transport Strategy and Action Plan was very influenced by the bus rapid transit (BRT) concept.

In conceiving of the program there is little, if any, evidence that the national Department of Transport saw it as a means to create dense corridors, but merely as a good, modern form of public transport technology that was being implemented in many other middle income countries. The notion of it supporting a corridor densification strategy appears to have been a rationale given subsequently to the program. The perception in the discourse of the Urbanisation Review that it was conceived of as a densification strategy is thus incorrect.

The adoption of the 2007 Public Transport Strategy and Action Plan coincided with preparations for the 2010 FIFA World Cup, and in preparing to host the event national government identified improved public transport as the key desired legacy – rather than football stadiums. This meant that in the early years of the program, not only were the projects designed in conjunction with the event, but they had to be implemented at speed to be ready in time. Indeed, the first phase of Johannesburg’s Rea Vaya was implemented in time for the event, as was the starter phase of Cape Town’s MyCiTi.

This gave the program momentum, which in turn led it to being extended to other cities – now 13 cities in all – including much smaller cities, such as Polokwane, and Rustenburg, which all adopted the same technology. The conditions of the grant and the way it was managed made receiving funding contingent upon implementing bus rapid transit, although George, the smallest of the grant recipients was able to get support for a conventional formal bus service.

2.2.3 Implementation of the bus rapid transit program

Thus far the results of the BRT program have been mixed. This is described in chapter 8.

Cape Town’s MyCiTi project has arguably been the most successful. It now carries close to 70 000 passengers per average weekday day (compared with 55 000 on Gautrain), and is a popular service used by a wide range of income classes. The key to this is that the main trunk route links the city centre to the newly developing areas to its north, up what is called the ‘West Coast’. This area contains a mixture of income groups including wealthy areas as well as an informal settlement; and the service, running on dedicated roadway, cuts travel time along the congested arterial into the city during the morning peak from 90 minutes to approximately 30 minutes. However, much the majority of the fleet of MyCiTi vehicles do not run on the trunk route but provide services in mixed traffic feeding the trunk.

Johannesburg’s Rea Vaya runs between Soweto and the centre of Johannesburg, with a more southerly route to the centre providing a more direct service, while a more northerly route runs past destinations such as the University of Johannesburg. It is estimated that Rea Vaya now carries approximately 60 000 passengers per day.

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7 MyCiTi also provides an express service between Khayelitsha and Mitchell’s Plain and the city centre using a dedicated bus and minibus taxi lane along the N2 highway.

8 Challenges with the operation of the fare system have meant some uncertainty on actual numbers.
Tshwane has begun running an initial starter service, but this does not yet connect significant origins and destinations, and ridership is very low. George, a southern cape town, and the smallest of the 13 cities has also been financed by the program, but never sought to build a BRT system, using the funds to implement a formal bus system, which now carries approximately 15 000 passengers per day. Ekurhuleni and eThekwini have not yet begun operating services, but are set to do so within the coming 12 months. Most other cities expect to take between 2 and five years before any projects are operational.

2.2.4 Assessment of the BRT program

It is too early to give a fair and comprehensive assessment of the program, however a number of conclusions can be drawn:

a) Implementation challenges

BRT routes are embedded at grade into the urban fabric, presenting significant social, planning and engineering design challenges. Also extremely challenging has been the commitment that existing informal operators run the new operations – and forfeit their existing licences. Most cities have struggled to implement successfully.

b) Costs

The cost of the program has been significantly higher than originally anticipated, including high ongoing operating deficits, although these are being lowered in some instances as experience builds.

c) Suitability to context

While there has been some reasonable positioning of BRT, a number of the projects were implemented on the township to downtown routes, which do not have the characteristics to which BRT is suited, while implementation of capital intensive dedicated roadways in small cities with minimal congestion has been inappropriate.

d) Densification response

While it is early to assess, there appears to be limited densification response as a result of the BRT projects (although most property sales along Cape Town’s MyCiTi route do advertise proximity to the route prominently).

Johannesburg is placing strong emphasis on densification along its Phase 1C corridor now under construction, but finding difficulties in accommodating low income housing on the route, other than around the Alexandra township.

2.2.5 Other outcomes from the PTNG program

However, while the first round of BRT projects has has mixed success, the PTNG program has had some very important positive collateral results.

a) Build capacity at city level

This has been the first major funding for public transport given to cities. Most cities have built some capacity, and some have built very significant capacity where almost none previously existed. While this dimension could have been better supported it has been a key step towards consolidating public transport functions at city level.

b) Institute sound city wide and project planning

Part of the capacity building has been in getting cities to start developing city wide transport plans. In the last two rounds the PTNG has begun to place increasing requirements on cities developing their own fiscally and financially sustainable transport plans. While many have yet to make good progress on this, some are beginning to produce sound, creative, financially constrained plans which are multi-modal rather than based only on BRT.

Existing BRT projects under implementation are being redesigned to seek to contain the kinds of operating deficits experienced by early movers, and planning for further phases are incorporating very different approaches from that implemented initially.

c) Seeking synergies with the minibus-taxi industry in a ‘hybrid’ approach

Arguably the most profound shift has been a significantly greater appreciation of the value of the minibus-taxi industry and seeking solutions going forward that complement this sector rather than replace it – typically referred to as a ‘hybrid’ approach.

d) Improve grant design

The challenges faced by the PTNG program has resulted in significant improvements in grant design and management. A formula approach has been introduced to allocating the grant amongst cities, giving greater predictability, while national government’s use of the grant to dictate a specific technology to cities is being replaced by ensuring that cities plan well and devise their own locally appropriate solutions. Monitoring of city progress is becoming much more systematic.

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9 In this sense it differs from a project such as the Gautrain which runs either underground or overhead, or from constructing a stadium, where once the site is identified the challenges are mainly engineering ones.
2.3 Migration and Congestion

Any public transport strategy needs to have an understanding of key trends that are shaping the context to which it must respond. Two important trends are population movements to and within cities, and congestion.

2.3.1 Ongoing in-migration to cities and movement within cities

On-going in-migration to the cities continues at scale. Other papers in this project will address this in detail. Most in-migrants are relatively poor, and are accommodated through back-yard shacking in existing townships, land occupations in a variety of locations often adjacent to existing townships, new townships which may be built closer to or further from existing urban concentrations, and in decayed downtown areas.

This migration is accompanied by shifting spatial trends within cities as economic development takes place. On the one hand, existing residential areas, such as Soweto, continue to consolidate and gain in economic strength, while on the other, there is a trend amongst those with increasing earnings to shift to higher income areas as they seek better access to the agglomeration benefits available.

To a degree the three spheres of government may have some influence as to where and how these shifts occur. An important decision is whether new large scale townships are built and where these are located. Nevertheless, whatever measures the state takes, it seems difficult to conceive that the basic urban form will change profoundly for many decades to come. This does not mean that the state should not try to nudge development into a more efficient urban form; it would be wise not to worsen the dispersion with extensive development at very distant locations. However, whatever location it chooses for new low income townships, the movement patterns of most of the city residents will remain as they currently are.

Furthermore, daily movement patterns are determined as much by work destinations as they are by residential origins. Destinations are usually a function of middle class choice. They consist of new industrial, commercial and residential areas. If the middle class continues to seek locations based on private vehicle access, and the state continues to service them by expanding and upgrading freeways along the lines of the Gauteng Freeway Improvement Project, it is difficult to conceive of significant changes to the dispersed nature of the current urban form.

Thus, while corridor based investments in BRT will likely assist in the formation of specific corridors, and may offer attractive locations especially for the emerging middle and lower middle class, it is optimistic to anticipate that they will have a significant impact on the fundamental nature of urban form; other trends are likely to be much stronger.

Since both in-migration and new economic development will be strongest in Gauteng, Cape Town and eThekweni, this will consequently be where the most significant public transport challenges are encountered. In other areas migration is likely to be slower, and the urban scale such that mass transit solutions are unlikely to be needed.

2.3.2 Rising congestion

A further major trend will be congestion. As indicated in Table 13: Congestion levels in a selection of South African and world cities based on TomTom survey data 2017 and Table 14: Trends in congestion levels across of selection of South African and world cities based on TomTom survey data 2017, Cape Town and Johannesburg are experiencing relatively high and rising levels of congestion.

Average congestion in the Tom-Tom survey is measured by the overall reduction in vehicle speeds over a 24 hour period compared with free-flow speeds. As indicated in these tables, South African cities stand out as having fast free-flow speeds compared to other cities measured. However, speed reductions as a result of congestion are significant, particularly in the morning peak.

The data shows that congestion levels measured over 24 hours rose dramatically in Cape Town between 2015 and 2016 from 30% to 35%. This is consistent with anecdotal evidence, which also suggests that this rising trend has continued to worsen. According to the Tom-Tom measure in 2016 Cape Town ranked as the 8th worst congested city in the morning peak at a 75% worsening of travel times, although it ranked only 67th in the evening peak, for an overall ranking of 62nd out of the 390 cities measured in the survey.

Johannesburg ranked 100th at 30% in 2016 and Pretoria 169th at 26% out of the 390 cities. Cape Town, Johannesburg and Pretoria all showed a slight reduction in congestion between 2009 and 2010, attributable presumably to the infrastructure improvements implemented for the 2010 FIFA World Cup. Johannesburg and Pretoria’s congestion then fell to lows of 25% and 23%, in the following two years as the Gauteng Freeway Improvement Project (GFIP) and the Gautrain came on stream but began to climb once again thereafter – returning by 2016 to exactly the same levels as they were at in 2009, but with a marked rising trend.

The rise in congestion in Cape Town would appear to be partly linked to the serious deterioration in commuter rail services, which may be reversed. Nevertheless, given the increased access to motor cars as described above, these trends look set to worsen. Congestion is likely to become much more serious than it is currently. Rising congestion could have a marked impact on movement patterns in a number or ways. Firstly, it could influence location decisions, particularly amongst middle class residents who value their time highly. Secondly, if public transport offers significant travel time savings because of priority right of way (rail or dedicated roadways) and is of acceptable quality, it will become
increasingly attractive to car users who would otherwise be mired in congestion.

These impacts will work in a variety of ways, and in some cases worsen dispersion as workplace and other destinations are located so as to be accessed in counter-flow directions. But in many cases they are likely to encourage the clustering of destinations near to transit. Locations accessible by Gautrain could grow further in importance, for example.

While there are road engineering challenges in doing so, if public transport is allowed to use priority lanes on the highway network and at other key bottlenecks this could open up a significant new middle class market, including for high quality minibus-taxis. This is discussed further below.

The use of freeway lanes dedicated to public transport greatly increases the carrying capacity of the freeway. A study of the bus and minibus taxi (BMT) lane inbound on the N2 freeway in Cape Town in February 2016 showed it carried an estimated 26 132 passengers in the morning peak hour compared to the normal carrying capacity of a freeway lane of 2 700. This was despite the presence of 441 cars illegally using the lane.

Figure 4: Carrying capacity in morning peak hour of Cape Town’s N2 Bus and Minibus Taxi (BMT) lane

<table>
<thead>
<tr>
<th>Lane Type</th>
<th>Buses</th>
<th>Taxi</th>
<th>Cars</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMT Lane</td>
<td>198</td>
<td>774</td>
<td>441</td>
<td>19</td>
<td>1 432</td>
</tr>
<tr>
<td>Occupancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passengers</td>
<td>13 860</td>
<td>11 610</td>
<td>662</td>
<td>0</td>
<td>26 132</td>
</tr>
<tr>
<td>% Pax Modal Split</td>
<td>53%</td>
<td>44%</td>
<td>3%</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

• A normal traffic lane gives a total of only 2 700 people per hour - carried by 1 800 cars.
• This is only 11% of the number of people transported in the BMT lane in one hour, illustrating the overwhelming advantage of a BMT lane in transporting people.

Source: City of Cape Town (2017) Integrated Public Transport Network Business Plan

It can be difficult to make BMT lanes, or high occupancy vehicle lanes function successfully on a freeway if there are frequent exit ramps. However, this would need to be thoroughly researched.

Congestion represents a major constraint to realizing agglomeration benefits. However, because it affects the middle class so significantly, the rise in congestion, including creative responses to it, could drive changes in urban location and movement patterns more quickly than many other factors.

2.4 Rail and commuter buses

2.4.1 Commuter rail services

As indicated above, the commuter rail services are experiencing serious decline, with passenger numbers falling currently to 380 million trips per annum compared with 529 million a decade ago despite significant urban population increases. The commuter rail services, which are run by the Passenger Rail Agency of South Africa (PRASA), are discussed in detail in chapter 6.

This decline is despite PRASA being allocated 60% of national government’s total allocation to all public transport in 2016/17 (see Table 15: Allocation of national spending on public transport). This large allocation, totaling R18.89 billion in 2016/17, is driven mainly by a recapitalization program accounting for R14.61 billion of the 2016/17 total. The recapitalization program has been picking up momentum since 2011/12 following a period of almost three decades of relative neglect since government began to curtail investment in the early 1980’s. Key initiatives include purchase of 600 new trainsets; signaling, track and stations upgrades; and the construction of limited new line extensions.

Paradoxically, the most precipitous decline appears to have occurred precisely as the recapitalization program has gathered momentum. Whether this is because of the long lead times in a recapitalization of this nature, resulting in the improvements not yet materializing, or the significant governance problems at Metrorail affecting both implementation and operations, is difficult to assess. Commuter frustration, or possibly more conscious sabotage, has led to burning of a number of trains over the last 24 months, leading to significant further service declines, especially in Cape Town.

Rail fares are very low (see Table 11: Percentage metro users dissatisfied with different attributes of bus, taxi and train services 2013), and in the face of commuter dissatisfaction, have ceased since 2014 to be adjusted upwards in line with inflation.

In 2013 rail accounted for only 17.5% of total public transport trips in the metropolitan areas. However, its potential ability to carry large numbers of people relatively fast over long urban distances is significant in the South African context, especially given the relatively extensive network that already exists. The comparative advantage will gain in importance as congestion rises.

The country is already committing considerable resources to restoring the existing service. Research is needed on

1 Anecdotal evidence suggests the very strong rise in residential property prices in central Cape Town appears to be partly linked to a desire to avoid time consuming commutes, although there are many other influencing factors.
2 580 of these are to be built locally and involve developing the local capacity to do so.
3 The former CEO was dismissed under suspicion of corruption, while the board, which was driving the corruption investigation was fired (although re-instated through court action) by the Minister of Transport, who was subsequently also replaced.
the role this network could play in connecting potential new residential developments on relatively low cost land to higher value centres within the urban network.

Improving the rail system will require not just recapitalization but a radical improvement in the management and operations of the system. Currently, management is highly centralized in Gauteng, and the recently published draft Rail White Paper recommends decentralization to the cities. Almost all the commuter rail services are within Gauteng, Cape Town and eThekwini. Decentralisation would entail decentralization to metropolitan governments in the case of Cape Town and eThekwini, and to a provincial wide body in Gauteng, where the network crosses the three metropolitan government boundaries, as does Gautrain.

An important challenge in positioning rail in the urban transport mix is addressing service differentiation within a society with such high levels of income inequality.

2.4.2 Commuter bus system

Chapter 7 deals with the commuter bus service subsidized through the Public Transport Operating Grant. These services account for most of the 16.3% of the public transport market using buses to get to work and education institutions as recorded in the 2013 National Household Travel Survey (see section 3.2 below). They were originally established during the apartheid period mainly to ferry commuters between black townships mostly located on the urban periphery and town centres, and were run mostly by private operators on contracts financed by national government but administered by provincial administrations.

A service is deemed to be of the province where the morning destination is located. While many of the townships which were originally situated on the periphery have now been subsumed under growing centres, the service continues to ferry commuters very long daily distances, especially from the north into Gauteng. Average Gauteng bus trip lengths are 52.88 kilometers.

There have been ongoing attempts to restructure the basis of the contracts and the sphere of government responsibility. In 2009 full responsibility for the contracts rather than only their administration was devolved to provinces, while the National Land Transport Act, passed in the same year, envisaged devolution to municipal governments. The latter has never been implemented, in part because of a lack of readiness by municipalities to take the contracts over, but also because of an unexplained reluctance by the national Department of Transport to implement this even where both province and city have called for it.

The uncertainty has left the sector functioning on a permanently 'interim' basis, while subsidies have tended in recent years to increase slower than transport inflation, leading in many cases to incremental decline; although there have been some noteworthy exceptions to this trend, with some companies making decisions to re-invest substantially in their fleets 13.

The system is facing immediate crises in Gauteng, where certain contracts are unsustainable, leading to imminent withdrawal of services; yet the legislation does not permit re-tendering or re-negotiation by the provinces, requiring that this power be exercised by municipalities, to whom responsibility has not been devolved.

In the NHTS’s 2013 assessment of overall dissatisfaction with the attributes of the three main public transport modes of rail, bus and minibus-taxi, buses scored most favourably, with only 30.3% of respondents stated that they were dissatisfied with bus services, as opposed to 44.4% dissatisfaction with taxis, and 49.0% dissatisfaction with rail. (see Table 11: Percentage metro users dissatisfied with different attributes of bus, taxi and train services 2013)

At 17.3% of national government’s current overall spending on public transport decisions will be needed on how to support this sector going forward. There is understandable dissatisfaction from the minibus-taxi sector that commuter buses are subsidized to this degree, while minibus taxis are largely unsubsidized.

Arguments to continue the bus subsidies include the importance of the current service and the efficiencies they bring using larger vehicles to serve current demand patterns. Whether the long distance bus services encourage a continuation of inefficient dispersed settlement is difficult to assess. Under current arrangements these numbers have been declining if only because of stagnation in the contracting and subsidy system. Reforming the system, as is becoming increasingly imperative in the face of legal and other challenges, will require addressing the extent to which long distance commuting continues to be supported. This needs to be addressed in the context of integrated transport planning at an appropriate urban scale, where resources are allocated to best use, and is discussed further below.

2.5 Minibus taxis

Minibus taxis account for 66% of all public transport trips in South Africa’s metropolitan areas. Run by informal sector operators, minibus taxis have proven remarkably effective and efficient in providing public transport services, particularly over shorter routes where the subsidy advantage benefitting competing services is not as pronounced. The minibus-taxi sector is discussed in chapter 8.

13 The strongest company in this regard has been Bucscor in Mbombela in Mpumalanga, which has been replacing its fleet with bi-articulated vehicles enabling it to significantly increase efficiencies, followed by Golden Arrow Bus Services in Cape Town, which has also been making significant re-investments.
Their informal business model and small vehicle size gives them flexibility in operating cost effectively as demand responsive services in a manner that cannot be matched by more formal services such as buses and trains.

The sector began to develop in the 1970’s, growing strongly during the 1980’s and onwards, to a point where it is estimated that there are more than 200 000 minibus taxis operating in the country as a whole. It is almost entirely black owned.

In the late 1990’s in the face of significant instability in the sector arising from competition on routes a National Taxi Task Team was established which sought to bring greater order to the industry. The permitting system was re-designed, and attempts made to bring greater formality to the taxi associations effectively governing the industry. A capital subsidy was introduced for recapitalizing vehicles consistent with standards agreed with manufacturers. However, apart from this, which in 2016/17 accounted for only 11% of total national government expenditure in the public transport sector, no other subsidies are given directly to the industry; although limited funds are allocated to the provision of taxi ranking facilities.

There is significant variation within the industry. It is estimated that 70 000 to 80 000 of the 200 000 strong fleet are financed and insured. The biggest single financier of taxis, SA Taxi, which currently has 27 142 taxis on its books, representing 38% of the financed taxi market, records that the taxi owners to which it lends have on average 1.2 vehicles, indicating that the industry remains fairly deconcentrated; although it may be that those that own larger fleets self-finance their vehicles. While the average age of the fleet nationally is 9 years, the average age of the vehicles on SA Taxi books is 3.4 years.

As the single largest provider of public transport trips the importance of the minibus-taxi sector cannot be overstated. There has also been a growing realization amongst cities attempting to implement bus rapid transit systems of the strengths of the minibus taxi industry and the importance of integrating them positively into the service mix rather than seek to replace them with more conventional services.

The key question is how this should be done and how the minibus-taxis industry should be supported and regulated.

Taxis score very well on accessibility and travel time. However, the industry has its challenges, and scores poorly on safety from accidents, fares, facilities at ranks, roadworthiness of vehicles, and the behavior of drivers towards passengers. (See Table 12: Percentage metro users dissatisfied with different attributes of bus, taxi and train services 2013).

While some stress the unfairness of having to compete with subsidized bus services and argue that if subsidies are paid to taxis many of these problems will be addressed, others identify the business model and industry structure as the problem. Most taxi operations run on the ‘target’ model, where the driver is given a daily target in exchange for use of the vehicle, pays for fuel, and keeps any fares collected over and above that. This, it is argued, leads to the aggressive driver behavior which lies at the root of many of the problems. The appropriate response to this, some contend, is for associations to form companies, pooling the licences and owning the vehicles collectively, with operators becoming shareholders. This would limit the incentive to compete along a route. It would also be easier for authorities to regulate because they could sanction the larger firm for transgressions, rather than the individual operator, and rely on the firm to manage driver behavior. Others argue that formalization leads to new costs, especially if regulation of driver hours is to match the formal bus industry, while the efficiency of the industry lies precisely in the demand responsiveness of the drivers, which could be lost.

Cape Town’s 2017 Integrated Public Transport Network business plan, which identifies the minibus-taxi sector as a key part of a desirable, multi-modal service mix, also identifies new mobile phone technologies as particularly relevant to the development of the minibus-taxi industry. It refers to what it terms ‘new generation services’, which it describes as ‘anticipated new forms of service provision that are emerging as a result of new technologies, especially mobile phone technologies which, inter alia, offer a new and highly efficient way of matching supply and demand’; and it argues that these technologies could be most transformative ‘amongst more flexible, demand responsive modes using smaller vehicles, such as minibus-taxis’. This is dealt with in more detail in chapter 10.

Given their flexibility and small vehicle size, minibus-taxis are particularly well suited to serving a multitude of dispersed origins and destinations, as tends to be a feature of South Africa’s metropolitan areas. Currently, the way minibus taxis are regulated, confining them to specific routes, while designed to combat conflict within the industry, arguably prevents them from fully realizing a key potential strength of the mode which is to operate much more flexibly across a wide variety of origins and destinations. As mobile data phones become inevitably more ubiquitous, the scope for serving these routes becomes much greater if not restricted by regulation.

There should also be scope for the minibus taxi industry to move into higher quality services, particularly if they are able to use priority road infrastructure which cuts travel times in the context of rising congestion. Again, the City of Cape Town has identified ‘prioritisation where feasible not only on BRT trunk routes, but for all forms of public transport, through infrastructure provision and other measures’ as one of its elements in its 10 point plan (see chapter 10).

The minibus-taxi industry already represents the most important single mode of the South African public transport sector, and offers significant exciting opportunities going forward. However, because of its
importance, reforming the industry embodies great risks. Badly designed reforms could increase costs while lowering output.

2.6 What should government do?

There are no complete and easy answers to what government should do, but a few clear principles and actions can be stated.

- Recognise the need for a variety of locally specific multi-modal solutions

As a start, national government – and all key stakeholders – should recognize that conditions vary considerably between and within cities. A wide variety of demand patterns based on widely differing urban typologies, income levels and access priorities will continue to exist for many decades. This therefore requires a variety of modes able to differentially service the market.

The manner in which bus rapid transit was driven as a technical solution to a wide variety of problems was inappropriate. Similarly, minibus-taxis, while having considerably more potential than has often been realized in the past, cannot address all forms of demand efficiently.

- Place responsibility and power at city level in order to identify and implement solutions

Arguably the biggest problem is having different institutions – and particularly different spheres of government – responsible for different modes or services. Each institution then lines up behind its own favored technology to compete for resources, with inevitably sub-optimal results. Instead, effective solutions require well capacitated city wide urban government institutions that facilitate the emergence of a mixture of appropriate transport services that are able to integrate and compete in an overall optimal manner. These institutions must also be able to integrate the management of land use and mobility so as to optimize access across the city.

South Africa has made some fundamental strides since 1994 in creating the constitutional and legislative framework for appropriate urban transport governance, and building a program aimed at strengthening metropolitan governments as the key locus of responsibility for public transport. However, while very significant capacity has been built in some instances where none existed before, overall progress in building institutional capabilities at both city and national level has been patchy and slow. Moreover, the devolution policies underpinning much of national transport policy development since the 1996 White Paper has not been implemented. Most public transport resource allocation in South Africa provided by the fiscus still tends to be supply/modally driven rather than overall demand/solution driven.

Some variance in institutional arrangements is required in different parts of the country. The existence of three adjacent metropolitan areas in Gauteng with significant movement between them requires a degree of integration amongst them in public transport governance and operations which nevertheless recognizes the primary role of urban local government in the physical interface between transport and the built environment. A failure to adequately resolve these issues in Gauteng is one of a number of factors undermining the emergence of public transport capacity in South Africa’s economic heartland.

- Assist in developing strategy, planning and implementation capabilities at city level

After initially creating conditions that pressured cities into adopting bus rapid transit as a solution where it was not always appropriate, national government’s Public Transport Network Grant has rightly begun to shift focus and place increasing emphasis on the need for cities to develop fiscally and financially sustainable plans, strategies and projects.

This development of strategy, planning and implementation capabilities needs to be strengthened. National government’s emphasis should be on good planning processes and methodologies, rather than on dictating the outcomes of plans.

- Develop appropriate monitoring and policy making capacity at national level

Alongside the consolidation of responsibilities at city level, national government needs to develop its own capacity for monitoring and for the development of policy capabilities in relevant areas. Current data collection processes are relatively ad hoc. This results in policy making tending to be based too often on anecdote and a partial understanding of what is actually happening.

This development of greater monitoring and policy making should be aimed at assisting cities to take the right decisions themselves rather than dictating to cities.

- Develop the right fiscal instruments

Lastly, and perhaps most importantly, government must implement the right fiscal instruments in support of this overall approach.

These instruments need to be a) sufficient, b) predictable, and c) create incentives for efficiency and effectiveness.

This is discussed in the final section of this chapter.
2.7 The fiscal impact and the development of appropriate fiscal instruments

An important aspect of the Urbanisation Review has been to assess the fiscal impact of current policies and programs in the urban sector, including public transport.

2.7.1 National level affordability

One of the more remarkable insights surfaced by the research for this paper has been a comparison between spending on the Road Accident Fund and spending on public transport. The Road Accident Fund is an insurance fund financed through a levy on fuel sales. It compensates uninsured third party victims of road accidents for the loss of life, earnings and injuries. In 2016/17 these fuel levies generated R35.2 billion. This is higher than the total of R31.2 billion spent by national government (which represents the vast bulk of spending by general government) on public transport in the same year. The fuel levies generated were insufficient for agreed payouts. In 2016/17 the Fund paid out R31.9 bn in cash, while a further R8.5 bn was finalized for payment but could not be paid because of cash restrictions.

While national government is urgently looking at ways to contain RAF payouts, these figures suggest that at a high level, public spending on public transport does not represent an overwhelmingly large proportion of spending on mobility overall. Moreover, there exist current fiscal instruments capable of raising considerable resources if needed.

This is not to suggest that large increases in the allocation of resources to public transport are appropriate, particularly at current times of overall fiscal stress, but to give proportionality to the discussion.

2.7.2 Program level affordability

PRASA is receiving substantial capital allocations, which, if well spent, appear warranted in order to restore an existing service that holds potential going forward. There may be strong arguments for increasing allocations to operations, but it would appear that the real challenge for PRASA is building efficiency rather than allocating more resources.

At provincial level there are calls for increased subsidies to the provincially subsidized bus services. These services are undoubtedly under pressure. If subsidies were to be increased to accommodate the real losses experienced over recent years through increases at rates lower than transport inflation there would be some impact. There would be even more impact if subsidies were increased to accommodate the unrevealed demand that has been building up in the areas served by these contracts as population has grown.

However, while some increases may be warranted, what is more important at this stage is to consider the scope for rationalisation of existing services in the context of an integrated approach to resource allocation to all services.

At local level the BRT projects have undoubtedly placed additional fiscal pressure on cities. Some cities will struggle to fund the operating deficits associated with the new services. If the model were continued to be rolled out as in the first phases of these projects the fiscal impact will clearly not be sustainable. However, this has become clear to the cities, all of which are now seeking strategies to limit fiscal commitments going forward, and develop plans which are more fiscally sustainable.

So that while cities are currently in the process of trying to find ways of containing the fiscal impact of current projects, no city is likely to continue plunging forward beyond initial phases without making significant changes to avoid fiscally unsustainable outcomes.

In other words, while there are fiscal stresses there are viable mechanisms underway to contain them. Some cities are in a position to usefully spend higher allocations than they are currently receiving, while others may be receiving more than they have the capability to spend efficiently at this stage. There are thus no strong arguments for significant increases or decreases to the overall allocation of resources.

2.7.3 Current priority

A more urgent priority is to begin to properly implement – in a well planned and phased manner – the agenda of devolution to cities that was identified in the 1996 Transport White Paper, is consistent with the NLTA, and supported by the latest draft Rail White Paper. Where legislative details lead to practical challenges there may be a need to make amendments, but without changing the underlying philosophy inherent in the policies and legislation.

This will then enable the appropriate city level institutions to make the resource allocation trade-offs to best meet the public transport challenges they face, especially amongst commuter bus, BRT and minibus taxi infrastructure. The major resource allocation to the recapitalization of rail arguably needs to be treated differently at this stage.

Outside of the rail recapitalization there may be a need for relatively contained increases to the extent this enables the institutional reforms to be implemented more quickly and with reduced stress.

2.7.4 Required fiscal instruments

As noted above, fiscal instruments need to be a) sufficient, b) predictable, and c) create incentives for efficiency and effectiveness.

On the issue of sufficiency, it would appear that there
are no good grounds for significantly altering the current overall level of allocations. There may be grounds for doing so in future, but this can only be ascertained once devolution has been properly effected and city level institutions (including appropriate arrangements in Gauteng) are in a position to rationally allocate public transport resources to best use based on fiscally constrained, city wide Integrated Public Transport Plans.

As indicated, there may be a need for relatively contained increases to the extent this enables the institutional reforms to be implemented more quickly and with reduced stress.

On the question of predictability and incentives for efficiency and effectiveness there are significant shortcomings in the current fiscal instruments given the kind of devolution that is envisaged.

In particular, the national government grant system is insufficiently predictable for financing such a large commitment at city level. National grants are appropriated annually, with indicative allocations given for the subsequent two years. There is no guarantee that any grant will continue beyond the three year period. Overall national fiscal pressures combined with potential for political instability at national level could make cities extremely vulnerable over the long term.

Because of this it would arguably, from a fiscal point of view, be reckless to accept the devolution of public transport responsibilities without an associated revenue source which is sufficiently large, buoyant and sustainable.

This issue is too substantial to be dealt with in any detail as part of this paper. However, it would seem clear that some form of revenue source where the tax base is broad, and linked to the overall city economy is what is required. The simplest instrument may be an origin based share of VAT. This would give an incentive to cities to act in ways that grow the economy. Given that access and mobility lie at the heart of the creation of agglomeration benefits this would create an incentive for cities to allocate public transport resources in ways that enhance these benefits.

More complex revenue instruments may be feasible which allow cities some leeway to set tax rates within a ceiling and floor. However, the crucial issues of ensuring predictability and incentivizing optimal spending are addressed through VAT revenue sharing.

This does not necessarily entail additional resources flowing into the public transport sector, but rather a reconstitution of more or less existing levels of grants into a new own revenue – or revenue sharing – instrument.

Access to these instruments could be predicated on reaching certain milestones in planning and capacity measures. However, the need for predictability implies very limited conditionality.

National grants could exist in conjunction with an own revenue source. This could offer national government some additional leverage. However, it is crucial that the cities have access to a strong flow of own revenues so that they are not primarily dependent upon national grants in managing public transport.

3. Summary of travel characteristics in the metropolitan areas

3.1 Introduction

In 2003, following the 1996 Transport White Paper and subsequent policy work national government instituted the first National Household Travel Survey, which was intended to provide a comprehensive survey of how South Africans travel. The second survey was conducted in 2013.

The data has been analysed and published by Statistical Services South Africa largely on a provincial basis. Because different provinces are constituted out of different combinations of metro, urban and rural areas, this unfortunately masks much of the most interesting and important insights that the data is able to provide. However, it has fortunately been possible, for the purposes of this report to obtain the raw data and re-analyse it, giving a rich understanding of travel in the metropolitan areas in particular.

The data has been organized into metropolitan, urban and rural, including – in many cases – statistics for individual metropolitan areas. A category has also been created for the 13 cities in receipt of Public Transport Network Grant funding, which includes all the metros together with 5 of the largest non-metropolitan cities.

The trip data is based mostly on analysis of trips to work and to educational institutions in the morning, so the actual number of trips is more or less double the number of trips given. However, because people tend to return home more or less the same way as their outward bound trip, modal split remains constant. The trip data is supplemented by household survey data.

The Appendix includes a more comprehensive set of the data that has been produced for this report, with only some of the key tables shown in this and other sections.
3.2 Modal split

3.2.1 Travel to work and for educational purposes combined

The following tables show the main modes of daily travel to work and for educational purposes, first showing the composition and shifts in modal share between 2003 and 2013 for both purposes combined, followed by an analysis of the two trip purposes separately.

The data shows an increase in the number of trips in all modes. However there has been a significant shift to the motor car and a concomitant shift away from walking. Both bus and rail have transported a declining share of the market, with minibus taxis increasing their relative share. It is likely that those walking in 2003 shifted to public transport, while public transport users shifted to motor cars.

Table 1: Main modes of daily travel to daily travel to work & for educational purposes in 2003 and 2013 (for 8 metros)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Total daily trips 2003</th>
<th>Total daily trips 2013</th>
<th>Change in number of daily trips 2003 - 2013</th>
<th>Change 2003 - 17 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train</td>
<td>667 000</td>
<td>841 000</td>
<td>174 000</td>
<td>26.1%</td>
</tr>
<tr>
<td>Bus</td>
<td>735 000</td>
<td>835 000</td>
<td>100 000</td>
<td>13.6%</td>
</tr>
<tr>
<td>Taxi</td>
<td>2 324 000</td>
<td>3 408 000</td>
<td>1 084 000</td>
<td>46.6%</td>
</tr>
<tr>
<td>Total</td>
<td>3 726 000</td>
<td>5 084 000</td>
<td>1 358 000</td>
<td>36.4%</td>
</tr>
<tr>
<td>Private transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car</td>
<td>2 639 000</td>
<td>4 593 000</td>
<td>1 954 000</td>
<td>74.0%</td>
</tr>
<tr>
<td>Walk</td>
<td>3 371 000</td>
<td>3 626 000</td>
<td>255 000</td>
<td>7.6%</td>
</tr>
<tr>
<td>Other</td>
<td>179 000</td>
<td>133 000</td>
<td>-46 000</td>
<td>-25.7%</td>
</tr>
<tr>
<td>Total</td>
<td>6 189 000</td>
<td>8 352 000</td>
<td>2 163 000</td>
<td>34.9%</td>
</tr>
<tr>
<td>Total daily trips</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 915 000</td>
<td>13 436 000</td>
<td>3 521 000</td>
<td>35.5%</td>
</tr>
<tr>
<td>Estimated city population</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16 988 000</td>
<td>21 335 000</td>
<td>4 347 000</td>
<td>25.6%</td>
</tr>
<tr>
<td>Trips as % of city population</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>58.36%</td>
<td>62.98%</td>
<td>4.61%</td>
<td>7.9%</td>
</tr>
</tbody>
</table>

Source: Extracted for this project from data produced by the National Household Travel Surveys of 2003 and 2013 (Stats SA, Pretoria).

Table 2: Overall modal split: daily travel to work & for educational purposes in 2003 and 2013

<table>
<thead>
<tr>
<th>Mode</th>
<th>Modal share 2003</th>
<th>Modal share 2013</th>
<th>Change 2003 - 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Train</td>
<td>6.7%</td>
<td>6.3%</td>
<td>-0.5%</td>
</tr>
<tr>
<td>Bus</td>
<td>7.4%</td>
<td>6.2%</td>
<td>-1.2%</td>
</tr>
<tr>
<td>Taxi</td>
<td>23.4%</td>
<td>25.4%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Total</td>
<td>37.6%</td>
<td>37.8%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Private transport</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Car</td>
<td>26.6%</td>
<td>34.2%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Walk</td>
<td>34.0%</td>
<td>27.0%</td>
<td>-7.0%</td>
</tr>
<tr>
<td>Other</td>
<td>1.8%</td>
<td>1.0%</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Total</td>
<td>62.4%</td>
<td>62.2%</td>
<td>-0.3%</td>
</tr>
<tr>
<td>Total daily trips</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td>100.0%</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Extracted for this project from data produced by the National Household Travel Surveys of 2003 and 2013 (Stats SA, Pretoria)
### 3.2.2 Travel patterns by metropolitan area

There are significant differences across metropolitan areas. The following tables show travel patterns by mode in the first graph, the modal shares in the second and a comparison by 100 000 population in the third.

#### Table 3: Daily travel for work & educational purposes in 2013 by metro

<table>
<thead>
<tr>
<th></th>
<th>JHB</th>
<th>TSH</th>
<th>EKU</th>
<th>CCT</th>
<th>ETH</th>
<th>NMB</th>
<th>BCM</th>
<th>MAN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train</td>
<td>151 000</td>
<td>105 000</td>
<td>15 000</td>
<td>335 000</td>
<td>78 000</td>
<td>4 000</td>
<td>16 000</td>
<td>0</td>
<td>841 000</td>
</tr>
<tr>
<td>Bus</td>
<td>169 000</td>
<td>146 000</td>
<td>64 000</td>
<td>181 000</td>
<td>162 000</td>
<td>46 000</td>
<td>19 000</td>
<td>48 000</td>
<td>835 000</td>
</tr>
<tr>
<td>Taxi</td>
<td>864 000</td>
<td>484 000</td>
<td>578 000</td>
<td>370 000</td>
<td>686 000</td>
<td>136 000</td>
<td>167 000</td>
<td>123 000</td>
<td>3 408 000</td>
</tr>
<tr>
<td>Public transport total</td>
<td>1 184 000</td>
<td>735 000</td>
<td>792 000</td>
<td>886 000</td>
<td>926 000</td>
<td>186 000</td>
<td>202 000</td>
<td>171 000</td>
<td>5 084 000</td>
</tr>
<tr>
<td>Car</td>
<td>1 169 000</td>
<td>767 000</td>
<td>651 000</td>
<td>1 009 000</td>
<td>546 000</td>
<td>225 000</td>
<td>96 000</td>
<td>130 000</td>
<td>4 593 000</td>
</tr>
<tr>
<td>Walk</td>
<td>772 000</td>
<td>439 000</td>
<td>484 000</td>
<td>656 000</td>
<td>638 000</td>
<td>209 000</td>
<td>207 000</td>
<td>220 000</td>
<td>3 626 000</td>
</tr>
<tr>
<td>Other</td>
<td>34 000</td>
<td>24 000</td>
<td>16 000</td>
<td>34 000</td>
<td>15 000</td>
<td>3 000</td>
<td>1 000</td>
<td>6 000</td>
<td>133 000</td>
</tr>
<tr>
<td>Private transport total</td>
<td>1 975 000</td>
<td>1 230 000</td>
<td>1 151 000</td>
<td>1 699 000</td>
<td>1 199 000</td>
<td>437 000</td>
<td>304 000</td>
<td>356 000</td>
<td>8 352 000</td>
</tr>
<tr>
<td>Total</td>
<td>3 159 000</td>
<td>1 965 000</td>
<td>1 943 000</td>
<td>2 585 000</td>
<td>2 125 000</td>
<td>623 000</td>
<td>506 000</td>
<td>527 000</td>
<td>13 436 000</td>
</tr>
</tbody>
</table>

#### Table 4: Modal split for daily travel for work & educational purposes by metro in 2013

<table>
<thead>
<tr>
<th></th>
<th>JHB</th>
<th>TSH</th>
<th>EKU</th>
<th>CCT</th>
<th>ETH</th>
<th>NMB</th>
<th>BCM</th>
<th>MAN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train</td>
<td>4.8%</td>
<td>5.3%</td>
<td>7.7%</td>
<td>13.0%</td>
<td>3.7%</td>
<td>0.6%</td>
<td>3.2%</td>
<td>0.0%</td>
<td>6.3%</td>
</tr>
<tr>
<td>Bus</td>
<td>5.3%</td>
<td>7.4%</td>
<td>3.3%</td>
<td>7.0%</td>
<td>7.6%</td>
<td>7.4%</td>
<td>3.8%</td>
<td>9.1%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Taxi</td>
<td>27.4%</td>
<td>24.6%</td>
<td>29.7%</td>
<td>14.3%</td>
<td>32.3%</td>
<td>21.8%</td>
<td>33.0%</td>
<td>23.3%</td>
<td>25.4%</td>
</tr>
<tr>
<td>Public transport total</td>
<td>37.5%</td>
<td>37.4%</td>
<td>40.8%</td>
<td>34.3%</td>
<td>43.6%</td>
<td>29.9%</td>
<td>39.9%</td>
<td>32.4%</td>
<td>37.8%</td>
</tr>
<tr>
<td>Car</td>
<td>37.0%</td>
<td>39.0%</td>
<td>33.5%</td>
<td>39.0%</td>
<td>25.7%</td>
<td>36.1%</td>
<td>19.0%</td>
<td>24.7%</td>
<td>34.2%</td>
</tr>
<tr>
<td>Walk</td>
<td>24.4%</td>
<td>22.3%</td>
<td>24.9%</td>
<td>25.4%</td>
<td>30.0%</td>
<td>33.5%</td>
<td>40.9%</td>
<td>41.7%</td>
<td>27.0%</td>
</tr>
<tr>
<td>Other</td>
<td>1.1%</td>
<td>1.2%</td>
<td>0.8%</td>
<td>1.3%</td>
<td>0.7%</td>
<td>0.5%</td>
<td>0.2%</td>
<td>1.1%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Private transport total</td>
<td>62.5%</td>
<td>62.6%</td>
<td>59.2%</td>
<td>65.7%</td>
<td>56.4%</td>
<td>70.1%</td>
<td>60.1%</td>
<td>67.6%</td>
<td>62.2%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

#### Table 5: Main modes of transport for morning work and education trips per 100,000 population in 2013

<table>
<thead>
<tr>
<th></th>
<th>JHB</th>
<th>TSH</th>
<th>EKU</th>
<th>CCT</th>
<th>ETH</th>
<th>NMB</th>
<th>BCM</th>
<th>MAN</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train</td>
<td>3 185</td>
<td>3 520</td>
<td>4 756</td>
<td>8 165</td>
<td>2 151</td>
<td>375</td>
<td>1 893</td>
<td>0</td>
<td>3 942</td>
</tr>
<tr>
<td>Bus</td>
<td>3 565</td>
<td>4 894</td>
<td>2 029</td>
<td>4 411</td>
<td>4 467</td>
<td>4 315</td>
<td>2 249</td>
<td>5 875</td>
<td>3 914</td>
</tr>
<tr>
<td>Taxi</td>
<td>18 224</td>
<td>16 225</td>
<td>18 326</td>
<td>9 018</td>
<td>18 914</td>
<td>12 758</td>
<td>19 763</td>
<td>15 055</td>
<td>15 974</td>
</tr>
<tr>
<td>Public transport total</td>
<td>24 640</td>
<td>25 111</td>
<td>21 594</td>
<td>25 531</td>
<td>17 448</td>
<td>23 905</td>
<td>23 905</td>
<td>20 930</td>
<td>23 829</td>
</tr>
<tr>
<td>Car</td>
<td>24 657</td>
<td>25 712</td>
<td>20 640</td>
<td>24 592</td>
<td>15 054</td>
<td>21 107</td>
<td>11 361</td>
<td>15 912</td>
<td>21 528</td>
</tr>
<tr>
<td>Walk</td>
<td>16 283</td>
<td>14 717</td>
<td>15 346</td>
<td>15 988</td>
<td>17 590</td>
<td>19 606</td>
<td>24 497</td>
<td>26 928</td>
<td>16 996</td>
</tr>
<tr>
<td>Other</td>
<td>717</td>
<td>805</td>
<td>507</td>
<td>829</td>
<td>414</td>
<td>281</td>
<td>118</td>
<td>734</td>
<td>623</td>
</tr>
<tr>
<td>Private transport total</td>
<td>41 658</td>
<td>41 234</td>
<td>36 493</td>
<td>41 409</td>
<td>33 058</td>
<td>40 994</td>
<td>35 976</td>
<td>43 574</td>
<td>39 147</td>
</tr>
<tr>
<td>Total city trips</td>
<td>66 632</td>
<td>65 873</td>
<td>61 604</td>
<td>63 003</td>
<td>58 588</td>
<td>58 443</td>
<td>59 882</td>
<td>64 504</td>
<td>62 976</td>
</tr>
</tbody>
</table>

Source: Extracted for this project from data produced by the National Household Travel Surveys of 2003 and 2013 (Stats SA, Pretoria)
Some of the main differences that stand out between the cities include:

- Car users (either as driver or as passenger) have the largest share of the market, followed by taxis with the exception of eThekwini, which is the only city with more taxi than car users.
- Rail is a significant mode in the five biggest metros. There is no commuter rail system in Mangaung, while the market share of rail in Nelson Mandela Bay is extremely small.
- Cape Town has a significantly larger market share in rail (13%) and a significant smaller share in taxis (14.3%) than the other metros.

### 3.3 Time taken to work and education

There is a fairly widely held view in South Africa that travel times to work are very lengthy. The following tables give some detailed insight into this.

Average travel times to work are longer than travel times to educational facilities, and have worsened between 2003 and 2013, with the average travel time to work in all metros combined rising from 50 to 56 minutes over the ten year period. The longest travel times are in Tshwane, both for work and education purposes.

#### Table 6: Average travel time to work and for education purposes by metro, 2003 and 2013

<table>
<thead>
<tr>
<th>Area</th>
<th>To work 2003</th>
<th>To work 2013</th>
<th>To education 2003</th>
<th>To education 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>53</td>
<td>61</td>
<td>32</td>
<td>38</td>
</tr>
<tr>
<td>Tshwane</td>
<td>60</td>
<td>64</td>
<td>37</td>
<td>40</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>50</td>
<td>56</td>
<td>33</td>
<td>38</td>
</tr>
<tr>
<td>Cape Town</td>
<td>50</td>
<td>54</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>eThekwini</td>
<td>45</td>
<td>53</td>
<td>31</td>
<td>40</td>
</tr>
<tr>
<td>Nelson Mandela Bay</td>
<td>34</td>
<td>40</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>44</td>
<td>41</td>
<td>29</td>
<td>32</td>
</tr>
<tr>
<td>Mangaung</td>
<td>41</td>
<td>47</td>
<td>27</td>
<td>34</td>
</tr>
<tr>
<td>Metro</td>
<td>50</td>
<td>56</td>
<td>30</td>
<td>36</td>
</tr>
<tr>
<td>Urban</td>
<td>35</td>
<td>40</td>
<td>25</td>
<td>31</td>
</tr>
<tr>
<td>Rural</td>
<td>37</td>
<td>50</td>
<td>33</td>
<td>38</td>
</tr>
<tr>
<td>RSA</td>
<td>43</td>
<td>50</td>
<td>31</td>
<td>35</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>48</td>
<td>55</td>
<td>30</td>
<td>36</td>
</tr>
</tbody>
</table>

Source: Extracted for this project from data produced by the National Household Travel Surveys of 2003 and 2013 (Stats SA, Pretoria)

### 3.4 Expenditure on transport by users

#### 3.4.1 Cost per user per mode

The tables below summarise the figures on transport costs to users generated by the NHTS. The first table shows the mean cost of getting to work (per month) in 2013. Often more than one mode is used to make a journey. The mode given in the first table is the primary mode used, while the cost of getting to work is the cost of all the modes used in that journey. For example, if a person uses a train as the primary mode, but uses a taxi to get to the train, the mode is recorded as ‘Train’ but the cost includes both legs.

#### Table 7: Mean cost of getting to work by metro and mode 2013

<table>
<thead>
<tr>
<th>Area</th>
<th>Train 2013</th>
<th>Bus 2013</th>
<th>Taxi 2013</th>
<th>Car 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>538</td>
<td>568</td>
<td>603</td>
<td>1118</td>
</tr>
<tr>
<td>Tshwane</td>
<td>541</td>
<td>576</td>
<td>680</td>
<td>1056</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>337</td>
<td>704</td>
<td>634</td>
<td>891</td>
</tr>
<tr>
<td>Cape Town</td>
<td>345</td>
<td>471</td>
<td>505</td>
<td>949</td>
</tr>
<tr>
<td>eThekwini</td>
<td>286</td>
<td>579</td>
<td>555</td>
<td>849</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>562</td>
<td>430</td>
<td>415</td>
<td>529</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>339</td>
<td>585</td>
<td>501</td>
<td>460</td>
</tr>
<tr>
<td>Mangaung</td>
<td>531</td>
<td>494</td>
<td>867</td>
<td></td>
</tr>
<tr>
<td>All Metro’s</td>
<td>401</td>
<td>540</td>
<td>580</td>
<td>944</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>401</td>
<td>515</td>
<td>579</td>
<td>915</td>
</tr>
</tbody>
</table>

Source: NHTS - data re-analysed for this study
The next table presents the data in a different way, showing the cost of using each mode on its own, allocated to different cost bands. Unfortunately, the ranges chosen mean that in most cases the costs fall into the highest band of R201 and above and there is no differentiation available within the band.

What is strongly evident, however, is the relatively low cost of using rail. On average for the metros as a whole the cost of rail falls into the R101-200 band 42.8% of the time and into the band of R201 and greater 54.3% of the time, while the figures for bus are 4.7% and 94.0% and for taxi are 3.43% and 95.9%.

For car users in the metros the cost per month of using the car is more than R201 in 99.2% of all cases.

This reflects the low cost of rail travel, and suggests that bus and taxi fares are more or less competitive with one another in terms of price. As might be expected, costs of car travel are higher, although the extent of this cannot be gauged from this data.

Table 8: Cost ranges per month for each mode per metro 2013. (Rands per month)

<table>
<thead>
<tr>
<th>Area</th>
<th>Mode</th>
<th>1-100</th>
<th>101-200</th>
<th>201+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Train</td>
<td>2.2%</td>
<td>36.7%</td>
<td>61.2%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>1.6%</td>
<td>3.9%</td>
<td>94.6%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>1.0%</td>
<td>2.6%</td>
<td>96.3%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.2%</td>
<td>0.4%</td>
<td>99.4%</td>
</tr>
<tr>
<td>Johannesburg</td>
<td>Train</td>
<td>6.8%</td>
<td>46.0%</td>
<td>47.2%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>1.9%</td>
<td></td>
<td>98.1%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>0.4%</td>
<td>2.3%</td>
<td>97.3%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.0%</td>
<td>0.5%</td>
<td>99.5%</td>
</tr>
<tr>
<td>Tshwane</td>
<td>Train</td>
<td>2.6%</td>
<td>45.9%</td>
<td>51.5%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>2.2%</td>
<td>4.7%</td>
<td>93.0%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>1.5%</td>
<td>4.0%</td>
<td>94.5%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.2%</td>
<td>1.1%</td>
<td>98.7%</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>Train</td>
<td>4.5%</td>
<td>45.4%</td>
<td>50.1%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>0.8%</td>
<td>5.7%</td>
<td>93.5%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>0.6%</td>
<td>4.2%</td>
<td>95.1%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.3%</td>
<td>0.2%</td>
<td>99.5%</td>
</tr>
<tr>
<td>Cape Town</td>
<td>Train</td>
<td>3.0%</td>
<td>42.8%</td>
<td>54.2%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>1.3%</td>
<td>4.7%</td>
<td>94.0%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>0.8%</td>
<td>3.3%</td>
<td>95.9%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.2%</td>
<td>0.7%</td>
<td>99.2%</td>
</tr>
<tr>
<td>Ethekwini</td>
<td>Train</td>
<td>3.0%</td>
<td>42.7%</td>
<td>54.3%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>1.5%</td>
<td>4.3%</td>
<td>94.1%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>0.8%</td>
<td>3.3%</td>
<td>95.9%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.2%</td>
<td>0.7%</td>
<td>99.1%</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>Train</td>
<td>3.0%</td>
<td>42.8%</td>
<td>54.2%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>1.3%</td>
<td>4.7%</td>
<td>94.0%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>0.8%</td>
<td>3.3%</td>
<td>95.9%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.2%</td>
<td>0.7%</td>
<td>99.1%</td>
</tr>
<tr>
<td>All metro’s</td>
<td>Train</td>
<td>3.0%</td>
<td>42.7%</td>
<td>54.3%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>1.5%</td>
<td>4.3%</td>
<td>94.1%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>0.8%</td>
<td>3.3%</td>
<td>95.9%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.2%</td>
<td>0.7%</td>
<td>99.1%</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>Train</td>
<td>3.0%</td>
<td>42.7%</td>
<td>54.3%</td>
</tr>
<tr>
<td></td>
<td>Bus</td>
<td>1.5%</td>
<td>4.3%</td>
<td>94.1%</td>
</tr>
<tr>
<td></td>
<td>Taxi</td>
<td>0.8%</td>
<td>3.3%</td>
<td>95.9%</td>
</tr>
<tr>
<td></td>
<td>Car</td>
<td>0.2%</td>
<td>0.7%</td>
<td>99.1%</td>
</tr>
</tbody>
</table>
3.4.2 Affordability to households and workers

Table 9: Cost of public transport trips per capita as a percentage of monthly household income per capita by quintile 2013

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Less than 10%</th>
<th>Between 10% and 20%</th>
<th>More than 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest income quintile</td>
<td>85.1</td>
<td>11.9</td>
<td>2.9</td>
</tr>
<tr>
<td>Quintile 4</td>
<td>52.7</td>
<td>31.7</td>
<td>15.6</td>
</tr>
<tr>
<td>Quintile 3</td>
<td>36.3</td>
<td>34.4</td>
<td>29.4</td>
</tr>
<tr>
<td>Quintile 2</td>
<td>26.7</td>
<td>31.4</td>
<td>41.9</td>
</tr>
<tr>
<td>Lowest income quintile</td>
<td>12.7</td>
<td>20.8</td>
<td>66.6</td>
</tr>
</tbody>
</table>

Table 10: Cost of public transport trips to work per capita as a percentage of monthly household income per capita by quintile 2013

<table>
<thead>
<tr>
<th>Quintile</th>
<th>Less than 10%</th>
<th>Between 10% and 20%</th>
<th>More than 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highest income quintile</td>
<td>72.1</td>
<td>22.3</td>
<td>5.6</td>
</tr>
<tr>
<td>Quintile 4</td>
<td>19.1</td>
<td>41.5</td>
<td>39.5</td>
</tr>
<tr>
<td>Quintile 3</td>
<td>4.4</td>
<td>14.4</td>
<td>81.2</td>
</tr>
<tr>
<td>Quintile 2</td>
<td>0.7</td>
<td>3.1</td>
<td>96.2</td>
</tr>
<tr>
<td>Lowest income quintile</td>
<td>0.1</td>
<td>1.0</td>
<td>98.9</td>
</tr>
</tbody>
</table>

Figure 5 Cost of public transport trips per capita as a percentage of monthly household income per capita by quintile 2013

Source: Measuring household expenditure on public transport: In-depth analysis of the National Household Travel Survey 2013 data Report No. 03-20-11, Statistics South Africa 2015
Figure 6: Cost of public transport trips to work per capita as a percentage of monthly household income per capita by quintile 2013

Figure 7: Percentage of monthly household income per capita spent on public transport by geographic location 2013
Figure 8: Percentage of monthly household income per capita spent on public transport to work by geographic location 2013

Figure 9: Percentage of monthly household income per capita spent on public transport by mode 2013
3.5 Attitudes to the respective services

The following table shows levels of dissatisfaction with the different public transport modes.

Table 11: Percentage metro users dissatisfied with different attributes of bus, taxi and train services 2013

<table>
<thead>
<tr>
<th>Attributes of bus services</th>
<th>Bus</th>
<th>Taxis</th>
<th>Trains</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the bus stop/taxi rank/station and your home</td>
<td>25.3%</td>
<td>22.1%</td>
<td>51.8%</td>
</tr>
<tr>
<td>The travel time by bus/taxi/train</td>
<td>24.9%</td>
<td>16.4%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Security on the walk to/from the bus stop/taxi/train</td>
<td>38.3%</td>
<td>41.8%</td>
<td>58.7%</td>
</tr>
<tr>
<td>Security at the bus stops/taxi ranks/stations</td>
<td>40.2%</td>
<td>42.1%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Security on the buses/taxis/trains</td>
<td>33.0%</td>
<td>39.7%</td>
<td>49.3%</td>
</tr>
<tr>
<td>The level of crowding in the bus/taxi/train</td>
<td>43.2%</td>
<td>43.6%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>29.4%</td>
<td>55.9%</td>
<td>30.0%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/trains during peak period</td>
<td>30.3%</td>
<td>28.6%</td>
<td>47.7%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/trains during off-peak period</td>
<td>34.0%</td>
<td>30.5%</td>
<td>52.1%</td>
</tr>
<tr>
<td>The punctuality of buses/waiting time for taxis/punctuality of trains</td>
<td>30.8%</td>
<td>31.6%</td>
<td>63.9%</td>
</tr>
<tr>
<td>The bus/taxi/train fares</td>
<td>30.8%</td>
<td>52.3%</td>
<td>15.7%</td>
</tr>
<tr>
<td>The facilities at the stops e.g. shelters/taxi ranks/train stations</td>
<td>46.3%</td>
<td>57.4%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Roadworthiness of taxis</td>
<td></td>
<td></td>
<td>52.0%</td>
</tr>
<tr>
<td>Behaviour of the bus/taxi drivers towards passengers</td>
<td>23.3%</td>
<td>57.1%</td>
<td></td>
</tr>
<tr>
<td>Availability of information</td>
<td>29.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The bus/taxi/train service overall</td>
<td>30.3%</td>
<td>44.4%</td>
<td>49.0%</td>
</tr>
</tbody>
</table>
From this table it can be seen that taxi and bus users have significantly lower levels of dissatisfaction than train users on all attributes other than fares, where trains score very well. Trains score particularly poorly on levels of crowding.

In comparison with buses, taxis do slightly worse on most issues other than frequency. However, they score particularly poorly on

- Safety from accidents
- Fare levels
- Roadworthiness of vehicles
- And behaviour of drivers towards passengers

In the rating of the service overall bus users have the lowest levels of dissatisfaction by some way, followed by taxis, while train users have the worst levels of dissatisfaction.

### 3.6 Car use

The following tables show how household access to cars, and possession of driver’s licences have increased by metro between 2003 and 2013. There has been a large increase in the proportion of households with access to cars as well as the number and proportion of people with driver’s licences in the Gauteng metros of Johannesburg, Tshwane and Ekurhuleni.

The proportion of households with access to cars in Cape Town is the highest but has remained static between 2003 and 2013, at 49.1% while eThekwini is the one metro where the proportion has actually fallen. Tshwane has shown the most dramatic increase in car access and licence possession, with the proportion of households with cars almost reaching Cape Town levels in 2013.

### Table 12: Access to cars and possession of drivers licences by metro 2003 and 2013

<table>
<thead>
<tr>
<th>Area</th>
<th>Households with access to household or employer car</th>
<th>Persons 18 years and over in possession of a driver’s licence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2013</td>
<td>2003</td>
</tr>
<tr>
<td>Johannesburg</td>
<td>40.0%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Tshwane</td>
<td>48.2%</td>
<td>33.7%</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>38.8%</td>
<td>32.8%</td>
</tr>
<tr>
<td>Cape Town</td>
<td>49.1%</td>
<td>49.1%</td>
</tr>
<tr>
<td>eThekwini</td>
<td>32.9%</td>
<td>33.7%</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>34.8%</td>
<td>33.8%</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>23.4%</td>
<td>22.1%</td>
</tr>
<tr>
<td>Mangaung</td>
<td>32.0%</td>
<td>25.9%</td>
</tr>
<tr>
<td>Metro</td>
<td>40.4%</td>
<td>35.6%</td>
</tr>
<tr>
<td>Urban</td>
<td>32.3%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Rural</td>
<td>14.1%</td>
<td>12.6%</td>
</tr>
<tr>
<td>RSA</td>
<td>30.7%</td>
<td>26.1%</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>39.3%</td>
<td>33.6%</td>
</tr>
</tbody>
</table>

### 3.7 Congestion

The rise in car use is reflected in increasing levels of congestion.

The TomTom survey offers a useful set of comparative data that enables a high level assessment of congestion in those South African cities included in their surveys. The survey presents data on a narrow set of 170 cities which it refers to as ‘World Cities’, which include Cape Town and Johannesburg, and a wider set of 390 cities. There are some gaps in the data. For example, while there is data ranking Chinese cities against other cities, there is limited data on the website about the individual Chinese cities. The reverse is true of India.

The main index measures how much slower traffic flows in a city as compared with uncongested speeds in the city (eg at 3.00 am), when viewed over a 24 hour period. It separates the congestion into the impact on highway and non-highway roads. For each city there is also a measure of morning peak and evening peak congestion. This measures the fall in speed over the peak hour as a percentage of the free-flow speed.
At 62nd out of 390 cities ranked, Cape Town appears surprisingly high on the list. Particularly surprising is the fact that it ranks as the 8th worst city for morning congestion. Johannesburg ranks 100th overall and 37th for morning congestion, while Pretoria ranks 169th and 65th for morning congestion. Durban and Bloemfontein are also ranked, at 250th and 321st respectively.

In contrast to most other cities in the survey, in all the South African cities the congestion ranking worsens in the morning peak, while tending to improve in the evening peak. This seems to suggest that motor car users in South African cities have comparatively less flexibility in starting times for work and more flexibility in finishing times. This may have something to do with a combination of workplace practices and modes of travel to schools.

Of significance in interpreting the data are the uncongested travel speeds in South African cities when compared with others in the survey. Of the sample of 27 cities shown here, Cape Town’s free-flow speed of 48 km/h is beaten only by Perth, Bloemfontein and Kansas City.

The figures are consistent with the view that South African cities have highly developed highway and road networks offering very high service levels for private motorists; but are beginning to experience significant congestion levels, which are likely to worsen.

The second table shows the annual congestion trends recorded in the TomTom database, which for the South African cities date back to 2009. This data shows a very substantial worsening of congestion in Cape Town between 2015 and 2016, which is consistent with anecdotal evidence of increased congestion, and may be attributable to recent severe declines in rail services, which have reached critical levels. A further driver to Cape Town’s congestion may be the success of the central business district in recent years, which, because of mountain and sea, has relatively limited entry points; however, this would not explain the sharp increase in one year.

A comparison between Cape Town, Johannesburg and Pretoria since 2009 show interesting differences. All three cities experienced a slight drop in congestion in 2010, which may have been a result of road investments related to the FIFA World Cup. But from 2011 congestion in Johannesburg and Pretoria fell significantly, while in Cape Town this drop never occurred. The drop in congestion in the Gauteng cities is likely attributable mainly to the Gauteng Freeway Improvement Project, and secondarily to the Gautrain.

The changes in congestion in these cities is particularly noteworthy given the trends in car use shown in section 3.5 above. While car use has increased in all South African cities the data shows large increases between 2003 and 2013 in the proportion of households with access to cars in Pretoria and Johannesburg, while in Cape Town the proportion has remained constant.

While Cape Town’s congestion level has risen from 25% in 2009 to 35% in 2013, both Johannesburg and Pretoria are at precisely the same level in 2016 as they were in 2009, at 30% and 26% respectively. What is worrying for the Gauteng cities is that over the last two years their congestion levels have once again begun to climb quite strongly, albeit not as strongly as Cape Town, suggesting that the very substantial investments in freeways have provided only a short respite from congestion challenges.

Continued rapid growth in motor car ownership and use is likely to result in much higher congestion over the coming decade and beyond. This could bring into question the sustainability of the private motor car oriented model which, despite rhetoric to the contrary, effectively drives South African urban development currently.

Currently, public transport is largely regarded in South Africa as a service for those who cannot afford a private motor car. However, public transport alternatives will become much more attractive to choice users if they are able to offer travel time advantage through prioritization of various kinds, ranging from priority roads and intersections for road based services, to rail systems. They would also need to be reasonably comfortable and safe.

Congestion could furthermore lead to changes in location decisions, which could begin to drive more transit oriented urban growth amongst the middle class. This may ultimately have more impact on urban form than the location of poor new arrivals to the metropolitan areas because of the way in which middle class location decisions tend to drive the location of destinations.
Table 13: Congestion levels in a selection of South African and world cities based on Tom-Tom survey data 2017

<table>
<thead>
<tr>
<th>City</th>
<th>Congestion level 2016</th>
<th>change since 2015</th>
<th>world rank/390</th>
<th>Increase on highways</th>
<th>increase on non-highways</th>
<th>Morning peak</th>
<th>Morning peak rank</th>
<th>Evening peak</th>
<th>Evening peak rank</th>
<th>Extra travel time (mins) per hour in peaks</th>
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4. Summary of national government policies and legislation

4.1 Introduction
Section 3 has described the key features of public transport in South Africa. Since 1994 there have been various policy and legislative initiatives to address the issues and these are outlined in this section.

There have been four official policy documents on public transport published since 1994 and two important sets of legislation. The four key policy documents have been

- Moving South Africa (1999)

The National Land Transport Transition Act (no 22 of 2000) was passed after the completion of the first two policy documents, while the National Land Transport Act (no 5 of 2009) was passed after the adoption of the Public Transport Strategy and Action Plan in 2007.

The rail environment is governed by the Legal Succession to the South African Transport Services Act, (no 9 of 1989). This was amended through the Legal Succession to the South African Transport Services Amendment Act (no 38 of 2008).

Initial direction was set in 1996 with the publication of the White Paper on National Transport Policy (1996). Subsequent policies have built on this with shifts in emphasis rather than any substantial new direction, although actual practice has not always been consistent with policy. The White Paper is covered here in some detail to illustrate that many of the policy ideas that are currently being argued are not significantly new. The newly published draft White Paper on National Rail Policy does contain some significant new proposals, although these do not contradict the direction of the 1996 White Paper.

There is a new White Paper on National Transport Policy currently being prepared. Initial draft versions suggest limited change in direction.

4.2 White Paper 1996
The White Paper’s strategic objectives for public transport included:

- To promote the use of public transport over private car travel, with the goal of achieving a ratio of 80:20 between public transport and private car usage
- To ensure that public transport is affordable, with commuters spending less than about 10 percent of disposable income on transport

It stressed the need for comprehensive information as a basis for developing policy and strategy, leading to the National Household Travel Surveys referred to in chapter 3.

The White Paper highlighted two key thrusts to achieve the goals of improved customer oriented transport services, namely the promotion of integration and inter-modalism. Integration encompassed ‘modal, spatial, institutional and planning integration’. By ‘inter-modalism’ the White Paper sought to create an environment which encouraged use of the most appropriate mode of transport for any particular purpose, rather than support for any particular mode. This was to be achieved not through regulation and control, but rather by creating appropriate incentives that would allow each mode to compete on the basis of its inherent strengths.

4.2.1 Role of government and competition
The White Paper placed significant focus on defining the role of government in the transport sector stating:

In the past, Government’s dominant role has been as a regulator of bureaucratic detail, a provider of infrastructure, and a transport operator, but it has been weak in policy formulation and in strategic planning. Government intends to reverse this legacy, and to focus on policy and strategy formulation which are its prime role, and substantive regulation which is its responsibility, with a reduced direct involvement in operations and in the provision of infrastructure and services, to allow for a more competitive environment.

The White Paper argued that efficiency could best be enhanced ‘by ensuring competition in the provision of infrastructure and operations’. However, this did not imply leaving the provision of public transport purely to market forces. Instead, ‘government proposes a form of regulated competition, which requires that operators function in a competitive environment, but in a manner which complies with the objectives of Government’.

Government objectives were to be defined through the mechanism of a passenger transport plan drawn up by the relevant authority. The strategic objective was to ‘promote and implement a system of regulated competition for public transport routes or networks based on ‘permissions’ or ‘tendered contracts’ defined on the basis of passenger transport plans’.

14 ‘Operator permits’ were to be replaced with ‘permissions (authorities) issued in terms of approved passenger transport plans’.

23
In some cases, such as in respect of the minibus taxi industry, it saw a need to tighten regulation. One of the factors influencing perspectives in drawing up the White Paper included ongoing conflict within the minibus taxi industry. In developing a new approach the needs of the existing service providers, especially the minibus taxi industry had to be carefully accommodated without allowing the principles of the new system to be compromised. Greater formalization of the minibus taxi industry was a key objective of the policy makers, and this included seeking to accommodate ‘pirate’ operators. This led to the creation of minibus taxi associations.

4.2.2 Financing

The White Paper argued that ‘economic’ infrastructure and operations, which were ones which provided a measurable economic or financial return should be operated on commercial principles and not subsidized. These included ‘financially viable passenger transport operations’. There were, however, ‘elements of infrastructure and operations which cannot or should not be paid for by the user, but which provide social benefits’. Government would contribute to the financing of these socially necessary services in a transparent manner.

To achieve this the White Paper argued that there was a need for ‘sustainable and dedicated funding for passenger transport infrastructure, operations, and law enforcement’. Where appropriate, infrastructure would be funded through user charges and/or investments by the private sector. However, the transport sector would seek increased appropriations for transport infrastructure from national government’s general revenue, and would also seek to develop new sources for financing.

4.2.3 Land use

The White Paper was emphatic that South Africa’s public transport challenges would never be effectively addressed without addressing land use patterns and urban form, stating that

Land use and transport development are not integrated owing to a fragmentation of responsibilities for the administration, planning and regulation of the various aspects of land use, infrastructure, operations and regulations. This fragmentation and the legacy of apartheid policies has led to low density development, spatially dislocated settlements and urban sprawl, resulting in inordinately long commuting distances and times, low occupancy levels, high transport costs and low cost recovery.

Thus the following spatial development principles were agreed:

- land use development proposals must be subject to a

4.2.4 Devolution

The emphasis on the need to address land use issues led to a focus on the need to configure government in a manner that allowed this to be addressed. Thus, one of the stronger themes emerging from both the need to integrate decision making as well as the need to integrate transport planning with land use planning was the need for devolution.

In this regard the White Paper stated:

The principle of subsidiarity and devolution of public passenger transport functions, powers and duties to the lowest appropriate level of government is confirmed.

The White Paper foresaw difficulties in achieving this. It recognized that public policy was carried out at various levels of government, but saw the need for clearly constituted bodies able to ‘facilitate the effective and efficient planning, implementation, funding, regulation and law enforcement of the passenger transport system, devolved to the lowest competent level’.

The White Paper was arguing this in a context where new provincial governments had been formed in 1994 as part of the new democratic dispensation, but where single tier metropolitan governments had not yet been created. Local government was in what was termed the ‘interim phase’ and in metropolitan areas consisted of a metropolitan tier with multiple separate ‘sub-structures’.

In the context of multi-jurisdictional metropolitan areas the Transport White Paper argued that two sets of inter-governmental relationships had to be addressed. Firstly, there was a need to promote integration and co-ordination of policy and activities between the national and provincial authorities. Secondly, it recognized that the metropolitan conurbations, in particular, were of major

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15 Restrictions on car usage could only be implemented in conjunction with improved public transport

16 Provincial governments had been created in 1994 through boundary and administrative re-configuration of the previous four provincial administrations of ‘white’ South Africa, and the ten ‘black homelands’ (in turn consisting of four ‘independent’ and six ‘self-governing’ territories).
importance, with ‘a large proportion of South Africa’s transport activities taki(ng) place within metropolitan areas’. Thus, metropolitan structures were required, and, besides planning, these should ‘take full responsibility for execution and implementation in metropolitan areas’.

While the National Land Transport Transition Act (Act 22 of 2000), which followed the Transport White Paper sought to create integrated transport authorities across fragmented local metropoles, the Local Government White Paper (1998) subsequently led to the creation of single tier metropolitan governments from December 2000 and a much simpler path to achieve the same objective.

4.3 Moving South Africa

The White Paper was approved by cabinet and parliament in September 1996. However, while the White Paper addressed policy and had a time horizon of six to nine years, there was a need to sharpen the analysis based on much better empirical data and to develop strategy. The strategic approach had to identify and make key choices, and to do so with a 20 year time horizon. Thus, the national Department of Transport embarked on a process known as the ‘Moving South Africa’ project, which aimed to develop a ‘shared vision, clear choices, and consistent decision rules for all participants in the transport industry’. The final report was completed in 1999.

Amongst the proposals made by MSA was the creation of dedicated road infrastructure for public transport – most likely in the form of busways. These, claimed MSA, could provide the optimal solution, allowing increased speeds and comfort levels. Findings were that dedicated infrastructure can save between 5% and 20% of operating costs, if it improves speed by 25% over current performance. The study went further, arguing that without dedicated or prioritised road infrastructure for public transport, corridor densification was unlikely to yield the improvements in public transport cost and service levels envisaged by the MSA strategy.

The MSA research was emphatic that sub-optimal spatial planning was probably the biggest driver of public transport costs and the most difficult to turn around; and that building more roads in already well served metropolitan areas was not the solution to congestion. Experience internationally had shown that more roads attract more traffic which in turn generates demand for even more roads. Instead, MSA advocated managing car use in these congested areas through controls (e.g. limiting parking spaces), pricing mechanisms and incentives (e.g. promoting ride-sharing) whilst at the same time investing in the core public transport network as the emerging alternative.


As discussed below, the adoption of the White Paper of 1996 and the Moving South Africa report of 1999 was followed by the passage of the National Land Transport Transition Act (no 22 of 2000). However, apart from Gautrain, which was a project conceived by the Gauteng Provincial Government initially in 2003, there was little progress made in implementation.

From around 2005 new thinking, particularly around how to implement the new agenda, began to develop within the Department of Transport informed especially by the successes achieved in improving public transport in some of the major cities in South America, especially Bogota, in Colombia. While this thinking was focused mostly on the road based public transport sector there were also growing concerns around the decline of the commuter rail services.

This led to the emergence of a new public transport strategy, which was approved by cabinet in draft form in October 2006 for the purposes of public discussion and finalized in March 2007 after stakeholder comments and other discussions. But there was a realization of the need for action. Thus, an Action Plan was developed alongside the strategy and published in February 2007. (Department of Transport 2007a;b)

In essence the new model emphasized the need to establish comprehensive public transport networks which are actively controlled and managed by a strong public network company linked to the city authority.

While the vision of the White Paper and Moving South Africa was not inconsistent with the new approach there was an assumption of a more active role for the public sector in the management of city wide networks. As stated in the Department of Transport’s chapter in National Treasury’s 2008/09 Expenditure Estimates (National Treasury 2008a), ‘the strategy articulates a vision to shift public transport service delivery away from operator controlled, commuter based, uni-modal routes to user oriented, publicly controlled, fully integrated, mass rapid public transport networks’.

The Action Plan envisaged a phased approach, with the first phase consisting of Modal Upgrading, while moving in the direction of more integrated networks.

The key components of the vision set out in the Action Plan were as follows:

- 85% of all residents within 1km of Rapid PT Network by 2020
- Upgraded modal fleet, facilities, stops and stations
- Extended hours of operations (16-24 hours)
- Peak frequencies (5-10 min) – Off-peak frequencies (10-30 min)
- Full special needs and wheelchair access
- Safe and secure operations monitored by Control Centre
- Electronic fare integration when making transfers
- Integrated feeder services including walking/cycling and taxi networks
• Integration with metered taxi services and long distance intercity services
• Car competitive PT option – enables strict peak period car use management.\(^{17}\)

The three critical implementation building blocks were described in the Strategy as:

• Integrated Rapid Public Transport Network Implementation Plans
• Municipal control over integrated networks
• A maximum stake for existing bus/minibus sector in rapid public transport network operations.

As explained below, the Public Transport Strategy and Action Plan was backed by the introduction of a new grant, which has been referred to by various names since it was instituted, and is now referred to as the Public Transport Network Grant. For the first time significant funding for public transport was directed at local government, and especially the eight metropolitan governments.

4.5 Draft Rail White Paper (2017)

The Draft White Paper on National Rail Policy is dated June 2017, and follows an earlier Green Paper published in 2015. It deals with all rail issues, with significant emphasis on national freight issues, while also addressing long distance passenger rail and urban commuter rail.

It argues that while South Africa has a long history of rail as an important transport mode, contributing significantly to the country’s formative development, it has been in decline for several decades, constrained, inter alia, by its ‘inherently uncompetitive narrow gauge technology’, and ‘monolithic, organizational structure…tightly held by national government’.

While describing the poor state of rail services generally, it notes that commuter rail ‘is fighting a losing battle against deteriorating trains until manufacture of the next generation comes on stream’ and that ‘current institutional arrangements do not support accelerating remedial responses’.

The White Paper advocates ‘implementing standard gauge technologies on the national rail network, while retaining existing Cape gauge on the metropolitan commuter networks where narrow gauge does not impede inherent competitiveness’.

Various proposals are made regarding the need for funding and modern forms of regulation, while ‘(u)’urban rail will be devolved and ultimately assigned to local government. This will enable it to be nurtured in a setting where it will be valued and integrated into other local transport initiatives.’ Its current positioning at the national level means that it has few incentives to ensure value for money; this would change ‘when urban rail is assigned to appropriate transport authorities’ since ‘it will encounter natural competition for funding from other modes managed by that authority, which will sharpen sensitivity to user perceptions of service quality’.

The ‘devolution and assignment of urban guided transit\(^{18}\), with concomitant funding, to local authorities’ should be completed no later than the end of PRASA’s present contract for commuter trains, or earlier if local authorities so request’. A provisional date of 2025 is given for the completion of this devolution.

The White Paper also raises the possibility that in addition to the current heavy metro systems there could be ‘additional urban guided transit, which can be made immune to traffic congestion on its own right of way’, while ‘regional rapid transit\(^{19}\) will provide inclusivity to outlying areas’.

On funding, the White Paper notes that PRASA’s operating subsidy is not ‘trending upward’ concurrently with capital funding, resulting in ‘an unsustainable shortfall’ and that ‘all spheres of government will need to revisit the quantum of funding contemplated for UGT’.

4.6 Legislation

There have been two sets of legislation affecting public transport since 1994. The first was the National Land Transport Transition Act (NLTTA) (no 22 of 2000). This was then replaced by the National Land Transport Act (NLTA) (no 5 of 2009).

The NLTA describes one of its purposes as ‘to further the process of transformation and restructuring of the national land transport system initiated by the Transition Act’ (clause 2(a)) It is thus not intended to represent a significant departure from the NLTTA, although there are some significant changes in emphasis.

4.7 National Land Transport Transition Act (Act 22 of 2000) (NLTTA)

The NLTTA sought to legislate the policies agreed in the White Paper process and the Moving South Africa project. It provided a set of principles which prioritized public over private transport while stressing the need for coherent planning which integrated transport planning with land use planning. Municipal legislation requires municipalities to draw up Integrated Development Plans. The NLTTA

\(^{17}\) Public Transport Strategy and Action Plan (2007)

\(^{18}\) The White Paper includes BRT as a subset of ‘urban guided transit’ arguing that planners need to choose the most appropriate technology, ideally with the scope to upgrade it from, eg BRT to light metro as required.

\(^{19}\) Gautrain is cited as an example of this mode, which could extend well outside current conurbations, offering rapid access to the city.
required Transport Plans to be drawn up as the transport component of Integrated Development Plans.

Taxis had operated throughout the country on the basis of permits, which were often poorly defined, and granted without reference to proper planning. The legislation provided for the conversion of these permits into ‘Operating Licences’ with much more clearly defined routes, and other requirements, in turn generated from Public Transport Plans. All contracted transport services were to be based on a tender process.

4.8 National Land Transport Act (Act 5 of 2009) (NLTA)

4.8.1 Assignment of powers and functions

An important motivation for the National Land Transport Act (NLTA) was the failure of the NLTTA to lead to the creation of effective bodies at local level to take responsibility for public transport. The dispensation that emerged under the NLTTA led to significant ambiguity as to how responsibility and power in relation to public transport was to be configured between provincial and city level. The NLTA sought to address this.

A key element of the NLTTA was provision for the creation of Transport Authorities at metropolitan level. However, with the introduction of the new local government dispensation at the end of 2000, and the creation of single tier metropolitan authorities encompassing the whole metropolitan area the rationale for Transport Authorities at this level largely fell away. The NLTA instead placed responsibility largely with metropolitan authorities.

The constitution is ambiguous in its assignments of powers in relation to public transport, with ‘public transport’ being assigned concurrently to national and provincial government, while ‘municipal public transport’ is assigned to municipalities. The new legislation was influenced by legal opinion to the effect that ‘municipal public transport’ refers to all public transport conducted primarily within the boundaries of a municipality. This interpretation tends to place within the municipal sphere activities which were previously assumed to be a provincial responsibility.

While assigning some functions explicitly, the legislation builds on section 156(4) of the constitution, which assigns to municipalities relevant functions listed in Part A of Schedules 4 and 5 if:

(a) that matter would most effectively be administered locally; and
(b) the municipality has the capacity to administer it.

This is how, for example, the devolution of the operating licence function to municipalities is dealt with, a matter previously assigned to provinces. At the same time section 11(c) assigns to municipalities, inter alia (xviii) the planning, implementation and management of modally integrated public transport networks and travel corridors for transport within the municipal area and liaising in that regard with neighbouring municipalities;

(xix) in relation to the planning functions contemplated in paragraph (iv) include service level planning for passenger rail on a corridor network basis in consultation with the South African Rail Commuter Corporation;

(xxvi) concluding subsidised service contracts, commercial service contracts, and negotiated contracts contemplated in section 41(l) with operators for services within their areas;

For standalone metropolitan areas, such as eThekwini, Cape Town and Nelson Mandela Bay, the NLTA provides a clear mandate to make metropolitan governments the key locus of responsibility for road based public transport; although because of separate legislation governing commuter rail the situation regarding rail is a little more ambiguous. This enables the realization of the 1996 White Paper’s vision of both the integration of the management of public transport, as well as the integration of public transport and land use planning. Despite this, as discussed below, the national Department of Transport has been reluctant to implement the consolidation of authority at metropolitan level even where jointly called for by a provincial and metropolitan government.

For Gauteng the legislation does not offer as clear a way forward since, given the movement patterns in the province, there is clearly a need for both a local and provincial dimension to transport governance. Amendments to the NLTA are currently being debated which would provide for a provincial transport authority.

4.8.2 Funding

Chapter 3 of the act is entitled Funding Arrangements for Land Transport. There is limited scope in legislation of this type, which is not classified as a ‘Money Bill’ to provide significantly for funding arrangements. The chapter does provide for user charges and specifies such examples as charges on properties which lead to increased motor vehicle use, parking levies and levies for vehicles to enter specified areas. However, these are all subject to the Municipal Fiscal Powers and Functions Act (no 12 of 2007), which is the legislation that governs the process of getting authorization for the imposition of such levies at municipal level.
5. National resource allocation to public transport

5.1 Introduction

This section summarises expenditure on key national public transport programs over the last decade, and includes projections for the current Medium Term Expenditure Framework.

The first sub-section summarises all the main public transport spending. A second sub-section provides some statistics on spending on private transport and the general road network for comparison. This includes figures on the large amount of resources that are collected and distributed through the Road Accident Fund to compensate for death, injuries and loss of earnings of uninsured victims of road accidents.

In assessing the figures over this time period inflation of approximately 6% a year should be taken into account.

5.2 Expenditure by national government on public transport

Table 15 below shows the allocation of national resources to public and private transport between 2006/7 and 2016/17, with budget projections through to 2019/20. In this section a brief high level description is given of the main programs, which are then addressed in more detail in subsequent sections.

5.2.1 Public Transport Operating Grant (PTOG)

The Public Transport Operating Grant (PTOG) is a subsidy which originated in the apartheid era to subsidise commuter bus operations transporting workers between black residential areas and the main core of the cities. The subsidies were required because of these residential areas often being situated long distances from the city centre, and because of the ‘commuter’ nature of the service, which is difficult to service cost-effectively. In some instances these residential townships have become subsumed within the cities as they have grown, while elsewhere they remain well beyond the outskirts.

In the apartheid period these subsidies were distributed by provincial administrations on behalf of central government to private contracted bus companies - a practice which continued until 2009, when the function was assigned to the provinces, making them directly responsible for the contracts, including amounts not covered by the grant.

5.2.2 Public Transport Network Grant (PTNG)

The Public Transport Network Grant (PTNG) originated at relatively small scale in 2006 as part of efforts to prepare for the 2010 FIFA World Cup, but shifted to becoming the capital financing mechanism to cities to create Integrated Rapid Public Transport Networks in terms of its 2007 Public Transport Strategy and Action Plan (see 4.4 above). This grant is now paid to each of the 8 metropolitan governments and 5 secondary cities. Until recently the management and conditions attached to the grant by the national Department of Transport effectively meant that it had to be used for implementing bus rapid transit projects. However, there is a shift towards allowing more flexible approaches in terms of locally generated plans.

The grant has been critical in beginning to build focus and capacity to enable the consolidation of public transport responsibilities at city level in line with national policy. It has resulted in some successful projects; although poor application of the grant in some instances and an over-emphasis on bus rapid transit has created challenges.

The grant was originally referred to as the ‘Public Transport Infrastructure and Systems Grant’, before being split into a Public Transport Infrastructure Grant (PTIG) for capital expenditure and a Public Transport Network Operating Grant (PTNOG) for paying operating subsidies, before being integrated into its current form as the PTNG.

5.2.3 Taxi recapitalization program

The Taxi Recapitalisation Programme (TRP) began in 2001, as a result of recommendations of the National Taxi Task Team (NTTT) in 1999. The NTTT was set up to address problems in the industry, and resulted in measures to create a national institutional structure (SANTACO), change the licencing system for minibus-taxis, improve regulation and replace old vehicles with new ones.

The taxi recapitalization program, which is managed by an outsourced agency called the Taxi Scrapping Administrator, gives a grant to taxi operators holding a permit to operate when they scrap their old taxis and purchase a new one, complying with standards set by the regulator.

The allowance was R82,400.00 in 2016/17 and is adjusted each year in line with inflation (CPI). By end March 2016 64,859 old taxi vehicles have been scrapped, with 3,225 taxis scrapped in the 2015/16 financial year out of a current industry of between 175,000 and 200,000 vehicles.

20 Most of the recipients of the subsidies were private bus companies, although in a small number of cases they were owned by homeland or provincial governments or their agencies.
5.2.4 Passenger Rail Agency of South Africa (PRASA)

PRASA is responsible for the Metrorail commuter rail service (448 million passenger trips in 2015/16) as well as a national mainline passenger service with far fewer passengers (0.7 million in 2015/16).

National government provides a large subsidy to this agency split between an operating subsidy and a capital subsidy. A major recapitalization of passenger rail is currently underway.

5.2.5 Gautrain

The Gautrain, a rapid rail link running between central Johannesburg, Tshwane and the OR Tambo international airport, is a project of the Gauteng Province.

Construction of the Gautrain occurred between 2006/07 and 2010/11 at a cost of R25.9 billion to the national and provincial fiscus while the concessionaire contributed a loan of R2.7 billion. Because public expenditure on the implementation of Gautrain represented about 30% of total public spending on public transport during this five year period, and was substantially subsidized by national government, it is included in this table.

In terms of the ridership guarantee agreement with the concessionaire Gautrain receives an annual operating subsidy from the province which is also shown in the table.
Table 15: Allocation of national spending on public transport

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</tr>
</thead>
<tbody>
<tr>
<td>Public Transport Operating Grant (PTOG)</td>
<td>16.53</td>
<td>4.15</td>
<td>4.32</td>
<td>4.55</td>
<td>4.83</td>
<td>4.94</td>
<td>5.40</td>
<td>5.72</td>
<td>5.99</td>
<td>6.33</td>
</tr>
<tr>
<td>Public Transport Network Grant (PTNG)</td>
<td>10.91</td>
<td>4.61</td>
<td>4.88</td>
<td>5.55</td>
<td>5.87</td>
<td>5.95</td>
<td>5.59</td>
<td>6.16</td>
<td>6.58</td>
<td>6.96</td>
</tr>
<tr>
<td>Taxi recapitalisation</td>
<td>2.10</td>
<td>0.45</td>
<td>0.41</td>
<td>0.23</td>
<td>0.30</td>
<td>0.25</td>
<td>0.35</td>
<td>0.39</td>
<td>0.41</td>
<td>0.43</td>
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<tr>
<td>PRASA subsidy</td>
<td>30.06</td>
<td>9.47</td>
<td>10.23</td>
<td>10.51</td>
<td>14.95</td>
<td>18.23</td>
<td>18.89</td>
<td>19.22</td>
<td>21.11</td>
<td>22.23</td>
</tr>
<tr>
<td>Current subsidy</td>
<td>14.40</td>
<td>3.34</td>
<td>3.53</td>
<td>4.33</td>
<td>3.89</td>
<td>4.07</td>
<td>4.28</td>
<td>5.50</td>
<td>5.76</td>
<td>6.02</td>
</tr>
<tr>
<td>Capital subsidy</td>
<td>15.66</td>
<td>6.13</td>
<td>6.70</td>
<td>6.83</td>
<td>11.06</td>
<td>14.16</td>
<td>14.61</td>
<td>13.72</td>
<td>15.35</td>
<td>16.21</td>
</tr>
<tr>
<td>Gautrain capital subsidy</td>
<td>25.90</td>
<td>0.01</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Gautrain ridership guarantee paid to operator</td>
<td>0.00</td>
<td>0.60</td>
<td>0.83</td>
<td>1.04</td>
<td>0.99</td>
<td>0.98</td>
<td>0.97</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>TOTALS</td>
<td>85.50</td>
<td>19.29</td>
<td>20.67</td>
<td>22.12</td>
<td>27.06</td>
<td>30.89</td>
<td>32.83</td>
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</table>

Source: Measuring household expenditure on public transport: In-depth analysis of the National Household Travel Survey 2013 data Report No. 03-20-11, Statistics South Africa 2015

21 The high level agreement for funding the Gautrain was that national government would pay half via a conditional grant and Gauteng Province would pay a similar amount out of its equitable share grants. The figure used here for the capital amount is based on doubling the conditional grants provided by national government over the implementation period. The loan of R2.7 bn provided by the Concessionaire is excluded.

22 The figure for the ridership guarantee is taken from GMA Annual Reports and budgets. The actual amounts paid by the Gauteng Province to the Gautrain Management Agency over the period 2013/14 to 2016/17 were higher than this at R1.42bn; R1.31bn; R1.56bn and R2.81bn, with projections for 2017/18 to 2019/20 of R1.83bn, R1.95bn and R2.06bn.
5.3 Expenditure on roads

5.3.1 National and provincial roads

Table 16 shows expenditure by national government on roads excluding toll roads, including a dedicated provincial roads maintenance grant.

Table 16: National and provincial expenditure on roads

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</thead>
<tbody>
<tr>
<td>National roads (excl toll network) - capital</td>
<td>7.04</td>
<td>8.18</td>
<td>8.59</td>
<td>9.33</td>
<td>11.11</td>
<td>12.50</td>
<td>13.18</td>
</tr>
<tr>
<td>National roads current</td>
<td>3.56</td>
<td>4.01</td>
<td>4.45</td>
<td>4.79</td>
<td>5.05</td>
<td>5.35</td>
<td>5.67</td>
</tr>
<tr>
<td>Expenditure by SANRAL on tolled roads network*</td>
<td>2.99</td>
<td>4.02</td>
<td>4.33</td>
<td>4.75</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Provincial roads maintenance</td>
<td>7.52</td>
<td>7.96</td>
<td>8.22</td>
<td>9.38</td>
<td>10.00</td>
<td>11.33</td>
<td>12.18</td>
</tr>
<tr>
<td>TOTALS</td>
<td>21.11</td>
<td>24.17</td>
<td>25.59</td>
<td>28.25</td>
<td>-</td>
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</table>

Sources: National Treasury Expenditure Estimates for the period; SANRAL Annual Reports

* This figure is drawn from note 33 of the Annual Financial Statements which estimates capital expenditure commitments on the tolled and non-tolled network

5.3.2 Gauteng Freeway Improvement Project

The first phase of the Gauteng Freeway Improvement Project (GFIP), an initiative of the South African National Roads Agency Limited (SANRAL), was implemented between 2008 and 2011. The project’s main aim was to add one additional lane to the existing freeway network of 185 kilometers. In most cases this meant a widening from three to four lanes in each direction, although in some cases it was widened to five or six lanes.

The project also rehabilitated and resurfaced the existing road where necessary, upgraded 34 interchanges, introduced median high mast lighting and median concrete barriers along the full 185 km length, improved bridges, and introduced overhead open-road tolling.

Transparent figures on the total capital cost of the project are difficult to find. A pressure group opposing tolling estimates total road construction costs at R17.9 billion, with an additional R2.8 billion for e-tolling and related infrastructure.

A further 376 kms of upgraded and newly constructed freeways is planned to be implemented. However, opposition to tolling has meant that further phases now appear to be on hold.

23 These figures are drawn from a paper by the Organisation Against Tax Abuse (OUTA) entitled ‘Society’s odious GFIP debt, courtesy of SANRAL’ https://www.outa.co.za. While not an impartial source, SANRAL has not contested these figures, which, despite OUTA’s protestations to the contrary, do not seem unreasonable given the scale of the project.
5.4 The Road Accident Fund

South Africa has very high accident rates and spends a remarkably large amount on compensation of road accident victims. This is shown in the following table. The transfers to the Road Accident Fund are funded by a dedicated tax on vehicle fuel, which is in addition to the General Fuel Levy. The transfers to the fund of R35.2 billion in 2016/17 were significantly less than the figure recorded in the National Treasury Expenditure Estimates as ‘Payments of claims’ shown in the table, and the resultant accumulated deficit. These may be based on submitted claims rather than finalized claims.

According to the annual report of the Road Accident Fund, the Fund paid out R31.9 bn in cash, while a further R8.5 bn was finalized for payment but could not be paid because of cash shortage.

Government is currently attempting to make changes to the functioning of the system in an effort to reduce costs.

Table 17: Road Accident Fund funding and payments of claims

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</thead>
<tbody>
<tr>
<td>Transfers to RAF</td>
<td>16.99</td>
<td>17.38</td>
<td>20.28</td>
<td>22.61</td>
<td>33.11</td>
<td>35.20</td>
</tr>
<tr>
<td>Payments of claims</td>
<td>32.59</td>
<td>21.58</td>
<td>36.44</td>
<td>40.46</td>
<td>66.27</td>
<td>70.36</td>
</tr>
<tr>
<td>Accumulated deficit</td>
<td>(-46.47)</td>
<td>(-73.63)</td>
<td>(-90.93)</td>
<td>(-110.38)</td>
<td>(-145.34)</td>
<td>(-183.97)</td>
</tr>
</tbody>
</table>
6 Metrorail

Much the largest allocation of resources to public transport currently is for the recapitalization of Metrorail, which has a three pronged program of investment in rolling stock, signaling and the renewal of stations. The service provided by Metrorail had not seen significant re-investment since the early 1980’s and in recent years services have deteriorated severely, exacerbated by the burning of trains ostensibly by users venting their anger at poor service.

6.1 Institutional arrangements

Metrorail (a division of the Passenger Rail Agency of South Africa (PRASA)) is responsible for the provision of commuter rail services, all of which are situated in the eight metropolitan areas.

PRASA has two key areas of responsibility, of which the first is much the most significant:

- the provision of commuter rail services in metropolitan areas
- long-distance (inter-city) rail and bus services – sometime referred to as ‘mainline services’ within South Africa’s borders

Table 18: Metrorail commuter networks

Source: MetroRail website http://www.metrorail.co.za/Routes2.html

Rail services have existed in South Africa for over a century, largely implemented and run by the public sector through various institutional arrangements which have changed over time. The current arrangements date from 2009 which saw the consolidation of the passenger rail services under the newly formed PRASA, which reports to the Department of Transport, while the parastatal, Transnet, which is responsible for freight services, harbours and pipelines and other key logistics, reports to the Department of Public Enterprises.

6.2 Scope of services

The commuter rail services include traditional commuter services (Metro and MetroPlus), as well as the newer Business Express services (MetroPlus Express), which are provided between Soweto-Springs- Johannesburg, Johannesburg-Pretoria, and Strand-Khayelitsha-Cape Town and Paarl-Cape Town.

These services are provided through four regional operations, namely Western Cape (Cape Town); Gauteng (Ekurhuleni, Johannesburg, & Tshwane); KwaZulu-Natal (eThekwini) and Eastern Cape (Nelson Mandela Bay and Buffalo City). Table 18 below illustrates the four networks.
The Metrorail network in the Eastern Cape is much smaller than in the other areas, compromising its viability. The Nelson Mandela Bay line was originally constructed as a freight line away from residential areas, resulting in a limited number of residents within walking distance of the stations along the line.

For all four regions collectively, Metrorail requires 287 train sets, although as is indicated below, given current challenges only 248 are actually provided.

Table 19: Passenger carrying capacities of trainsets used in Metrorail’s Western Cape region

<table>
<thead>
<tr>
<th>Coach Type</th>
<th>Coaches</th>
<th>Passenger capacity: seating</th>
<th>Passenger capacity: standing</th>
<th>Passenger capacity: total</th>
</tr>
</thead>
<tbody>
<tr>
<td>5M2A</td>
<td>8</td>
<td>472</td>
<td>1,523</td>
<td>1,995</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>632</td>
<td>1,716</td>
<td>2,348</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>784</td>
<td>1,916</td>
<td>2,700</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>786</td>
<td>2,168</td>
<td>2,954</td>
</tr>
<tr>
<td>8M</td>
<td>12</td>
<td>720</td>
<td>2,976</td>
<td>3,048</td>
</tr>
<tr>
<td>10M3</td>
<td>8</td>
<td>398</td>
<td>1,252</td>
<td>1,650</td>
</tr>
<tr>
<td>10M5</td>
<td>14</td>
<td>806</td>
<td>3,388</td>
<td>4,194</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>696</td>
<td>2,895</td>
<td>3,591</td>
</tr>
</tbody>
</table>

In comparison, a conventional bus has a capacity of between 65 and 80 passengers, including standees.

6.3 Fares

Metrorail uses a zonal fare system in terms of which passengers can travel at extremely low prices per trip. For example, Table 20 illustrates the ticket prices currently applicable in Metrorail’s Gauteng North sub-region for the different services.

The fare system means that a Metrorail passenger buying a monthly ticket for distances shorter than 20 km and using it for two trips per day for 20 days in that month would effectively be paying R3.38 per trip.

Metrorail has not increased its fares since 1st July 2014.

Table 20: Metrorail zonal fares for Gauteng North from 1st July 2014

<table>
<thead>
<tr>
<th>Metro</th>
<th>Single</th>
<th>Return</th>
<th>Weekly</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - 10 km</td>
<td>6.50</td>
<td>12.50</td>
<td>43.00</td>
<td>135.00</td>
</tr>
<tr>
<td>11 - 19 km</td>
<td>6.50</td>
<td>12.50</td>
<td>43.00</td>
<td>135.00</td>
</tr>
<tr>
<td>20 - 30 km</td>
<td>7.50</td>
<td>14.50</td>
<td>49.00</td>
<td>155.00</td>
</tr>
<tr>
<td>31 - 50 km</td>
<td>8.50</td>
<td>16.50</td>
<td>57.00</td>
<td>180.00</td>
</tr>
<tr>
<td>51 - 100 km</td>
<td>10.50</td>
<td>20.50</td>
<td>70.00</td>
<td>220.00</td>
</tr>
<tr>
<td>&gt; 100 km</td>
<td>11.50</td>
<td>22.50</td>
<td>77.00</td>
<td>245.00</td>
</tr>
</tbody>
</table>

26 Eighty-one train sets are in use in Metrorail’s Western Cape region (the only region for which detailed train data was available), 31 in Area central, 27 in Area North, and 23 in Area South.
In its Corporate Plan 2017-2020 PRASA acknowledges that its ‘performance and service offering is at an all-time low’. Its service ‘is poor, unreliable, unpredictable and unsafe’ resulting in a ‘decline in customer and stakeholder confidence’. Its ‘support systems and processes are not geared to support the organisation to render an efficient and effective public transport service’.

According to the Corporate Plan, ‘rail performance has over the years seen a sharp decline in passenger patronage from 646 million passenger trips recorded in 2009 to 472 million by 2012: a 161 million or 34% drop in performance. The financial year ending 2016/17 projects a drop to 380 million passenger trips’.

The sluggish PRASA performance is not a new phenomenon. The following table shows trends between 1998/99 and 2006/7, although against this table the figure of 646 million passenger trips seems unusually high, suggesting there may be data errors. Nevertheless, a fall to 380 million passenger trips currently is a dramatic decline when compared with any of the past figures.

Table 21: Historical Metrorail passenger numbers – 1998/99 to 2006/7
The following table from the Corporate Plan demonstrates the extent of the challenges:

<table>
<thead>
<tr>
<th>Table 22: PRASA’s current service difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coaches out service</strong></td>
</tr>
<tr>
<td><strong>Train Set Shortage</strong></td>
</tr>
<tr>
<td><strong>Train Cancellations</strong></td>
</tr>
<tr>
<td><strong>Train Delays</strong></td>
</tr>
<tr>
<td><strong>Infrastructure contribution to train delays increased</strong></td>
</tr>
<tr>
<td><strong>Track quality Index Deterioration</strong></td>
</tr>
<tr>
<td><strong>Train Accidents</strong></td>
</tr>
<tr>
<td><strong>Increase in Security Incidents</strong></td>
</tr>
<tr>
<td><strong>Loss of Passengers</strong></td>
</tr>
<tr>
<td><strong>Main Line Passenger Service decline</strong></td>
</tr>
</tbody>
</table>

The Corporate Plan attributes the problems to:

- The aging rolling stock, with obsolete technology, compounded by the time it has taken to upgrade the infrastructure;
- The open nature of the system leading to theft, vandalism and operational incidents;
- Availability of spares and equipment due to the age of the system; and
- High levels of community unrest, and dissatisfaction with slow speed of service delivery

Over the last four years PRASA has suffered an average of more than 2 000 incidents per annum, relating to theft and vandalism on rolling stock and Infrastructure, train fires – commuter backlash and service delivery protests.

The Corporate Plan is less explicit about the leadership problems it has faced in recent years. These include significant and apparently well-founded accusations of corruption, backed by independent forensic investigations conducted at the behest of the chair of the PRASA board; and a recent dispute where the Minister of Transport dismissed the board only to have it re-instated by the courts.

### 6.5 Turnaround plan

PRASA’s Corporate Plan 2017-2020 contains a turnaround plan summarized as follows:

1. Improve the Customer Experience focusing on:
   a. Safety and security of commuters and passengers
   b. Customer satisfaction
   c. End-to-end passenger journey

2. Improve Rail System performance
   a. Increase revenue by R1.16bn over the 2018-2020 MTEF
   b. Increase train performance in peaks to on time performance to 88%
   c. Reduce the number of trains cancelled to less than 6% in peak periods
   d. Improve customer satisfaction to 80% by 2019/2020

3. Realign support functions to achieve an efficient Rail and Bus business through integration of:
   a. Divisions, departments and subsidiaries
   b. Long-distance transport services
   c. Reducing expenses by R3.49bn over the 2018-2020 MTEF

4. Modernise the Rail System through the R173 billion investment programme focusing on:
   a. Rolling stock fleet renewal programme
   b. Infrastructure upgrades
   c. Corridor modernization

5. Expand Rail and Bus networks and services through:
   a. Regional/provincial corridor expansions
   b. Introduction of new services

6. Exploit assets to generate revenue through:
   a. Real estate
   b. Other non-core assets

### 6.6 Recapitalization program

For Metrorail the largest components of the R173 billion infrastructure upgrade include:

- Acquisition of new rolling stock for the Metrorail
service: 360 coaches per year for 20 years, likely to cost a total of R123.5 billion; towards this PRASA contracted the Gibela Rail Transport Consortium in 2013 at a cost of R59 billion, to deliver 600 new train-sets, with 580 to be produced locally and 20 manufactured in Brazil. The initial sets have already been delivered:

- Signalling programmes: Gauteng, Western Cape and KZN (R6.9 billion over five years); and
- Accelerated upgrading and refurbishment of old rolling stock (R6.4 billion over three years);
- Modernisation of 135 stations (R 5.4 billion)

Other projects either recently completed or appearing on the 2017/18 to 2019/20 budget include:

- 3.5 km railway extension and station for Kwamashu (‘Bridge City’) (completed);
- a number of new links around Baragwanath Hospital in Soweto (R 2 billion);
- initial phase of an intended 17.5 km rail loop extension into Motherwell from the main line from Port Elizabeth in the Eastern Cape (R1.4 billion);
- 9.5 km Blue Downs rail link between Khayelitsha and the Bellville-Strand lines in Cape Town
- depot modernization
- automated ticketing system

6.7 Attitudes to use of the train

The following tables drawn from the 2013 National Household Travel Survey indicate attitudes towards using trains in the different metropolitan cities of South Africa and other areas. The first table shows the reasons amongst train users for their not taking the train. The second table shows the percentage of users who are dissatisfied with the various attributes of the train as shown in the table.

Key negative features are lack of availability, poor punctuality and over-crowding. The feature that attracts the least dissatisfaction are the train fares.

Table 23: Reasons for not using the train by percent of non-users (2013)

<table>
<thead>
<tr>
<th>Area</th>
<th>Not available</th>
<th>Prefer bus</th>
<th>Prefer taxi</th>
<th>Prefer private transport</th>
<th>Can walk</th>
<th>Don’t travel much</th>
<th>Service attributes</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>26.4%</td>
<td>1.0%</td>
<td>10.9%</td>
<td>14.5%</td>
<td>4.0%</td>
<td>4.7%</td>
<td>36.7%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Tshwane</td>
<td>16.2%</td>
<td>1.4%</td>
<td>10.4%</td>
<td>16.6%</td>
<td>3.6%</td>
<td>6.4%</td>
<td>44.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>18.8%</td>
<td>0.7%</td>
<td>12.2%</td>
<td>15.7%</td>
<td>5.6%</td>
<td>6.5%</td>
<td>40.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Cape Town</td>
<td>14.0%</td>
<td>1.9%</td>
<td>7.7%</td>
<td>23.7%</td>
<td>5.1%</td>
<td>6.8%</td>
<td>39.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Ethekwini</td>
<td>35.4%</td>
<td>1.6%</td>
<td>8.9%</td>
<td>10.6%</td>
<td>1.4%</td>
<td>2.8%</td>
<td>38.9%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>22.4%</td>
<td>1.7%</td>
<td>8.0%</td>
<td>20.1%</td>
<td>3.5%</td>
<td>6.2%</td>
<td>37.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>29.1%</td>
<td>0.1%</td>
<td>16.4%</td>
<td>8.4%</td>
<td>3.4%</td>
<td>4.9%</td>
<td>37.2%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Mangaung</td>
<td>21.7%</td>
<td>2.9%</td>
<td>13.2%</td>
<td>13.6%</td>
<td>1.4%</td>
<td>25.2%</td>
<td>18.6%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Metro</td>
<td>22.5%</td>
<td>1.3%</td>
<td>10.4%</td>
<td>16.0%</td>
<td>3.9%</td>
<td>6.3%</td>
<td>38.5%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Urban</td>
<td>51.7%</td>
<td>0.6%</td>
<td>11.3%</td>
<td>10.8%</td>
<td>5.1%</td>
<td>5.5%</td>
<td>14.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Rural</td>
<td>71.4%</td>
<td>2.2%</td>
<td>9.3%</td>
<td>2.0%</td>
<td>2.9%</td>
<td>4.0%</td>
<td>7.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>RSA</td>
<td>44.3%</td>
<td>1.3%</td>
<td>10.4%</td>
<td>10.7%</td>
<td>4.0%</td>
<td>5.5%</td>
<td>23.2%</td>
<td>0.8%</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>27.8%</td>
<td>1.3%</td>
<td>10.1%</td>
<td>14.8%</td>
<td>3.7%</td>
<td>6.1%</td>
<td>35.1%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Source: derived from the raw data from the 2013 National Household Travel Survey 2013

Table 24: Users who are dissatisfied with various attributes of the train service by metro and geographical area 2013

<table>
<thead>
<tr>
<th>Attributes of train services</th>
<th>Jhb</th>
<th>Tshwane</th>
<th>Ekurhuleni</th>
<th>Cape Town</th>
<th>Ethekwini</th>
<th>Nelson Mandela</th>
<th>Buffalo City</th>
<th>Mangaung</th>
<th>Metro</th>
<th>Urban</th>
<th>Rural</th>
<th>RSA</th>
<th>PTNG Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the train station and your home</td>
<td>47.8%</td>
<td>60.8%</td>
<td>58.6%</td>
<td>44.2%</td>
<td>54.7%</td>
<td>71.8%</td>
<td>67.8%</td>
<td>51.8%</td>
<td>58.9%</td>
<td>52.4%</td>
<td>52.4%</td>
<td>51.8%</td>
<td>51.8%</td>
</tr>
<tr>
<td>The travel time by train</td>
<td>56.3%</td>
<td>66.1%</td>
<td>55.4%</td>
<td>35.0%</td>
<td>55.3%</td>
<td>22.8%</td>
<td>58.2%</td>
<td>50.5%</td>
<td>51.4%</td>
<td>39.0%</td>
<td>50.3%</td>
<td>50.5%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Security on the walk to/from the station</td>
<td>47.6%</td>
<td>55.3%</td>
<td>62.1%</td>
<td>66.9%</td>
<td>58.9%</td>
<td>50.9%</td>
<td>57.2%</td>
<td>58.7%</td>
<td>39.5%</td>
<td>40.9%</td>
<td>56.5%</td>
<td>58.6%</td>
<td>58.6%</td>
</tr>
<tr>
<td>Security at the stations</td>
<td>29.6%</td>
<td>32.3%</td>
<td>36.2%</td>
<td>33.5%</td>
<td>40.8%</td>
<td>33.2%</td>
<td>26.8%</td>
<td>33.5%</td>
<td>22.1%</td>
<td>33.6%</td>
<td>32.4%</td>
<td>33.5%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Security on the train</td>
<td>46.4%</td>
<td>42.0%</td>
<td>54.5%</td>
<td>53.7%</td>
<td>46.3%</td>
<td>21.6%</td>
<td>38.9%</td>
<td>49.3%</td>
<td>31.4%</td>
<td>33.1%</td>
<td>47.3%</td>
<td>49.3%</td>
<td>49.3%</td>
</tr>
<tr>
<td>The level of crowding on the train</td>
<td>81.3%</td>
<td>81.3%</td>
<td>84.3%</td>
<td>81.9%</td>
<td>70.2%</td>
<td>43.9%</td>
<td>78.7%</td>
<td>80.7%</td>
<td>58.2%</td>
<td>56.8%</td>
<td>78.0%</td>
<td>80.6%</td>
<td>80.6%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>28.1%</td>
<td>41.8%</td>
<td>33.7%</td>
<td>26.5%</td>
<td>25.4%</td>
<td>14.8%</td>
<td>19.6%</td>
<td>30.0%</td>
<td>26.2%</td>
<td>22.2%</td>
<td>29.4%</td>
<td>29.9%</td>
<td>29.9%</td>
</tr>
<tr>
<td>The frequency of trains during peak period</td>
<td>47.6%</td>
<td>58.0%</td>
<td>55.4%</td>
<td>39.8%</td>
<td>45.7%</td>
<td>47.3%</td>
<td>39.9%</td>
<td>47.7%</td>
<td>41.4%</td>
<td>33.4%</td>
<td>46.8%</td>
<td>47.7%</td>
<td>47.7%</td>
</tr>
<tr>
<td>The frequency of trains during off-peak period</td>
<td>52.1%</td>
<td>60.8%</td>
<td>53.5%</td>
<td>48.8%</td>
<td>51.1%</td>
<td>43.7%</td>
<td>40.4%</td>
<td>52.1%</td>
<td>40.6%</td>
<td>38.9%</td>
<td>50.7%</td>
<td>52.0%</td>
<td>52.0%</td>
</tr>
<tr>
<td>The punctuality of trains</td>
<td>63.3%</td>
<td>70.1%</td>
<td>71.1%</td>
<td>61.5%</td>
<td>55.8%</td>
<td>21.0%</td>
<td>51.9%</td>
<td>63.9%</td>
<td>53.4%</td>
<td>40.3%</td>
<td>62.4%</td>
<td>52.0%</td>
<td>52.0%</td>
</tr>
<tr>
<td>The train fares</td>
<td>8.6%</td>
<td>13.1%</td>
<td>13.2%</td>
<td>26.2%</td>
<td>7.6%</td>
<td>3.9%</td>
<td>19.7%</td>
<td>15.7%</td>
<td>13.2%</td>
<td>10.5%</td>
<td>15.3%</td>
<td>15.7%</td>
<td>15.7%</td>
</tr>
<tr>
<td>The facilities at the station e.g. toilets, offices</td>
<td>36.5%</td>
<td>49.5%</td>
<td>53.0%</td>
<td>54.3%</td>
<td>38.6%</td>
<td>42.5%</td>
<td>37.7%</td>
<td>47.3%</td>
<td>34.2%</td>
<td>36.5%</td>
<td>45.8%</td>
<td>47.2%</td>
<td>47.2%</td>
</tr>
<tr>
<td>The train service overall</td>
<td>47.5%</td>
<td>54.6%</td>
<td>53.6%</td>
<td>49.2%</td>
<td>37.2%</td>
<td>25.1%</td>
<td>43.4%</td>
<td>49.0%</td>
<td>32.5%</td>
<td>33.2%</td>
<td>47.0%</td>
<td>48.9%</td>
<td>48.9%</td>
</tr>
</tbody>
</table>

Source: derived from the raw data from the 2013 National Household Travel Survey 2013

6.8 Finances

6.8.1 National finances

Table 25 is a summary of key PRASA financial data based on national government’s budget data and PRASA financial statements as contained in the Estimates of National Expenditure (2017). The data on revenue from sales does not show a forward projection.

Note the negative average growth rate in fare income over the last four financial years.
Table 25: Key national PRASA financial data showing capital and current transfers to PRASA (national budget) and own sales revenue (PRASA financial statements)

<table>
<thead>
<tr>
<th></th>
<th>Audited outcome</th>
<th>Adjusted budget</th>
<th>Average growth rate (%) 2013/14 to 2016/17</th>
<th>Medium-term expenditure</th>
<th>Average growth rate (%)</th>
<th>Average: Expend/Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capital subsidies to PRASA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Rail Agency of South Africa: Other capital programmes</td>
<td>6831.1</td>
<td>11059.0</td>
<td>14155.9</td>
<td>14608.6</td>
<td>28.8%</td>
<td>13720.7</td>
</tr>
<tr>
<td>Passenger Rail Agency of South Africa: Rolling stock fleet renewal programme</td>
<td>4851.2</td>
<td>3906.6</td>
<td>8234.6</td>
<td>7206.9</td>
<td>14.1%</td>
<td>5875.4</td>
</tr>
<tr>
<td>Passenger Rail Agency of South Africa: Signalling</td>
<td>0.0</td>
<td>5700.0</td>
<td>2560.5</td>
<td>4170.3</td>
<td>14.1%</td>
<td>4420.5</td>
</tr>
<tr>
<td>Passenger Rail Agency of South Africa: Metrorail (refurbishment of coaches)</td>
<td>1105.2</td>
<td>810.7</td>
<td>1876.0</td>
<td>1844.2</td>
<td>18.6%</td>
<td>1912.8</td>
</tr>
<tr>
<td>Passenger Rail Agency of South Africa: Mainline passenger service (refurbishment of coaches)</td>
<td>746.7</td>
<td>547.7</td>
<td>1267.5</td>
<td>1283.5</td>
<td>19.8%</td>
<td>1360.5</td>
</tr>
<tr>
<td>Passengers</td>
<td>128.0</td>
<td>93.9</td>
<td>217.3</td>
<td>103.8</td>
<td>-6.8%</td>
<td>151.4</td>
</tr>
<tr>
<td><strong>Current subsidies to PRASA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Rail Agency of South Africa: Metrorail (operations)</td>
<td>4328.0</td>
<td>3873.0</td>
<td>4066.2</td>
<td>4217.7</td>
<td>-0.4%</td>
<td>5495.7</td>
</tr>
<tr>
<td>Passenger Rail Agency of South Africa: Mainline passenger services (operations)</td>
<td>3678.0</td>
<td>3458.9</td>
<td>3618.0</td>
<td>3809.8</td>
<td>1.2%</td>
<td>4000.2</td>
</tr>
<tr>
<td>Passengers</td>
<td>650.0</td>
<td>428.4</td>
<td>448.1</td>
<td>471.9</td>
<td>-10.1%</td>
<td>1495.6</td>
</tr>
<tr>
<td><strong>PRASA own sales revenue</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rental income</td>
<td>3330.6</td>
<td>3421.1</td>
<td>3362.7</td>
<td>3392.6</td>
<td>0.6%</td>
<td></td>
</tr>
<tr>
<td>Fare revenue</td>
<td>458.3</td>
<td>480.4</td>
<td>568.0</td>
<td>640.7</td>
<td>11.8%</td>
<td></td>
</tr>
<tr>
<td>Other sales</td>
<td>2872.3</td>
<td>2940.7</td>
<td>2794.7</td>
<td>2751.9</td>
<td>-1.4%</td>
<td></td>
</tr>
</tbody>
</table>

Source: National Treasury Estimates of National Expenditure 2017
6.8.2 Regional breakdown

It is difficult to get reliable figures on the regional breakdown in spending. The table below is drawn from Hunter van Ryneveld (2014) and gives a summary of estimates of the operating revenues and costs of commuter rail services by Metrorail region in 2013/14, giving a sense of their relative size. These figures are lower than the equivalent amounts in Table 25. For example total fare revenue is recorded here as R1.9 bn as against R2.9 bn in Table 25. This may be because of the inclusion of Autopax in the higher figure. The difference on the expenditure side may also be explained by the exclusion from the regional figures of the PRASA overhead costs, which are allegedly high. Note the caveats in the footnote.

Table 26: Estimated operating parameters for commuter rail services in 2013/14, by Metrorail region

<table>
<thead>
<tr>
<th></th>
<th>Annualised</th>
<th>Gauteng</th>
<th>W Cape</th>
<th>KZN</th>
<th>E Cape</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fare revenue (R m)</td>
<td>873.6</td>
<td>700.1</td>
<td>275.1</td>
<td>33.4</td>
<td>1 882.2</td>
<td></td>
</tr>
<tr>
<td>Other revenue (R m)</td>
<td>43.1</td>
<td>10.2</td>
<td>1.2</td>
<td>1.9</td>
<td>56.4</td>
<td></td>
</tr>
<tr>
<td>Subsidy (R m)</td>
<td>1 003.7</td>
<td>463.5</td>
<td>387.0</td>
<td>85.9</td>
<td>1 940.1</td>
<td></td>
</tr>
<tr>
<td>Total revenue (R m)</td>
<td>1 920.4</td>
<td>1 173.9</td>
<td>663.4</td>
<td>121.1</td>
<td>3 878.7</td>
<td></td>
</tr>
<tr>
<td>Operating costs</td>
<td>2 401.1</td>
<td>1 390.5</td>
<td>788.0</td>
<td>203.4</td>
<td>4 783.0</td>
<td></td>
</tr>
<tr>
<td>Deficit (R m)</td>
<td>480.7</td>
<td>216.7</td>
<td>124.7</td>
<td>82.2</td>
<td>904.2</td>
<td></td>
</tr>
<tr>
<td>Passengers carried</td>
<td>257.5</td>
<td>171.1</td>
<td>81.3</td>
<td>9.7</td>
<td>519.6</td>
<td></td>
</tr>
<tr>
<td>Passengers carried %</td>
<td>50%</td>
<td>33%</td>
<td>16%</td>
<td>2%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Trains run</td>
<td>339 744</td>
<td>198 960</td>
<td>128 448</td>
<td>9 848</td>
<td>677 000</td>
<td></td>
</tr>
<tr>
<td>Trains run %</td>
<td>50%</td>
<td>29%</td>
<td>19%</td>
<td>1%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Passengers per train</td>
<td>758</td>
<td>860</td>
<td>633</td>
<td>986</td>
<td>768</td>
<td></td>
</tr>
<tr>
<td>Operating cost per train ran (R )</td>
<td>7 067</td>
<td>6 989</td>
<td>6 135</td>
<td>20 650</td>
<td>7 065</td>
<td></td>
</tr>
<tr>
<td>Operating cost per passenger carried (R )</td>
<td>9.32</td>
<td>8.13</td>
<td>9.70</td>
<td>20.94</td>
<td>9.20</td>
<td></td>
</tr>
<tr>
<td>Fare revenue per passenger carried (R )</td>
<td>3.39</td>
<td>4.09</td>
<td>3.39</td>
<td>3.43</td>
<td>3.62</td>
<td></td>
</tr>
<tr>
<td>Subsidy per passenger carried (R )</td>
<td>3.90</td>
<td>2.71</td>
<td>4.76</td>
<td>8.84</td>
<td>3.73</td>
<td></td>
</tr>
<tr>
<td>Deficit per passenger carried (R )</td>
<td>1.87</td>
<td>1.27</td>
<td>1.53</td>
<td>8.47</td>
<td>1.74</td>
<td></td>
</tr>
<tr>
<td>Fare revenue as % of operating costs</td>
<td>36%</td>
<td>50%</td>
<td>35%</td>
<td>16%</td>
<td>39%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Hunter van Ryneveld (2014) calculated from data supplied by PRASA for that report.

28 Note from Hunter van Ryneveld (2014) PRASA unfortunately only supplied a small part of the information requested; and it was often not possible to meaningfully interpret the information that was supplied. Operating expenditures and operating revenues were provided for. But there were many uncertainties associated with interpreting the financial reports. In some months, payroll costs were reported as being negative (budgets were used). Operating costs do not appear to include the costs of stations, and it is presumed these costs are covered in the PRASA CRES division which is responsible for property management. Maintenance costs for rolling stock appears low, although this might be because the salary costs of maintenance staff are covered in the salary cost line.

29 Note from Hunter van Ryneveld (2014) Passenger numbers by Metrorail region were provided for only three months (April, May and June 2013). This table has been produced by annualising from that data. There are a number of obvious risks associated with this approach: for example, it is clear from PRASA performance reports that Metrorail management regards the cold weather as affecting passenger numbers, in which case these estimates may be on the low side. In any case passenger numbers are not accurately counted for each trip but estimated from an annual survey which attempts to count fare evaders and reconcile that to ticket sales: the monthly passenger numbers are then estimated by assuming a constant relationship of fare evasion to ticket sales.
6.9 Conclusion

- Metrorail is benefitting from a very large allocation of public transport resources
- There are good arguments for restoring an existing network with significant potential capacity and reach
- The Metrorail network is fairly extensive and has potential to carry large passenger numbers over long urban distances relatively rapidly
- Existing lines may offer potential for linking settlements on less valuable land to the urban core
- However, given the costs involved there needs to be careful appraisal before specific investments are made
- Thus far there has been a failure to translate investment into improved services
- Long term decline has accelerated severely in the last 24 months with critical impact, in particular, in Cape Town with its relatively higher rail modal share
- The decline will not be addressed by recapitalisation unless accompanied by radical improvement in operational and general management
- Decentralisation as proposed in the draft White Paper is an appropriate approach and may help address management problems if well designed and implemented
- Decentralisation to well capacitated cities, and the Gauteng province, with responsibility for multi-modal solutions should assist in making resource allocation to rail more cost-effective
- The cost of rail is very substantial and devolution risks placing an unsustainable fiscal burden on cities if it is not accompanied by well designed fiscal decentralisation, including additional own revenue

7. Commuter buses subsidized through the Public Transport Operating Grant (PTOG)

7.1 Introduction

During the apartheid period a system of subsidized commuter buses was established, mainly to transport black workers between townships, which tended to be located on the urban peripheries in line with apartheid policies, and the urban core. Many aspects of the system have continued largely unchanged since this time.

The subsidies are now paid through the Public Transport Operating Grant (PTOG), which is paid to provinces, which, in turn, contract and pay the bus companies. Nationally, the subsidy totaled R5 723 million in the 2017/18 financial year, a similar order of magnitude to the Public Transport Network Grant, and representing approximately a fifth of total national expenditure on all public transport.

The amount of the subsidy is shown in Table 15 and repeated here.

Table 27: National Public Transport Operating Grant

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Transport Operating Grant (PTOG)</td>
<td>16.53</td>
<td>4.15</td>
<td>4.32</td>
<td>4.55</td>
<td>4.83</td>
<td>4.94</td>
<td>5.40</td>
<td>5.72</td>
<td>5.99</td>
<td>6.33</td>
</tr>
</tbody>
</table>

Source: National Treasury’s Estimate of National Expenditure for various years

7.2 System characteristics

There are a total of 109 subsidised contracts. In almost all cases each of the nine provincial governments contract and pay the bus companies operating within their areas; in a very few cases there are joint arrangements with municipalities. The majority of routes/services are within what are now defined as metropolitan areas (or are deemed as such, since in many cases they have an origin outside the metropolitan area); however, there are also substantial services linked to secondary towns and some quite rural locations.

Gauteng is the province receiving the largest portion of the grant, at 37.7% of the current subsidy. According to the NDoT, subsidised bus operations provide approximately 2.2 million trips per day – or 1.1 million passengers on both outward and return journeys.

The following tables show some key characteristics of the current system by province.
7.2 System characteristics

There are a total of 109 subsidised contracts. In almost all cases each of the nine provincial governments contract and pay the bus companies operating within their areas; in a very few cases there are joint arrangements with municipalities. The majority of routes/services are within what are now defined as metropolitan areas (or are deemed as such, since in many cases they have an origin outside the metropolitan area); however, there are also substantial services linked to secondary towns and some quite rural locations.

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The following tables show some key characteristics of the current system by province.
Table 28: Key statistics on PTOG funded bus services by province 2016/17

<table>
<thead>
<tr>
<th>Province</th>
<th>Eastern Cape</th>
<th>Free State</th>
<th>Gauteng</th>
<th>KwaZulu-Natal</th>
<th>Limpopo</th>
<th>Mpumalanga</th>
<th>Northern Cape</th>
<th>North west</th>
<th>Western Cape</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total subsidy '000</td>
<td>R 218 217</td>
<td>R 241 247</td>
<td>R 2 033 942</td>
<td>R 1 038 048</td>
<td>R 316 126</td>
<td>R 548 470</td>
<td>R 34 966</td>
<td>R 98 781</td>
<td>R 870 900</td>
<td>R 5 400 698</td>
</tr>
<tr>
<td>Provincial share of national subsidy</td>
<td>4.0%</td>
<td>4.5%</td>
<td>37.7%</td>
<td>18.7%</td>
<td>6.0%</td>
<td>10.2%</td>
<td>0.9%</td>
<td>1.9%</td>
<td>16.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total fare revenue '000</td>
<td>R 143 984</td>
<td>R 195 326</td>
<td>R 1 159 210</td>
<td>R 465 885</td>
<td>R 226 979</td>
<td>R 986 831</td>
<td>R 10 961</td>
<td>R 36 892</td>
<td>R 632 199</td>
<td>R 3 858 267</td>
</tr>
<tr>
<td>Total revenue '000</td>
<td>R 362 201</td>
<td>R 436 573</td>
<td>R 3 193 152</td>
<td>R 1 503 933</td>
<td>R 543 106</td>
<td>R 1 535 301</td>
<td>R 45 927</td>
<td>R 135 673</td>
<td>R 1 503 099</td>
<td>R 9 258 964</td>
</tr>
<tr>
<td>No. of contracts '000</td>
<td>1</td>
<td>9</td>
<td>34</td>
<td>37</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>No. of companies '000</td>
<td>1</td>
<td>3</td>
<td>20</td>
<td>25</td>
<td>3</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>66</td>
</tr>
<tr>
<td>No. of passengers '000</td>
<td>14 061</td>
<td>17 547</td>
<td>82 034</td>
<td>60 323</td>
<td>15 210</td>
<td>56 212</td>
<td>1200</td>
<td>2 701</td>
<td>55 001</td>
<td>304 290</td>
</tr>
<tr>
<td>No. of kilometers '000</td>
<td>10 365</td>
<td>11 954</td>
<td>94 759</td>
<td>41 811</td>
<td>15 192</td>
<td>27 447</td>
<td>1237</td>
<td>4 737</td>
<td>38 979</td>
<td>246 480</td>
</tr>
<tr>
<td>No. of vehicle trips '000</td>
<td>370</td>
<td>264</td>
<td>1787</td>
<td>1193</td>
<td>301</td>
<td>843</td>
<td>30</td>
<td>99</td>
<td>1410</td>
<td>6 297</td>
</tr>
<tr>
<td>No. of vehicles</td>
<td>406</td>
<td>257</td>
<td>2 431</td>
<td>1 352</td>
<td>376</td>
<td>577</td>
<td>40</td>
<td>82</td>
<td>1065</td>
<td>6 586</td>
</tr>
<tr>
<td>No. staff 677</td>
<td>503</td>
<td>5 824</td>
<td>2 892</td>
<td>756</td>
<td>1 254</td>
<td>101</td>
<td>168</td>
<td>1 423</td>
<td>13 598</td>
<td></td>
</tr>
</tbody>
</table>

Source: National Treasury’s Estimate of National Expenditure for various years
Table 29: Benchmarks by province for PTOG funded bus services 2016/17

<table>
<thead>
<tr>
<th></th>
<th>Eastern Cape</th>
<th>Free State</th>
<th>Gauteng</th>
<th>KwaZulu-Natal</th>
<th>Limpopo</th>
<th>Mpumalanga</th>
<th>Northern Cape</th>
<th>North west</th>
<th>Western Cape</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Cost (incl profit)/km</strong></td>
<td>R 34.95</td>
<td>R 36.52</td>
<td>R 33.45</td>
<td>R 35.97</td>
<td>R 35.75</td>
<td>R 56.69</td>
<td>R 36.10</td>
<td>R 28.64</td>
<td>R 38.56</td>
<td>R 37.52</td>
</tr>
<tr>
<td><strong>PTOG subsidy/pax</strong></td>
<td>R 15.52</td>
<td>R 13.75</td>
<td>R 24.58</td>
<td>R 17.21</td>
<td>R 20.78</td>
<td>R 9.85</td>
<td>R 27.33</td>
<td>R 36.57</td>
<td>R 15.83</td>
<td>R 17.71</td>
</tr>
<tr>
<td><strong>% cost recovery</strong></td>
<td>39.75%</td>
<td>44.74%</td>
<td>36.33%</td>
<td>30.98%</td>
<td>41.79%</td>
<td>64.43%</td>
<td>22.36%</td>
<td>27.19%</td>
<td>42.06%</td>
<td>41.71%</td>
</tr>
<tr>
<td><strong>Kms/pax</strong></td>
<td>0.74</td>
<td>0.68</td>
<td>1.15</td>
<td>0.69</td>
<td>1.00</td>
<td>0.49</td>
<td>0.98</td>
<td>1.75</td>
<td>0.71</td>
<td>0.81</td>
</tr>
<tr>
<td><strong>Kms/trip</strong></td>
<td>28.05</td>
<td>45.30</td>
<td>52.88</td>
<td>35.04</td>
<td>50.40</td>
<td>31.89</td>
<td>40.73</td>
<td>47.95</td>
<td>27.64</td>
<td>38.96</td>
</tr>
<tr>
<td><strong>Pax/Vehicles</strong></td>
<td>96 611</td>
<td>68 277</td>
<td>40 452</td>
<td>32 944</td>
<td>34 634</td>
<td>33 985</td>
<td>51 644</td>
<td>44 617</td>
<td>32 118</td>
<td>46 270</td>
</tr>
<tr>
<td><strong>Staff/vehicles</strong></td>
<td>1.67</td>
<td>1.96</td>
<td>2.42</td>
<td>2.14</td>
<td>2.01</td>
<td>2.18</td>
<td>2.33</td>
<td>2.05</td>
<td>1.34</td>
<td>2.07</td>
</tr>
</tbody>
</table>
Arguably the most significant statistic, which defines the nature of these services, is the average trip length, which for the country as a whole is 38.96 kilometers, and ranges amongst the provinces from 27.64 kms and 28.05 kms in the Western and Eastern Cape respectively to 52.88 kms in Gauteng. The Gauteng trips are lengthy because included here are all the long distance trips from beyond the borders of the province to its north, bringing some commuters more than 100 kms every day into Tshwane.

Gauteng cities also tend to have municipal operators, which, while these operations are relatively limited, has meant that the provincially subsidized services have focused on the more long distance trips bringing commuters from more distant townships, while the municipal operators have focused on the internal trips. The Western and Eastern Cape contracts are mainly for Cape Town, Nelson Mandela Bay, and Buffalo City, none of which have municipal operators, resulting in more shorter trips being done by PTOG funded companies.

Largely for historical reasons contracts are structured differently in different provinces. For example, the Gauteng province has 34 contracts shared amongst 20 operators, although one company, PUTCO, accounts for 64% of the Gauteng subsidy. The Western Cape has only one contract, which is with Golden Arrow Bus Services (GABS), with almost all routes entirely within the metropolitan City of Cape Town. eThekwini has no single operator as dominant as either PUTCO or GABS, the largest being Durban Transport, the former municipal operator, which is subsidized jointly by the PTOG and the City of Durban.

As can be seen from Table 29, there is a reasonable degree of consistency in the PTOG subsidy per kilometer, ranging between R20.17 (Mpumalanga) and R22.34 (Western Cape), with only Gauteng (R24.58) and Northern Cape (R28.03) being somewhat outside the range.

There is a slightly wider range in cost recovery levels – defined as fare revenue as a percentage of total cost. The average for the country as a whole was 41.71% in 2016/17, and ranged between 22.36% in the Northern Cape and 64.43% in Mpumalanga.

The 64.43% cost recovery ratio makes Mpumalanga the most successful of the provinces. This is driven by the success of Buscor, which accounts for most of the Mpumalanga contracts and operates in the Mbombela area. Buscor has been extremely innovative in investing in bi-articulated vehicles which can carry 137 passengers. These buses, built by MAN, required special permits to be allowed to operate on South African roads. It is extremely unusual for bi-articulated vehicles to operate on general roads.

The cost per kilometer is highest in Mpumalanga compared to all other provinces because of the higher costs in running its buses. However, because of the average bus size, Buscor runs the fewest number of kilometers per passenger. Buscor currently has an average fleet age of 6 years and replaces approximately a tenth of its fleet each year, which is illustrative of good financial strength.

7.3 Changes since 1994
7.3.1 Attempts to introduce better structured contracts through tendering process

During the apartheid period bus contracts had been concluded without clear tendering processes or termination dates. After the adoption of South Africa’s new democratic constitution, which requires public sector procurement to be done through ‘fair, equitable, transparent, competitive and cost-effective’ processes (Section 217), an attempt was made to introduce a tendering system based on competition ‘for the market’ and not ‘in the market’. This was also consistent with policies adopted in terms of the 1996 White Paper.

A process was established, subsequently regulated under the National Land Transport Transition Act (2000), to have the contracts better designed – including a clear end date – and secured either through negotiation or tender.

However, by 2002/3 the process was halted with only about 70 contracts, representing approximately 40% of the total value being redesigned and either tendered or negotiated. The process was halted for a number of reasons of which the most important were that the new prices tendered were considerably higher than existing rates, and thus unaffordable to the state, and objections from labour unions that the process represented a major threat to job security.

It was subsequently determined through a court process that any change in contractor through tendering or negotiation was subject to clause 197 of the Labour Relations Act which requires that all employees be transferred with existing rights and salary levels from the old contractor to the new contractor.

However, the process of tendering or negotiating the contracts has never been resumed, with even those contracts that were redesigned and either tendered or negotiated reaching the end of the contracted period. All 109 contracts are now effectively ‘interim’ contracts, with approximately 40 contracts representing 60% of the total value never having been redesigned.

Different processes in different provinces have resulted in different mechanisms for extending the contracts. For some years the contracts were extended on a month-to-month basis, with the national department in March 2015 agreeing to 3 year extensions. Legal processes suggest that where an extension has not been stipulated contracts can now only be terminated with ‘reasonable notice’, which would amount to approximately one to two years.
7.3.2 2009 reforms

Until 2009 subsidies were paid per passenger. Each route was costed and an ‘economic’ and an ‘affordable’ fare determined. The bus company charged the subsidized fare and was paid the difference between the subsidized and the economic fare by the state. The practice was that only weekly or monthly ‘clipcards’ (known officially as multi-journey tickets) were subsidized – not once-off journeys.

The system meant that where population was growing the companies could expand their services and receive more in subsidies. As passenger numbers grew the amounts being claimed by the bus companies exceeded the amounts available in the grant, with the result that provinces, who were administering the grant, began to use the next year appropriations to pay previous year subsidies. The problem was most severe in contract areas where there was significant demand growth.

In 2009 the system was changed in three important ways. Firstly, the passenger based subsidy was replaced by a rate per vehicle kilometer. The rate was largely determined by simply dividing the subsidy that was being received at that time by the bus company by the number of vehicle kilometers the company was running.

Secondly, ambiguities regarding precisely where responsibility for the contracts lay were resolved by making provinces clearly responsible. Previously the subsidy was, in effect, a national payment to bus companies administered by the provinces. The bus contracts now became a responsibility of the provinces who were ultimately responsible for paying the subsidy. It was at this point that the grant came to be known as the Public Transport Operating Grant; and it was deemed to be a ‘Supplementary Grant’; i.e. although it constituted almost the total subsidy, legally it was regarded as a national supplement to whatever amount the province paid.

While these changes were accompanied by a significant injection by national government towards making up the payment backlog, bus companies experienced the change as a significant recalibration of the subsidy downwards. In effect, the subsidy ceased to grow as demand grew, but was capped at 2009 levels, with only general inflation linked growth, which in most years was lower than transport inflation.

These changes were effected through the national grant system, but at about the same time the National Land Transport Act (2009) (NLTA) replaced the National Land Transport Transition Act (2000) introducing a third and very important change by providing for the devolution of these contracts to municipalities, in effect stipulating that only municipalities could negotiate or tender new contracts.

7.4 Current contracting arrangements

However, despite the passage of the NLTA no devolution of the contracts and the associated subsidy has taken place. In many cases municipalities have not been willing or able to accept the new responsibility. However, in the one instance where both province and municipality have requested it (Western Cape/ Cape Town), this has not been implemented by the national Department of Transport.

The result of this is that contracts continue between provinces and bus companies based on old provisions that cannot be changed without the involvement of municipalities (at least agreeing that provinces may act as their agents); and the amounts paid in subsidies are in effect determined by the amounts paid in 2009 escalated each year by whatever amount national government has escalated the total PTOG (i.e. regardless of any escalation formula provided for in the contracts).

The Gauteng Provincial Government is currently undertaking a project to redesign all its contracts. This is driven, inter alia, by the need to recontract the service in Mamelodi, from which bus operators will withdraw from April 2018 citing unaffordability. Progress in implementing redesigned contracts will require the co-operation of the relevant municipalities.

There have been differences across provinces in how details of the contracts have been managed and differences in the responses of different companies, with the result that while all of the bus companies maintain that they are being under-resourced by the subsidy system there appears to be quite a wide range of profitability levels amongst the companies – with some on the verge of bankruptcy while others, such as Buscor and Golden Arrow Bus Services (GABS), are in good financial health.

7.5 Attitudes towards commuter bus services

The following tables show attitudes to the use of commuter bus services.
Table 30: Percentage users dissatisfied with different attributes of bus services 2013

<table>
<thead>
<tr>
<th>Attributes of bus services</th>
<th>Jhb</th>
<th>Tshwane</th>
<th>Ekurhuleni</th>
<th>Cape Town</th>
<th>Ethekwini</th>
<th>Nelson Mandela</th>
<th>Buffalo City</th>
<th>Mangaung</th>
<th>Metro</th>
<th>Urban</th>
<th>Rural</th>
<th>RSA</th>
<th>PTNG Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the bus stop and your home</td>
<td>25.0%</td>
<td>20.6%</td>
<td>30.9%</td>
<td>18.5%</td>
<td>30.5%</td>
<td>37.2%</td>
<td>51.7%</td>
<td>21.4%</td>
<td>25.3%</td>
<td>24.1%</td>
<td>29.1%</td>
<td>26.7%</td>
<td>26.5%</td>
</tr>
<tr>
<td>The travel time by bus</td>
<td>18.5%</td>
<td>26.5%</td>
<td>26.8%</td>
<td>23.8%</td>
<td>30.8%</td>
<td>27.4%</td>
<td>32.6%</td>
<td>18.7%</td>
<td>24.9%</td>
<td>25.8%</td>
<td>32.4%</td>
<td>28.3%</td>
<td>24.6%</td>
</tr>
<tr>
<td>Security on the walk to/from the bus stop</td>
<td>29.5%</td>
<td>31.8%</td>
<td>35.4%</td>
<td>48.0%</td>
<td>43.3%</td>
<td>51.1%</td>
<td>27.2%</td>
<td>39.2%</td>
<td>38.3%</td>
<td>32.6%</td>
<td>33.0%</td>
<td>35.1%</td>
<td>38.5%</td>
</tr>
<tr>
<td>Security at the bus stops</td>
<td>30.7%</td>
<td>31.8%</td>
<td>34.7%</td>
<td>51.3%</td>
<td>47.6%</td>
<td>48.2%</td>
<td>23.1%</td>
<td>44.0%</td>
<td>40.2%</td>
<td>31.8%</td>
<td>33.0%</td>
<td>35.7%</td>
<td>39.5%</td>
</tr>
<tr>
<td>Security on the buses</td>
<td>24.9%</td>
<td>30.3%</td>
<td>29.9%</td>
<td>35.9%</td>
<td>43.5%</td>
<td>29.8%</td>
<td>15.6%</td>
<td>33.5%</td>
<td>33.0%</td>
<td>23.6%</td>
<td>28.3%</td>
<td>29.4%</td>
<td>32.4%</td>
</tr>
<tr>
<td>The level of crowding in the bus</td>
<td>38.4%</td>
<td>44.3%</td>
<td>28.5%</td>
<td>41.9%</td>
<td>50.7%</td>
<td>42.4%</td>
<td>28.4%</td>
<td>47.4%</td>
<td>43.2%</td>
<td>37.9%</td>
<td>49.1%</td>
<td>44.9%</td>
<td>44.1%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>27.2%</td>
<td>30.9%</td>
<td>21.4%</td>
<td>33.0%</td>
<td>32.8%</td>
<td>21.1%</td>
<td>24.8%</td>
<td>25.9%</td>
<td>29.4%</td>
<td>25.6%</td>
<td>27.1%</td>
<td>27.8%</td>
<td>27.5%</td>
</tr>
<tr>
<td>The frequency of buses during peak period</td>
<td>28.7%</td>
<td>32.6%</td>
<td>26.5%</td>
<td>25.7%</td>
<td>36.4%</td>
<td>23.0%</td>
<td>33.3%</td>
<td>28.5%</td>
<td>30.3%</td>
<td>29.2%</td>
<td>33.1%</td>
<td>31.4%</td>
<td>29.1%</td>
</tr>
<tr>
<td>The punctuality of buses</td>
<td>29.4%</td>
<td>35.1%</td>
<td>32.2%</td>
<td>34.0%</td>
<td>40.1%</td>
<td>279%</td>
<td>24.7%</td>
<td>32.2%</td>
<td>34.0%</td>
<td>291%</td>
<td>34.8%</td>
<td>33.6%</td>
<td>33.3%</td>
</tr>
<tr>
<td>The bus fares</td>
<td>28.5%</td>
<td>38.0%</td>
<td>27.7%</td>
<td>30.0%</td>
<td>33.6%</td>
<td>24.1%</td>
<td>24.7%</td>
<td>19.5%</td>
<td>30.8%</td>
<td>24.5%</td>
<td>26.7%</td>
<td>28.0%</td>
<td>28.8%</td>
</tr>
<tr>
<td>The facilities at the stops e.g. shelters</td>
<td>26.5%</td>
<td>33.1%</td>
<td>23.0%</td>
<td>46.5%</td>
<td>28.3%</td>
<td>12.6%</td>
<td>31.4%</td>
<td>26.7%</td>
<td>30.8%</td>
<td>24.7%</td>
<td>23.0%</td>
<td>26.4%</td>
<td>28.9%</td>
</tr>
<tr>
<td>Behaviour of the bus drivers towards passengers</td>
<td>41.0%</td>
<td>49.4%</td>
<td>35.2%</td>
<td>50.9%</td>
<td>46.3%</td>
<td>45.4%</td>
<td>31.3%</td>
<td>54.5%</td>
<td>46.3%</td>
<td>43.7%</td>
<td>52.6%</td>
<td>48.6%</td>
<td>45.4%</td>
</tr>
<tr>
<td>The bus service overall</td>
<td>171%</td>
<td>28.8%</td>
<td>16.6%</td>
<td>21.3%</td>
<td>29.2%</td>
<td>10.8%</td>
<td>23.5%</td>
<td>28.1%</td>
<td>23.3%</td>
<td>17.9%</td>
<td>21.5%</td>
<td>21.7%</td>
<td>22.1%</td>
</tr>
<tr>
<td>Availability of information</td>
<td>23.3%</td>
<td>32.8%</td>
<td>23.3%</td>
<td>33.4%</td>
<td>37.2%</td>
<td>26.5%</td>
<td>31.8%</td>
<td>14.0%</td>
<td>29.7%</td>
<td>23.4%</td>
<td>28.5%</td>
<td>28.1%</td>
<td>28.4%</td>
</tr>
</tbody>
</table>
Table 31: Reasons for not using a bus by metropolitan and geographical area 2013

<table>
<thead>
<tr>
<th>Area</th>
<th>Not available</th>
<th>Prefer taxi</th>
<th>Prefer train</th>
<th>Prefer private transport</th>
<th>Can walk</th>
<th>Don’t travel much</th>
<th>Service attributes</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>21.7%</td>
<td>12.1%</td>
<td>1.6%</td>
<td>16.7%</td>
<td>5.1%</td>
<td>5.0%</td>
<td>36.3%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Tshwane</td>
<td>10.8%</td>
<td>11.3%</td>
<td>1.0%</td>
<td>20.7%</td>
<td>4.3%</td>
<td>6.4%</td>
<td>44.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>37.2%</td>
<td>13.4%</td>
<td>1.9%</td>
<td>14.2%</td>
<td>5.2%</td>
<td>4.4%</td>
<td>23.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Cape Town</td>
<td>11.2%</td>
<td>10.3%</td>
<td>3.5%</td>
<td>22.3%</td>
<td>6.1%</td>
<td>5.8%</td>
<td>39.9%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Ethekwini</td>
<td>26.6%</td>
<td>13.9%</td>
<td>1.9%</td>
<td>14.4%</td>
<td>2.0%</td>
<td>3.7%</td>
<td>36.9%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>2.1%</td>
<td>15.7%</td>
<td>0.5%</td>
<td>24.9%</td>
<td>5.0%</td>
<td>5.9%</td>
<td>45.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>38.1%</td>
<td>17.4%</td>
<td>0.9%</td>
<td>8.9%</td>
<td>2.8%</td>
<td>3.4%</td>
<td>28.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Mangaung</td>
<td>6.0%</td>
<td>22.1%</td>
<td>0.4%</td>
<td>17.7%</td>
<td>3.7%</td>
<td>17.5%</td>
<td>30.9%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Metro</td>
<td>21.0%</td>
<td>12.8%</td>
<td>1.9%</td>
<td>17.6%</td>
<td>4.7%</td>
<td>5.4%</td>
<td>35.7%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Urban</td>
<td>46.4%</td>
<td>13.4%</td>
<td>0.1%</td>
<td>15.5%</td>
<td>3.0%</td>
<td>6.6%</td>
<td>14.3%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Rural</td>
<td>40.6%</td>
<td>14.3%</td>
<td>0.3%</td>
<td>13.8%</td>
<td>6.3%</td>
<td>5.8%</td>
<td>18.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>RSA</td>
<td>35.4%</td>
<td>15.4%</td>
<td>0.3%</td>
<td>4.1%</td>
<td>4.8%</td>
<td>7.7%</td>
<td>31.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>22.3%</td>
<td>13.2%</td>
<td>1.7%</td>
<td>17.3%</td>
<td>4.6%</td>
<td>5.7%</td>
<td>34.4%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Table 11 has been reproduced here, comparing levels of dissatisfaction across modes as recorded in 2013 NHTS. It shows that dissatisfaction levels are lowest amongst bus users for the service overall.

Table 32: Percentage metro users dissatisfied with different attributes of bus, taxi and train services 2013

<table>
<thead>
<tr>
<th>Attributes of train services</th>
<th>Bus</th>
<th>Taxis</th>
<th>Trains</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the bus stop/taxi rank/station and your home</td>
<td>25.3%</td>
<td>22.1%</td>
<td>51.8%</td>
</tr>
<tr>
<td>The travel time by bus/taxi/Train</td>
<td>24.9%</td>
<td>16.4%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Security on the walk to/from the bus stop/taxi/Train</td>
<td>38.3%</td>
<td>41.8%</td>
<td>58.7%</td>
</tr>
<tr>
<td>Security at the bus stops/taxi ranks/stations</td>
<td>40.2%</td>
<td>42.1%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Security on the buses/taxis/Trains</td>
<td>33.0%</td>
<td>39.7%</td>
<td>49.3%</td>
</tr>
<tr>
<td>The level of crowding in the bus/taxi/Train</td>
<td>43.2%</td>
<td>43.6%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>29.4%</td>
<td>55.9%</td>
<td>30.0%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/Trains during peak period</td>
<td>30.3%</td>
<td>28.6%</td>
<td>47.7%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/Trains during off-peak period</td>
<td>34.0%</td>
<td>30.5%</td>
<td>52.1%</td>
</tr>
<tr>
<td>The punctuality of buses/waiting time for taxis/punctuality of trains</td>
<td>30.8%</td>
<td>31.6%</td>
<td>63.9%</td>
</tr>
<tr>
<td>The bus/taxi/train fares</td>
<td>30.8%</td>
<td>52.3%</td>
<td>15.7%</td>
</tr>
<tr>
<td>The facilities at the stops e.g. shelters/taxi ranks/train stations</td>
<td>46.3%</td>
<td>57.4%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Roadworthiness of taxis</td>
<td></td>
<td></td>
<td>52.0%</td>
</tr>
<tr>
<td>Behaviour of the bus/taxi drivers towards passengers</td>
<td>23.3%</td>
<td>57.1%</td>
<td></td>
</tr>
<tr>
<td>Availability of information</td>
<td>29.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The bus/taxi/train service overall</td>
<td>30.3%</td>
<td>44.4%</td>
<td>49.0%</td>
</tr>
</tbody>
</table>
From this table it can be seen that taxi and bus users have significantly lower levels of dissatisfaction than train users on all attributes other than fares, where trains score very well. Trains score particularly poorly on levels of crowding. In comparison with taxis, buses do slightly better on many issues, but significantly worse on travel time and somewhat worse on frequency. They do significantly better than taxis on

• Safety from accidents
• Fare levels
• Behaviour of drivers towards passengers

In the rating of the service overall bus users have the lowest levels of dissatisfaction by some way, followed by taxis, with train users have the worst levels of dissatisfaction.

7.6 Conclusion

• The formal, PTOG funded, conventional bus services play a significant role in transporting commuters between township and town centre.
• The majority of these services are provided either within or to the metropolitan areas and bigger cities, although there are a significant number of more rural services.
• The average trip length of PTOG funded services nationally is 38.9 kms, ranging from some quite short trips to others which are over 100 kms each direction (mainly servicing Tshwane from the north)
• Many of the townships served (eg Soweto, Khayelitsha), which used to be well on the urban outskirts, have now been subsumed into the growing urban centres.
• Unsuccessful attempts to restructure contracting and subsidy arrangements, combined with a failure to devolve contract responsibilities as provided for in the National Land Transport Act (Act 5 of 2009) has led to inertia in the way these services are managed by government.
• There is significant, established capacity amongst the bus companies, and in some contexts, despite the uncertain institutional and funding environment, the contracted companies have innovated and invested in their fleets resulting in significant efficiency improvements; in other cases companies have not been able to do so and are struggling to maintain operations with aging fleets.
• The institutional separation between the PTOG services which are provincially managed and the PTNG funded services are locally managed militates against the most appropriate allocation of resources amongst these services.
• The failure to devolve PTOG funded services in the context of the National Land Transport Act means that critical adjustments and extensions of contract that are now urgent cannot be easily addressed, and is contributing to a crisis in these services.
• There is a need to reform the way in which these services are contracted and managed so that an integrated approach can be taken with other services and resources can be allocated to most efficient use.
• An important part of this reform will entail identifying the objective of the grant, and how it is most appropriately spent; including how, and the extent to which, very long distance commutes will be addressed in the context of a desire to encourage densification.

8. The Public Transport Network Grant (PTNG) program and bus rapid transit

8.1 Introduction

The Public Transport Network Grant (PTNG) originated at relatively small scale in 2006 as part of efforts to prepare for the 2010 FIFA World Cup, but shifted to becoming the capital financing mechanism to cities to create Integrated Rapid Public Transport Networks in terms of its 2007 Public Transport Strategy and Action Plan.

This grant is now paid to each of the 8 metropolitan governments and 5 secondary cities. It is the first time significant resources have been allocated from national government to cities for public transport, and has been critical in beginning to build focus and capacity to enable the consolidation of public transport responsibilities at city level in line with national policy.

It has resulted in some successful projects; although poor application of the grant in some instances and an over-emphasis on bus rapid transit has created challenges. Until recently the management and conditions attached to the grant by the national Department of Transport effectively meant that it had to be used for implementing bus rapid transit projects.

The origins of the grant and its focus in the early years on implementing projects in time for the 2010 FIFA World Cup meant that early decisions that have had significant influence on what was built had to be taken at speed. Both Johannesburg and Cape Town managed to get initial services running in time for the event, although in both cases their full ‘first phase’ followed some time thereafter.

There is now a shift towards allowing more flexible approaches in terms of locally generated plans, although in many cases cities are only part way through implementing initial BRT phases, so the BRT focus of actual expenditure of
this grant is likely to continue for some time. Over the last two years grant conditions have increasingly stressed the requirement that cities devise ‘fiscally and financially sustainable’ integrated public transport network (IPTN) plans, and ten year spending programs. These are beginning to lead to some innovative thinking around multi-modal approaches, although most cities are now still focusing on managing the implementation of existing projects.

It is evident with the benefit of hindsight that it would have been better to incrementally expand the responsibilities and capabilities of cities in managing transport, and used funding to support less ambitious initial projects. However, it could also be argued that without bold project initiatives the shift towards building city capacity and responsibility would not have been able to gather significant momentum.

8.2 History of grant allocations

The grant was originally referred to as the ‘Public Transport Infrastructure and Systems Grant’, before being split into a Public Transport Infrastructure Grant (PTIG) for capital expenditure and a Public Transport Network Operating Grant (PTNOG) for paying operating subsidies. It was then re-integrated into its current form as the PTNG.

The following table shows the total amount that has been – or is planned to be – distributed through the grant since its inception in 2007 to the end of the current medium term expenditure framework. For the purposes of this table the separate PTI and PTNOG have been combined. In the ten year period from the inception of the grant in 2006/07 till the end 2016/17 financial year a total of R43.4 billion was distributed amongst 13 cities.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Transport Network Grant (PTOG)</td>
<td>10.91</td>
<td>4.61</td>
<td>4.88</td>
<td>5.55</td>
<td>5.87</td>
<td>5.95</td>
<td>5.59</td>
<td>6.16</td>
<td>6.58</td>
<td>6.96</td>
</tr>
</tbody>
</table>

8.3 Achievements

The following summary of what has been achieved with the grant is drawn from what has been published in the various Division of Revenue Acts over the past 4 years and other information used internally in NDOT assessments.
### Cities with initial BRT phases operational

<table>
<thead>
<tr>
<th>Cities</th>
<th>Details</th>
</tr>
</thead>
</table>
| **Johannesburg** | The full Phase 1A and 1B systems are operational and include:  
  - Average of 50 475 passenger trips per weekday at end June 2017  
  - 82 articulated buses and 195 standard buses in operation  
  - 43.5 km of dedicated routes  
  - 153.9 km of feeders and complementary routes  
  - 272 feeder and complementary curbside stop pairs  
  - 48 stations in operation  
  - 2% of users are special needs passengers (wheel chairs etc)  
Construction of Phase 1C on the Louis Botha corridor, linking the Johannesburg CBD to Sandton via Alexandria is currently underway |
| **Cape Town** | Phase 1 and N2 Express systems are operational and include:  
  - 255 peak buses in operation (18m, 12m and 9m) - 558 drivers employed  
  - 40 routes  
  - 32 km of dedicated roadway constructed and in operation  
  - Over 450 km of trunk and feeder route coverage  
  - 416 bus stop pairs  
  - 42 stations in operation  
Average of 66115 passenger journeys per weekday (2016/17) - note that that a journey can be made up of more than one leg (eg a feeder and trunk leg); if each of these is counted separately the number increases significantly  
Construction of Phase 2A between Khayelitsha/Mitchell’s Plain and Wynberg/Claremont has begun |
| **Tshwane** | Inception service running carrying between 4000 and 5000 passengers per average weekday  
  - 30 vehicles  
  - 7 bus stations  
  - Over 10 kms of dedicated busway  
  - 23 kms feeder routes  
  - Over 30 kms of non-motorised infrastructure  
  - Compressed natural gas bus depot |
| **George** |  
  - 13 500 passengers trips per average  
  - 83 km of routes in mixed traffic  
  - Non-motorised transport facilities |

### Cities in planning and implementation phases but not yet operational

<table>
<thead>
<tr>
<th>Cities</th>
<th>Details</th>
</tr>
</thead>
</table>
| **eThekwini** | eThekwini expects to begin running its first route (C3) between KwaMashu and Pinetown in 2018.  
This runs along a newly constructed provincial road avoiding a current much longer journey between the origin and destination, and as such is expected to attract significant demand.  
  - 24.9 km right of way roadway on route C3 almost completed  
  - Bridges and structures completed.  
  - Routes C1A and C9 detailed designs complete and route C9 interchange 50 per cent complete |
| **Ekurhuleni** | Commencement of operations by interim service provider anticipated in 2018  
  - Construction of first phase trunk routes (1A, 1B, 2A, 2B, 4A, 4B) completed;  
  - Detailed designs for main depot completed;  
  - Construction of roads and parking bays at Vosloorus interim depot completed;  
  - MOU with Ekurhuleni Taxi Industry implemented |
| **Rustenburg** |  
  - 5.3 km trunk in corridor A and 13 km trunk in corridor B completed;  
  - 11 stations currently under construction  
  - Access compliant non-motorised transport infrastructure along the Corridor A trunk is completed  
Anticipates 2 years to operations |
Cities in planning and implementation phases but not yet operational

<table>
<thead>
<tr>
<th>City</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nelson Mandela Bay</td>
<td>Initial infrastructure was completed some years back and an initial pilot service was run. This was not however, successful, and was halted. There have been significant challenges in resurrecting the project in a manner that makes use of existing infrastructure.</td>
</tr>
</tbody>
</table>
| Mbombela     | • 6.7 km of bi-directional network completed;  
• 2.9 km of non-motorised facilities completed;  
• three transfer or primary stations (hubs) and 17 secondary stations completed  
Anticipates 2 years to operations |
| Polokwane    | • 3.85 km of dedicated trunk completed;  
• More than 15 kms of non-motorised facilities completed  
• Approximately 4 km of mixed traffic trunk/feeder completed  
Anticipates operations in 2018/19 financial year |
| Msunduzi     | • construction for Phase 1A 3.7 km complete  
• upgrade of 12 km of strategic feeder routes of on-going  
Anticipates 3 years to operations |
| Mangaung     | In planning phase                                                           |
| Buffalo City | Long running dispute over original planning tender, and subsequent challenges have resulted in little progress.  
Anticipates 5 years to operations |

8.4 Challenges

8.4.1 General project management and implementation

There was limited understanding of how complex the implementation of BRT projects would be; implementation of the BRT projects has proven much more problematic than anticipated, for a number of reasons.

Firstly, while municipalities have significant experience in road construction and implementation of other hard infrastructure most municipalities have had limited experience of running transport operations. A successful BRT requires a good understanding of how BRT-type operations can be run optimally within a local context. Infrastructure must then be designed to support this, with international best practice only able to assist to some degree.

Secondly, because BRT operations were new to South Africa, municipalities were not only required to develop operational understanding and capabilities from scratch, but were also required to do so for a type of operation that did not exist in the country. Furthermore, because new vehicles and systems were needed operations had to start with a ‘big bang’ – it was not possible for any of the existing operations to transform incrementally into the new system.

Thirdly, it was required of the municipalities that the new bus operations be run largely by the minibus taxi operators whose businesses were being displaced by the new system, and furthermore, that these operators should not be financially worse off as a result.

Fourthly, there were a number of additional requirements of municipalities, including the implementation of complex electronic fare systems based on a local concept untested elsewhere in the world, and which has proven very costly.

Apart from these specific challenges, many South African municipalities are struggling with general institutional weaknesses.

Some of the responses that have been developed in the course of first round implementation are explained in section 8.5 below.

8.4.2 Operating cost recovery

It was initially assumed, based on international experience, that the operational efficiencies that BRT engenders would result in a minimal operational subsidy requirement. Dedicated roadways in the median and stations with pre-board fare collection were assumed to increase journey speeds such that they would not only enhance service but enable vehicles to run more than one trip during peaks and thus significantly reduce operating costs to revenues.

However, inexperience in implementing BRT, combined with attempts to follow international ‘best-practices’ which turned out not to be well suited to South African conditions have led to high operating deficits.
This is partly because the routes chosen for implementation in the first phase tended to be existing, high volume, township-to-CBD routes (eg Soweto-Johannesburg) which did not have the right route lengths and levels of seat renewal for which BRT is designed. Indeed, they typically displayed South Africa’s normal but very adverse urban public transport demand characteristics of high peaks and minimal reverse peak flow, making them very expensive to operate.

In Cape Town extensive feeder services, which do not have BRT characteristics, and which were intended to supplement the trunk service have significantly larger fleets than the core trunk service itself.

The national commitment that the minibus-taxi operators that BRT replaced would be no worse off than before and would own and run the new vehicle operations led to complex negotiations and relatively high cost operator contracts.

While there may have been some justification for the implementation of BRT services in the biggest metros on appropriate corridors, the implementation of BRT in smaller cities with minimal congestion was highly inappropriate. Indeed, the one smaller city, George, rightly chose not to construct costly infrastructure, but used the resources to implement a formal bus service. Cost recovery ratios here, are however, also very low.

A benchmarking exercise was carried out on the services of those cities that were operating as of April 2016, and was published in a National Treasury Design Toolkit in December 2016, with the individual names of the cities removed, showing cost recovery ratios.

Table 33: Cost recovery ratios and other statistics from benchmarking exercise for Design Toolkit

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue to cost ratio</td>
<td>42%</td>
<td>34%</td>
<td>31%</td>
<td>11%</td>
</tr>
<tr>
<td>No. of routes</td>
<td>37</td>
<td>21</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>No. of Peak Buses (excl spares)</td>
<td>250</td>
<td>247</td>
<td>67</td>
<td>18</td>
</tr>
<tr>
<td>No of Average Weekday Boarding Pax</td>
<td>67 778</td>
<td>60 312</td>
<td>13 065</td>
<td>4 564</td>
</tr>
<tr>
<td>Monthly operational kms</td>
<td>1 441 944</td>
<td>969 965</td>
<td>306 247</td>
<td>77 286</td>
</tr>
<tr>
<td>Operating cost per kilometer</td>
<td>R 26.35</td>
<td>R 33.23</td>
<td>R 29.74</td>
<td>R 109.04</td>
</tr>
</tbody>
</table>

It is important in assessing these figures to recognize that these systems are at early stages of implementation and that cost recovery ratios are likely to improve as the system is bedded down. This is illustrated in the following graphic showing monthly cost recovery rates on Cape Town’s MyCiTi system which grew from 23% in November 2013 to 50% by October 2016.

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31 From the figures in the table and the information contained 8.3 it is evident that City A, B, C and D are Cape Town, Johannesburg, George and Tshwane respectively.
Note, however, that these figures only include direct vehicle operating costs, and exclude, for example, the capital cost of the vehicles and the cost of running stations.

8.4.3 Unpredictability of grant and its implications

A key challenge for cities was the lack of long term predictability in the grant allocation, and the effective power national government had in determining how the cities spent their money.

Even where it was not explicitly stated, most if not all cities interpreted the way in which the grant was managed, combined with the conditions in the grant framework as published in the Division of Revenue Act to mean that the only type of project for which they would receive funding would be bus rapid transit.

In the early years of the grant, because of the slow ramp-up in spending that is inevitable in projects of this complexity, there tended to be more funding available than cities were able to spend. As a result some cities were allocated large grants, particularly in relation to their size, when seen against overall resource availability. This led to the assumption amongst cities that so long as they implemented the kinds of projects national government favored (BRT) national government would foot the bill; they were implementing a national initiative rather than driving the initiative themselves, and there appeared to be no clear budget constraint.

8.5 Emerging BRT system design responses

Once Johannesburg and Cape Town had begun operating their first phases the challenge of high operating deficits became increasingly apparent. In a number of cases this was attributable to the problems of implementing a significantly new system, including implementing and managing a very complex fare system mandated by national government. While attempts were made to address these challenges with differing levels of success, cities began to look for ways to cut back on costs. However, system designs often limit the scope for this. Based on the experience of the first phases cities have been reviewing designs in quite fundamental ways before embarking on further phases. Key changes include:

- Designs enabling convergence with more conventional operations

Bus rapid transit systems usually have closed stations with pre-board fare collection. This is not just a passenger comfort but designed to reduce costs. Stations allow fare verification on entry to the station and permit large numbers of passengers to board simultaneously. This reduces dwell time and increases speeds, which on appropriate route lengths can reduce fleet requirements and reduce costs overall.

However, volumes are often not sufficient at all places along a route to warrant stations. New designs are being developed so that stations need only be built where passenger volumes mean that this results in an overall cost saving.

In essence, the new designs represent a convergence with more conventional systems while still offering BRT features where this is warranted.

This approach also makes it easier to restrict the provision of dedicated roadway to only those parts of the route will give a significant travel time advantage which similarly reduces costs.

- Focusing on trunk services within a ‘hybrid’ approach

In first phase systems cities usually followed a ‘full replacement model’, entailing the removal of minibus taxis and replacement with conventional BRT trunk and feeder services. This results in systems where the majority of costs are spent on feeder fleets where formal services of this type do not have a comparative advantage.

New approaches seek to restrict the BRT systems largely to trunk services along high volume roadways where dedicated lanes give travel time advantage.

There is a heightened awareness of the efficiency of minibus-taxis; new approaches seek to provide formal services where there is a comparative advantage and operate in conjunction with the minibus-taxis in what is termed a ‘hybrid’ approach.

- Combining trunk implementation with property development initiatives

First phase experience has brought home the importance of the nature of development along a route. BRT services are well suited to moving relatively large numbers of passengers along a fairly densely populated route where there is considerable activity along the route leading to significant seat renewal.

There is increasing focus on choosing routes where this type of urban form will be able to be realized, and taking initiatives to encourage these forms of development. Johannesburg’s Phase 1C route along Louis Botha, connecting the CBD with Sandton via Alexandria, and the city’s efforts to realise appropriate development along the route, is an example of this.

The City of Cape Town is also devoting considerable effort to exploring strategies for realizing appropriate property developments along its planned Phase 2A route.

A key question is the extent to which the densities that are required to realise the envisaged transport efficiencies will enable the provision of housing that will be affordable to the low income market. There may be locations along routes where this is possible, eg where routes pass existing townships where there is scope for increased backyarding. However, it is unlikely to be affordable to accommodate significant numbers of poor households in
multi-story developments of the kind that are most suited to these routes.

8.6 Changes in grant design

The challenges and shortcomings noted above have led to three key sets of changes in the grant design.

8.6.1 Formula approach

Possibly the most significant change in the grant design was a shift to a formula approach. This was introduced from the 2016/17 financial year. In terms of this approach 80% of the total national amount available is allocated amongst the cities on basis of a combination of

- Population
- Number of public transport users excluding rail
- Economic activity

This shift brought a much greater level of realism and predictability to the grant, and some measure of a long term expected allocation envelope. This meant that plans could be devised within a much more realistic and predictable framework.

Some cities which had previously received allocations which were unsustainably large in relation to their size faced big reductions and have been confronted with needing to make major adjustments to their plans.

The remaining 20% of the grant is intended to be distributed on a ‘performance’ basis. However the criteria for judging performance have not yet been developed. In the interim the 20% has been allocated largely at the discretion of the national DoT. It has tended to be used to soften the grant reduction to the smaller cities arising from the implementation of the formula.

8.6.2 Change in grant conditions

The second set of changes relate to the grant conditions themselves. There has been, for example, a rewording of the grant conditions that were previously interpreted by cities as directing them to implement BRT projects.

The emphasis has now been placed on cities developing their own fiscally and financially sustainable plans, and a key condition has been introduced to the effect that

Allocations are only made to municipalities that...

demonstrate sufficient capacity to implement and operate any proposed projects, and credibly demonstrate the long-term fiscal and financial sustainability of the proposed projects.

It is difficult and often counter-productive to withhold funding that has previously been agreed to under a different set of conditions, so this condition has effectively not been implemented thus far. However, it sends a signal regarding what is needed in future.

8.6.3 Fiscal and financial sustainability

There has been much greater emphasis placed on monitoring the fiscal and financial sustainability of what cities are doing. The recognition that the key to fiscal and financial sustainability lies in ongoing recurrent cost sustainability has led to national DoT requiring of cities that they produce 10 year plans which project ongoing operating costs and revenues.

The assessment of these 10 year plans, including recurrent costs and revenues is increasingly at the core of the annual grant assessment process.

8.7 Conclusions

- The Public Transport Network Grant has represented the first major injection of public transport funds to city level institutions in South Africa’s history
- It has been a key instrument in beginning to realize cities as a key locus of responsibility for public transport, and build city level capacity through the implementation of major, complex projects
- It was introduced as part of the preparations for the 2010 FIFA World Cup, and initial projects were conceived, designed and implemented in that context
- The funding was, in effect, initially conditional on the implementation of BRT systems. While a good solution in the right context, it has not always been appropriate and has been difficult to design and implement successfully, resulting in high ongoing operating deficits.
- Despite these criticisms, there have been successes: at an average of 66 115 passenger trips per day in 2016/17 Cape Town’s MyCiTi carries more passengers than Gautrain (55 000 per day), while Johannesburg’s Rea Vaya carries volumes more or less similar to Gautrain.
- Nevertheless, it has become increasingly clear to key decision-makers that continued, city-wide BRT rollout on the basis originally conceived will not be financially sustainable
- In response to these challenges there is ongoing re-appraisal of systems designs towards greater convergence and inter-operability with conventional bus systems, working in conjunction with minibus-taxis within what is referred to as a ‘hybrid’ system, and greater attention to realizing appropriate land use along BRT corridors
- The new Phase 1C BRT which Johannesburg is currently implementing along Louis Botha Avenue between the CBD and Sandton, via Alexandra, if well executed, has the potential, because of existing and potential land uses on the corridor, to become a good BRT corridor.
Density requirements along BRT routes suggest that there may be limited scope along these routes for providing housing for RDP beneficiary income levels.

The PTNG grant has also been reformed as a result of the challenges experienced, introducing a formula based allocation to the grant which has improved predictability and transparency and provided a clearer resource envelope within which to do planning.

Conditions and grant management have been refocused to ensure cities develop fiscally and financially sustainable plans for transport investments in future.

Operating the initial phases of BRT projects will have adverse fiscal implications for cities; however, there appear to be adjustments resulting in a higher likelihood of more fiscally and financially sustainable solutions in future.

9 Minibus taxis
9.1 Scale and nature of industry

In most of South Africa’s urban areas the minibus taxi industry is the backbone of the public transport system.

In 2013 minibus taxis provided two thirds of all public transport in metro areas and more than one third of daily passengers in motorised transport in the metropolitan areas (ie not including trips by walking, cycling or ‘other’). The figures below show the morning trips to work and study for the six largest metropolitan areas combined 32.

Table 34: Minibus taxi share in total public transport and motorised market (2013)

<table>
<thead>
<tr>
<th>MODE</th>
<th>Work</th>
<th>Study</th>
<th>Total</th>
<th>Share of motorised transport</th>
<th>Share of public transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train</td>
<td>649 000</td>
<td>174 000</td>
<td>823 000</td>
<td>9.2%</td>
<td>17.5%</td>
</tr>
<tr>
<td>Bus</td>
<td>439 000</td>
<td>329 000</td>
<td>768 000</td>
<td>8.6%</td>
<td>16.3%</td>
</tr>
<tr>
<td>Taxi</td>
<td>1 987 000</td>
<td>1 123 000</td>
<td>3 110 000</td>
<td>34.8%</td>
<td>66.2%</td>
</tr>
<tr>
<td>TOTAL PUBLIC</td>
<td>3 075 000</td>
<td>1 626 000</td>
<td>4 701 000</td>
<td>52.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Car</td>
<td>2 833 000</td>
<td>1 409 000</td>
<td>4 242 000</td>
<td>47.4%</td>
<td></td>
</tr>
<tr>
<td>TOTAL MOTORISED</td>
<td>5 908 000</td>
<td>3 035 000</td>
<td>8 943 000</td>
<td></td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: Hunter van Ryneveld (2014) based on National Household Travel Surveys of 2013 (Stats SA, Pretoria)

Because of the relatively unregulated nature of the minibus taxi industry reliable information on its size is difficult to find. SA Taxi 33, a financial institution which specialises in lending to the minibus taxi industry estimates that there are approximately 200,000 minibus taxis operating in South Africa, with other estimates ranging as high as 250,000 34.

The 2013 National Household Travel Survey 35 indicates that in 2013 South Africa’s minibus taxis transported 6.26 million people in the morning, while SA Taxi estimates that currently (2017) there are a total of 15 million taxi trips a day, compared with 2 million train trips and 9 million bus trips 36. In 2014 Moneyweb estimated that the industry had an annual turnover of approximately R40 billion, although this is probably an over-estimate, and employed 600,000 people 37.

Minibus taxis have proven remarkably effective and efficient in providing public transport services, particularly over shorter routes where the subsidy advantage benefitting competing services is not as pronounced. Its flexibility and demand responsiveness enables it to match supply to demand more easily than more formal services such as buses and trains.

As indicated, it does not benefit from operating subsidies, although does qualify for a state capital subsidy, which was set at R82,400.00 per vehicle in the 2016/17 financial year.

32 Table is from Hunter van Ryneveld (2014) p73.
33 SA Taxi, which is a subsidiary of Transaction Capital, currently finances over 27,000 taxis and has good data on the industry, some of which is publicly available through their 2016 Annual Report.
36 The NHTS measures the number of passengers taking trips by taxi in the morning. A journey to work could consist of more than one taxi trip/boarding. The SA Taxi figure estimates the total number of trips in a full day.
year, representing a little less than a fifth of the total cost (including VAT). The subsidy, which increases annually with inflation, is therefore only a little more than the VAT payable on the vehicle purchase price. The total amount paid in capital subsidies in 2016/17 was R353.4 million.

9.2 Perceptions of the industry and safety concerns

The National Household Travel Survey indicates that key positive aspects of the minibus taxi industry relate to their flexibility and availability, while key concerns relate to cost and safety. Table 35 shows reasons that people gave for not using a taxi.

<table>
<thead>
<tr>
<th>Area</th>
<th>Not available</th>
<th>Prefer train</th>
<th>Prefer bus</th>
<th>Prefer private transport</th>
<th>Can walk</th>
<th>Don’t travel much</th>
<th>Service attributes</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>3.1%</td>
<td>1.5%</td>
<td>1.4%</td>
<td>36.8%</td>
<td>5.3%</td>
<td>4.4%</td>
<td>44.4%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Tshwane</td>
<td>4.9%</td>
<td>1.6%</td>
<td>1.3%</td>
<td>38.7%</td>
<td>3.7%</td>
<td>6.2%</td>
<td>41.7%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>6.3%</td>
<td>1.7%</td>
<td>1.0%</td>
<td>39.7%</td>
<td>7.6%</td>
<td>6.9%</td>
<td>36.0%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Cape Town</td>
<td>4.1%</td>
<td>2.4%</td>
<td>2.3%</td>
<td>36.8%</td>
<td>7.0%</td>
<td>5.5%</td>
<td>40.1%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Ethekwini</td>
<td>13.0%</td>
<td>1.4%</td>
<td>4.1%</td>
<td>39.3%</td>
<td>3.7%</td>
<td>5.5%</td>
<td>31.9%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>1.0%</td>
<td>0.5%</td>
<td>3.4%</td>
<td>62.9%</td>
<td>6.5%</td>
<td>8.9%</td>
<td>16.2%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>2.1%</td>
<td>0.5%</td>
<td>0.0%</td>
<td>44.0%</td>
<td>10.6%</td>
<td>12.5%</td>
<td>30.1%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Mangaung</td>
<td>7.0%</td>
<td>0.5%</td>
<td>4.1%</td>
<td>43.8%</td>
<td>3.9%</td>
<td>4.1%</td>
<td>32.2%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Metro</td>
<td>5.1%</td>
<td>1.7%</td>
<td>1.9%</td>
<td>39.0%</td>
<td>5.8%</td>
<td>5.8%</td>
<td>38.8%</td>
<td>1.9%</td>
</tr>
<tr>
<td>Urban</td>
<td>12.1%</td>
<td>0.3%</td>
<td>1.1%</td>
<td>35.5%</td>
<td>11.8%</td>
<td>8.1%</td>
<td>28.8%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Rural</td>
<td>32.6%</td>
<td>0.1%</td>
<td>6.4%</td>
<td>10.6%</td>
<td>9.3%</td>
<td>15.1%</td>
<td>23.7%</td>
<td>2.2%</td>
</tr>
<tr>
<td>RSA</td>
<td>13.0%</td>
<td>0.9%</td>
<td>2.6%</td>
<td>32.0%</td>
<td>8.3%</td>
<td>8.4%</td>
<td>32.7%</td>
<td>2.1%</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>5.4%</td>
<td>1.6%</td>
<td>2.0%</td>
<td>39.3%</td>
<td>5.9%</td>
<td>6.2%</td>
<td>37.8%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

Source: Data from National Household Travel Survey analysed for this project

Of significance is the fact that very few non-users prefer to use either the train or a bus. In most cases they prefer private transport – or simply dislike the service attributes of a taxi. This contrasts with non-users of buses and trains, where a significant proportion in each case do so because they prefer taxis. For a detailed comparison, Table 35 should be viewed together with Table 23 and Table 31 which show reasons for not using train and bus, respectively. (All three tables are reproduced alongside one another in the Appendix to facilitate this comparison.)

Only 5.1% of respondents in metros said that they did not use a taxi because of non-availability, while 21.0% and 22.5% gave non-availability as a reason for not using buses and trains respectively. This reflects the ubiquitousness of minibus taxis.

Interestingly there appears to be high level of non-availability of taxis in eThekwini relative to other metros. The next table shows the proportion of users who felt dissatisfaction with different attributes of minibus taxi services. For a comparison with attitudes to train and bus this table should be read with Table 24 and Table 30. Again, all three tables have been reproduced in the appendix for ease of comparison.

Table 37 compares dissatisfaction amongst metropolitan users collectively with the various attributes.
Table 36: Percentage users dissatisfied with different attributes of minibus taxi services 2013

<table>
<thead>
<tr>
<th>Attributes of bus services</th>
<th>Metro</th>
<th>RSA</th>
<th>Rural</th>
<th>Urban</th>
<th>Tshwane</th>
<th>Jhburg</th>
<th>Tshwane</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the bus stop and your home</td>
<td>14.5%</td>
<td>14.2%</td>
<td>20.9%</td>
<td>12.6%</td>
<td>20.9%</td>
<td>28.1%</td>
<td>14.2%</td>
</tr>
<tr>
<td>The travel time by bus</td>
<td>13.5%</td>
<td>14.9%</td>
<td>18.8%</td>
<td>13.1%</td>
<td>12.6%</td>
<td>14.0%</td>
<td>11.9%</td>
</tr>
<tr>
<td>Security on the walk to/from the bus stop</td>
<td>35.4%</td>
<td>43.9%</td>
<td>43.6%</td>
<td>46.5%</td>
<td>41.9%</td>
<td>41.9%</td>
<td>46.5%</td>
</tr>
<tr>
<td>Security at the bus stops</td>
<td>34.2%</td>
<td>35.2%</td>
<td>43.6%</td>
<td>43.6%</td>
<td>37.4%</td>
<td>37.4%</td>
<td>43.6%</td>
</tr>
<tr>
<td>Security on the buses</td>
<td>42.9%</td>
<td>37.4%</td>
<td>34.1%</td>
<td>40.5%</td>
<td>37.4%</td>
<td>37.4%</td>
<td>40.5%</td>
</tr>
<tr>
<td>The level of crowding in the bus</td>
<td>53.2%</td>
<td>51.3%</td>
<td>56.0%</td>
<td>56.0%</td>
<td>56.0%</td>
<td>56.0%</td>
<td>56.0%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>25.2%</td>
<td>18.8%</td>
<td>33.3%</td>
<td>21.0%</td>
<td>26.0%</td>
<td>26.0%</td>
<td>26.0%</td>
</tr>
<tr>
<td>The frequency of buses during peak period</td>
<td>36.0%</td>
<td>39.0%</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
<td>36.0%</td>
</tr>
<tr>
<td>The punctuality of buses</td>
<td>30.2%</td>
<td>27.6%</td>
<td>27.6%</td>
<td>24.5%</td>
<td>24.5%</td>
<td>24.5%</td>
<td>24.5%</td>
</tr>
<tr>
<td>The bus fares</td>
<td>52.0%</td>
<td>52.0%</td>
<td>52.0%</td>
<td>52.0%</td>
<td>52.0%</td>
<td>52.0%</td>
<td>52.0%</td>
</tr>
<tr>
<td>The facilities at the stops e.g. shelters</td>
<td>55.6%</td>
<td>56.6%</td>
<td>56.6%</td>
<td>56.6%</td>
<td>56.6%</td>
<td>56.6%</td>
<td>56.6%</td>
</tr>
<tr>
<td>Behaviour of the bus drivers towards passengers</td>
<td>52.2%</td>
<td>52.2%</td>
<td>52.2%</td>
<td>52.2%</td>
<td>52.2%</td>
<td>52.2%</td>
<td>52.2%</td>
</tr>
<tr>
<td>The bus service overall</td>
<td>58.5%</td>
<td>59.6%</td>
<td>65.5%</td>
<td>59.2%</td>
<td>54.1%</td>
<td>54.1%</td>
<td>54.1%</td>
</tr>
<tr>
<td>Availability of information</td>
<td>41.7%</td>
<td>43.6%</td>
<td>49.5%</td>
<td>46.9%</td>
<td>29.3%</td>
<td>29.3%</td>
<td>29.3%</td>
</tr>
</tbody>
</table>
Table 37: Percentage metro users dissatisfied with different attributes of bus, taxi and train services 2013

<table>
<thead>
<tr>
<th>Attributes of bus services</th>
<th>Bus</th>
<th>Taxis</th>
<th>Trains</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the bus stop/taxi rank/station and your home</td>
<td>25.3%</td>
<td>22.1%</td>
<td>51.8%</td>
</tr>
<tr>
<td>The travel time by bus/taxi/train</td>
<td>24.9%</td>
<td>16.4%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Security on the walk to/from the bus stop/taxi/train</td>
<td>38.3%</td>
<td>41.8%</td>
<td>58.7%</td>
</tr>
<tr>
<td>Security at the bus stops/taxi ranks/stations</td>
<td>40.2%</td>
<td>42.1%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Security on the buses/taxis/trains</td>
<td>33.0%</td>
<td>39.7%</td>
<td>49.3%</td>
</tr>
<tr>
<td>The level of crowding in the bus/taxi/train</td>
<td>43.2%</td>
<td>43.6%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>29.4%</td>
<td>55.9%</td>
<td>30.0%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/trains during peak period</td>
<td>30.3%</td>
<td>28.6%</td>
<td>47.7%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/trains during off-peak period</td>
<td>34.0%</td>
<td>30.5%</td>
<td>52.1%</td>
</tr>
<tr>
<td>The punctuality of buses/waiting time for taxis/punctuality of trains</td>
<td>30.8%</td>
<td>31.6%</td>
<td>63.9%</td>
</tr>
<tr>
<td>The bus/taxi/train fares</td>
<td>30.8%</td>
<td>52.3%</td>
<td>15.7%</td>
</tr>
<tr>
<td>The facilities at the stops e.g. shelters/taxi ranks/train stations</td>
<td>46.3%</td>
<td>57.4%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Roadworthiness of taxis</td>
<td></td>
<td>52.0%</td>
<td></td>
</tr>
<tr>
<td>Behaviour of the bus/taxi drivers towards passengers</td>
<td>23.3%</td>
<td>57.1%</td>
<td></td>
</tr>
<tr>
<td>Availability of information</td>
<td>29.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The bus/taxi/train service overall</td>
<td>30.3%</td>
<td>44.4%</td>
<td>49.0%</td>
</tr>
</tbody>
</table>

From this table it can be seen that taxi and bus users have significantly lower levels of dissatisfaction than train users on all attributes other than fares, where trains score very well. Trains score particularly poorly on levels of crowding. In comparison with buses, taxis do slightly worse on most issues other than frequency. However, they score particularly poorly on

- Safety from accidents
- Fare levels
- Roadworthiness of vehicles
- And behaviour of drivers towards passengers

Note that in the rating of the service overall bus users have the lowest levels of dissatisfaction by some way, followed by taxis, with train users have the worst levels of dissatisfaction.

9.3 Structure of the minibus taxi industry

There is a significant variation in taxi profitability. This is driven to a large degree by the route the taxi runs, the nature and effectiveness of the authority exercised by the taxi associations controlling the route, and the interplay between this and the public authorities.

While the public authorities issue licences for the routes, it is effectively the association which governs who operates on a route, with recommendations from the association an important factor in determining whether a route licence is issued. Membership of an association can be costly.

Many routes are overtraded, with the result that, while beneficial to the users, many minibus taxi businesses are barely viable. Apart from destructive competition, the informal and unregulated nature of the minibus taxi sector can often lead to poor working conditions, and a poor safety record.

Of the approximately 200 000 taxis in the country an estimated 70 000 to 80 000 are financed and insured 38. SA Taxi, which financed 6 866 vehicles in 2016 and currently has 27 142 taxis on its books, representing 38% of the financed taxi market, records that the taxi owners to which it lends have on average 1.2 vehicles, indicating that the industry remains fairly deconcentrated; although it may be that those that own larger fleets self-finance their vehicles. While the average age of the fleet nationally is 9 years, the average age of the vehicles on SA Taxi books is 3.4 years. The minimum monthly operating profit of the owners to which it lends is R6000, their average age is 47 years, about 18% of their clients are under 35 years, 20% are women and all are black.

86% of the vehicles on SA Taxi books are Toyota Ses’Fikile (otherwise known as Quantums), although the Nissan NV350 is gaining in popularity. The Mercedes Sprinter also has a presence but is a larger vehicle, carrying 25 passengers and tends to be used more for long distance routes.

38 Financial Mail 8-14 June 2017
9.4 Examples of Taxi Operations

Hunter van Ryneveld (2014) gives some detailed descriptions of minibus-taxi operations in Johannesburg and Cape Town which are useful in providing a richer understanding of the industry. This is summarised here.

9.4.1 Examples of taxi operations in Johannesburg and Cape Town

a) Johannesburg

The graphic below which originates from City of Johannesburg’s 2014 Public Transport Record, shows a typical daily activity for a minibus taxi in Johannesburg. In the example shown, the taxi operated from 06h00 to 17h00 on a single day along the route between the Bree Street Rank and Randburg. It covered 219 kilometres and carried 85 passengers altogether, stopping 101 times for passengers to board or alight. The minibus taxi had 14 seats but occasionally squeezed 15 passengers on board. Total fares earned from this operation were in the region of R1 224 per day, or R25 700 per month.

The graphic shows the taxi taking on a full load at Bree St rank in the morning and driving to Randburg, dropping passengers on the way so that by the time it reaches Randburg it is almost empty. It does not wait to completely fill up in Randburg but returns to origin, boarding passengers on the return journey where it can before loading another full load at the Bree Street rank. By late afternoon the main flow is reversed with relatively few passengers boarding at Bree St and the largest loads boarding at Randburg. The patterns are more varied in the afternoon with more boarding and alighting in the afternoon even though the minibus does not run at full capacity.

The knowledge and experience of the driver is critical to the decisions on how to maximise revenue over costs.

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Figure 11: Example of a passenger demand profile for a minibus taxi service

Source: City of Johannesburg Public Transport Record (2014), Annexure C.

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This is drawn from Hunter van Ryneveld (2014)
The following table summarises information from a selection of other minibus taxi routes in Johannesburg. It shows that minibus taxis on these routes may do anything between four and 19 trips per working day; they travel between 110 km and 284 km and carry between 39 and 176 passengers per day; and collect fare revenue of between R12,285 and R33,264 per month.

**Table 38: Data for a selection of minibus taxi routes in Johannesburg**

<table>
<thead>
<tr>
<th>Association</th>
<th>Number of vehicles per route</th>
<th>Owner profit per vehicle per month</th>
<th>Fare revenue per vehicle per day</th>
<th>Passengers per vehicle per day</th>
<th>Average fare paid per passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantis/Blaawberg (ABTA)</td>
<td>131</td>
<td>R 4 042</td>
<td>R 1 006</td>
<td>148</td>
<td>R 6.80</td>
</tr>
<tr>
<td>Central Unity (CUTA)</td>
<td>48</td>
<td>R 12 024</td>
<td>R 1 475</td>
<td>217</td>
<td>R 6.80</td>
</tr>
<tr>
<td>Du Noon (DTA)</td>
<td>142</td>
<td>R 4 653</td>
<td>R 712</td>
<td>69</td>
<td>R 10.32</td>
</tr>
<tr>
<td>Maitland (MATA)</td>
<td>105</td>
<td>-R 2 010</td>
<td>R 489</td>
<td>77</td>
<td>R 6.35</td>
</tr>
<tr>
<td>PTA - Corporation</td>
<td>17</td>
<td>R 13 674</td>
<td>R 1 045</td>
<td>209</td>
<td>R 5.00</td>
</tr>
<tr>
<td>PTA - Plein</td>
<td>21</td>
<td>R 12 702</td>
<td>R 1 073</td>
<td>215</td>
<td>R 4.99</td>
</tr>
<tr>
<td>PTA - Station Deck</td>
<td>30</td>
<td>R 9 577</td>
<td>R 986</td>
<td>116</td>
<td>R 8.50</td>
</tr>
<tr>
<td>PTA - Camps Bay</td>
<td>109</td>
<td>R 10 580</td>
<td>R 1 268</td>
<td>204</td>
<td>R 6.22</td>
</tr>
<tr>
<td>PTA - Waterfront</td>
<td>33</td>
<td>R 12 939</td>
<td>R 956</td>
<td>273</td>
<td>R 3.50</td>
</tr>
<tr>
<td>United (UTA)</td>
<td>15</td>
<td>R 2 677</td>
<td>R 635</td>
<td>97</td>
<td>R 6.55</td>
</tr>
<tr>
<td>Vredehoek/Devils Peak (VDPTA)</td>
<td>9</td>
<td>R 23 518</td>
<td>R 1 665</td>
<td>333</td>
<td>R 5.00</td>
</tr>
<tr>
<td>Ysterplaat (YTA)</td>
<td>40</td>
<td>R 2 001</td>
<td>R 406</td>
<td>69</td>
<td>R 5.88</td>
</tr>
</tbody>
</table>

Source: Calculated by Hunter van Ryneveld (2014) from figures from City of Johannesburg Public Transport Record (2014), Annexure C.

b) Cape Town

In 2013 Cape Town undertook research into profitability of minibus taxi routes mainly in the central city area. These included a collection of highly profitable routes, such as in Vredehoek in the city bowl, which was an exception and recorded profits in excess of R20000 per month, and between the centre of Cape Town and the Waterfront, Sea Point and Camps Bay areas, where profits ranged between R10000 and R13000 per month. Some less profitable routes were also surveyed which showed that some services were loss making (Maitland).

These figures are not representative of Cape Town minibus taxis in general, and certainly not of the national industry, but do offer some interesting insights.

**Table 39: Data from a selection of minibus taxi routes in Cape Town in 2013**

<table>
<thead>
<tr>
<th>Association</th>
<th>Number of vehicles per route</th>
<th>Owner profit per vehicle per month</th>
<th>Fare revenue per vehicle per day</th>
<th>Passengers per vehicle per day</th>
<th>Average fare paid per passenger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantis/Blaawberg (ABTA)</td>
<td>131</td>
<td>R 4 042</td>
<td>R 1 006</td>
<td>148</td>
<td>R 6.80</td>
</tr>
<tr>
<td>Central Unity (CUTA)</td>
<td>48</td>
<td>R 12 024</td>
<td>R 1 475</td>
<td>217</td>
<td>R 6.80</td>
</tr>
<tr>
<td>Du Noon (DTA)</td>
<td>142</td>
<td>R 4 653</td>
<td>R 712</td>
<td>69</td>
<td>R 10.32</td>
</tr>
<tr>
<td>Maitland (MATA)</td>
<td>105</td>
<td>-R 2 010</td>
<td>R 489</td>
<td>77</td>
<td>R 6.35</td>
</tr>
<tr>
<td>PTA - Corporation</td>
<td>17</td>
<td>R 13 674</td>
<td>R 1 045</td>
<td>209</td>
<td>R 5.00</td>
</tr>
<tr>
<td>PTA - Plein</td>
<td>21</td>
<td>R 12 702</td>
<td>R 1 073</td>
<td>215</td>
<td>R 4.99</td>
</tr>
<tr>
<td>PTA - Station Deck</td>
<td>30</td>
<td>R 9 577</td>
<td>R 986</td>
<td>116</td>
<td>R 8.50</td>
</tr>
<tr>
<td>PTA - Camps Bay</td>
<td>109</td>
<td>R 10 580</td>
<td>R 1 268</td>
<td>204</td>
<td>R 6.22</td>
</tr>
<tr>
<td>PTA - Waterfront</td>
<td>33</td>
<td>R 12 939</td>
<td>R 956</td>
<td>273</td>
<td>R 3.50</td>
</tr>
<tr>
<td>United (UTA)</td>
<td>15</td>
<td>R 2 677</td>
<td>R 635</td>
<td>97</td>
<td>R 6.55</td>
</tr>
<tr>
<td>Vredehoek/Devils Peak (VDPTA)</td>
<td>9</td>
<td>R 23 518</td>
<td>R 1 665</td>
<td>333</td>
<td>R 5.00</td>
</tr>
<tr>
<td>Ysterplaat (YTA)</td>
<td>40</td>
<td>R 2 001</td>
<td>R 406</td>
<td>69</td>
<td>R 5.88</td>
</tr>
</tbody>
</table>
The high profit generating routes are those with high seat renewal (seats are resold frequently along a route), a favourable fare structure because of the route being short, and even, bi-directional flow throughout the day.

Table 39 shows that the number of passengers carried per day is the crucial determinant of profit. But contrary to the widely held misconception that profitability is greater on high volume routes, the most profitable route per vehicle, with monthly profits in excess of R23 000 per vehicle, had only 9 vehicles running on it.

The Vredehoek/Devil’s Peal Taxi Association managed to successfully restrict entry to the market. Given the small number of vehicles it was also able to regulate how they run, including setting off at reasonable intervals in the off-peak rather than waiting to fill up at the rank before moving. There was good reverse flow, while journeys were comparatively short.

It is the patterns of demand and how they are responded to that drives profitability, not so much the size of demand.

9.4.2 Summary of financial and operational data

From evidence in Johannesburg and Cape Town in 2013 and 2014, and more recent information from SA Taxi it could be concluded that most taxis

- run between 100 and 250 kms per day
- carry between 50 and about 200 passengers per day, and
- make profits of between zero and R15000 per vehicle per month

There is significant variation in profit levels per route. The key factor in driving profitability is the number of passengers carried per vehicle per day. Thus taxis plying shorter routes tend to be able to make more trips and increase their income.

The efficiencies of the minibus taxi system are rooted in

- their informality, including informal working conditions, which permits a very low cost structure
- their use of mass vehicle technology, which is cheap and reliable
- their flexibility, which enables them to respond quickly to market demands
- their small vehicle size, which means that they can profitably serve relatively low demand routes at acceptable headways

Table 40 provides estimates made by Hunter van Ryneveld (2014) of the key statistics of the minibus taxi industry for the six largest metros.

Table 40: Minibus taxis: detailed statistics 2014

<table>
<thead>
<tr>
<th></th>
<th>JHB</th>
<th>TSH</th>
<th>EKU</th>
<th>CCT</th>
<th>ETH</th>
<th>NMB</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating costs incl profit (Rm)</td>
<td>3 550.5</td>
<td>2 053.1</td>
<td>2 473.3</td>
<td>1 596.4</td>
<td>2 820.1</td>
<td>594.2</td>
<td>13 087.6</td>
</tr>
<tr>
<td>Operating revenue (R m)</td>
<td>3 550.5</td>
<td>2 053.1</td>
<td>2 473.3</td>
<td>1 596.4</td>
<td>2 820.1</td>
<td>594.2</td>
<td>13 087.6</td>
</tr>
<tr>
<td>Operating subsidy (R m)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Fare revenue (R m)</td>
<td>3 550.5</td>
<td>2 053.1</td>
<td>2 473.3</td>
<td>1 596.4</td>
<td>2 820.1</td>
<td>594.2</td>
<td>13 087.6</td>
</tr>
<tr>
<td>Other revenue (R m)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Operating deficit (R m)</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Fare revenue as % of operating costs + profits</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Passengers carried per year (m)</td>
<td>447.7</td>
<td>251.2</td>
<td>300.0</td>
<td>190.8</td>
<td>356.7</td>
<td>70.7</td>
<td>1 617.2</td>
</tr>
<tr>
<td>ANNUAL</td>
<td>28%</td>
<td>16%</td>
<td>19%</td>
<td>12%</td>
<td>22%</td>
<td>4%</td>
<td>100%</td>
</tr>
<tr>
<td>Operating expenditure (R m)</td>
<td>7.93</td>
<td>8.17</td>
<td>8.24</td>
<td>8.36</td>
<td>7.91</td>
<td>8.40</td>
<td>8.09</td>
</tr>
<tr>
<td>Fare revenue per passenger carried ( R )</td>
<td>7.93</td>
<td>8.17</td>
<td>8.24</td>
<td>8.36</td>
<td>7.91</td>
<td>8.40</td>
<td>8.09</td>
</tr>
</tbody>
</table>

9.5 Demands for further subsidisation

The efficiency of the minibus taxi sector and the current scale of operations combined with the marginal nature of many individual businesses and the problems arising from lack of regulation is resulting in demands to both subsidise the sector beyond the current taxi recapitalisation programme, as well as formalise and regulate it more strongly.

The price of a new Toyota Quantum has climbed quite considerably in recent years and is now at between R430 000 and R490 000. In June 2017 there were large

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40 See van Ryneveld (1989)
demonstrations by taxi operators which significantly disrupted traffic in eThekwini and Guateng, protesting at the high price of the vehicle and demanding that government and the private sector reduce the costs.

Subsidisation of the sector is seen by some as offering a mechanism to both formalise the sector and strengthen its regulation, and thus achieve higher safety levels, better working conditions and better management of competition. However, there is a danger that doing so will run the risk of increasing costs with minimal or no concomitant improvement in output.

Hunter van Ryneveld (2014), in an appendix to the main report, compared the cost per vehicle of running an informal minibus taxi business with a formal, regulated business. The crucial difference is in driver costs. The study uses formal rates for bus drivers set by the industry Bargaining Council, although there are other costs of formalisation that need to be accounted for. This document concludes that the cost of formalising the industry could as much as double the operating costs. Assuming the figures estimated in Hunter van Ryneveld (2014) that the total cost of the minibus taxi industry for the six largest metros is approximately R131 billion per year, doubling it would raise costs to R26.2 billion.

It is not clear what would be gained by the users if the industry was formalised. If the formalisation of the industry were to enable much better regulation and control over the way taxis operate there could be significant benefits. However, it is not obvious that formalisation will necessarily achieve that; and there may be other ways of achieving improved regulation, such as through creative framing of taxi licences to operate and better enforcement.

9.6 Finding synergies between minibus taxis and formal operators

If potential synergy between the formal and informal industry could be captured the benefits would be substantial. This is sometimes described this as a ‘hybrid model’. However, thus far, there appears to have been little success in South Africa or elsewhere in creating a well functioning hybrid service combining the formal and informal operators.

In implementing its first phase of MyCiTi BRT system, Cape Town initially sought to remove all minibus taxis from its area of operation to avoid competition. Minibus taxi businesses were valued and compensated for giving up their licences, and the proceeds used to capitalize vehicle operating companies owned by former minibus taxi operators to run the new MyCiTi vehicle operations.

However it has been found that

- For various reasons not all minibus taxis were able to be removed; some had licences for other areas which gave them rights in the Phase 1 area, and others were not willing to take the compensation levels offered.

- Some MyCiTi routes have made bigger losses than anticipated, in some cases but not all cases because of competition from continued legal and illegal minibus taxi operations.

Cities such as eThekwini and Tshwane are increasingly exploring the feasibility of minibus taxis performing the feeder function to the formal BRT trunk services, but as yet there are no successful models in operation.

In its 2017 IPTN Business Plan the City of Cape Town suggest that new mobile phone based technologies could enable much better matching of supply and demand and that this could have greatest impact in the minibus taxi industry with its much more flexible operating model.

9.7 Conclusions

- There are an estimated 200 000 minibus taxis operating in South Africa, with some sources estimating as many as 250 000 vehicles.

- Two-thirds of the market share for public transport in South Africa’s metros is provided by minibus taxis.

- Minibus taxis do not receive operating subsidies but when old vehicles with valid operating licences are scrapped the owner qualifies for a capital subsidy to replace the vehicle, currently equivalent to a little under a fifth of the cost including VAT.

- Minibus taxis are favoured for their flexibility and availability, while key concerns relate to cost, safety, roadworthiness of vehicles and the behaviour of drivers.

- The efficiencies of the minibus taxi system is rooted in their informality, including informal working conditions, which permits a very low cost structure; their use of mass vehicle technology, which is cheap and reliable; their flexibility, which enables them to respond quickly to market demand; and their small vehicle size, which means that they can profitably serve relatively low demand routes at acceptable headways.

- The average age of the minibus taxi fleet nationally has been estimated to be 9 years.

- Minibus-taxis in metros run between 100 and 250 kms per day, carry between 50 and about 200 passengers per day, and while some vehicles are effectively loss-making others make profits of up to about R20000 per month per vehicle.

- Until recently, the government program for larger cities funded by the Public Transport Network Grant envisaged the BRT trunk and feeder network replacing all informal minibus-taxis operations, and imposed conditions to the effect. However, it is evident that operating deficits make the full replacement model unaffordable.

- Most cities are now exploring mechanisms to develop...
‘hybrid’ solutions, where minibus-taxis and formal services work together in providing public transport services

• There are proposals to formalise the industry; however, formalisation is likely to add significantly to costs so unless formalisation enables much more efficient operations the net benefits of formalisation are unclear.
• There are suggestions that new mobile phone based technologies could enable much better matching of supply and demand especially in the minibus taxi-industry because of its flexible operating model.
• Defining an appropriate way forward whereby the roles of the various modes are optimised and potential synergies between the formal and informal sector captured is clearly one of the highest priorities in the South African public transport sector.

10. City response: Cape Town

10.1 Introduction

Thus far the paper has examined the various transport modes from a national or metropolitan perspective. This chapter seeks to examine an individual city, looking at the fiscal sustainability of current public transport initiatives across modes and programs. The City of Cape Town has been chosen for three key reasons.

Firstly, unlike the cities of Gauteng, which co-exist with other metropolitan areas within the wider urban region, in Cape Town the metropolitan government’s boundaries largely contain the daily commuting patterns defining the Cape Town functional area. Secondly, it has recently compiled an Integrated Public Transport Network business plan setting out a fairly detailed long term plan including a financial plan, which was approved by Council in August, 2017. This plan identifies the key variables and risks confronting the city in pursuing the plan. Thirdly, although not the first city to begin implementation of PTNG funded BRT services, it is now the most advanced, and presents the most detailed and transparent financial analysis relating to these services.

While all the six largest cities in South Africa have suburban rail services, Cape Town’s suburban rail network (Metrorail) is the most substantial of the six, and its minibus-taxi network the smallest. However, the rail system has suffered quite severe decline in recent years, and the minibus taxi mode share has increased significantly since the 2013 surveys reported on in earlier chapters, to a point where it is now the largest single mode.

Historically, the City of Cape Town administration has not been significantly involved in public transport operations. There have been no separate, municipally owned bus services in the city; all formal services have been provided almost exclusively by the privately owned and run Golden Arrow Bus Services which has been contracted to the provincial government 41.

There are approximately 10000 legal and an estimated 2500 illegal minibus taxis. The municipality is in charge of public transport interchanges for both bus and minibus taxi services.

The municipality’s role in public transport has grown significantly in recent years with its implementation of the initial phases of its bus rapid transit system, known as MyCiTi. The City followed closely behind Johannesburg, beginning starter operations in 2010 as part of the transport services for the FIFA 2010 World Cup. Phase 1 trunk and feeder services were fully rolled out over the next few years over an area to the north of the city centre, referred to as the West Coast area, with feeder services provided within the central city area and to Hout Bay. The N2 Express service began operating along the N2 bus and minibus taxi lane between the townships of Khayelitsha and Mitchell’s Plain in the south east area of the metropole in mid 2013.

The following route map shows the extent of the MyCiTi network currently.

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41 In Gauteng, apart from provincially contracted bus services which originated as providers of services between townships and town centres, municipalities, themselves, have also owned and run municipal bus services.
The City of Cape Town has done a number of studies that assist in tackling the questions addressed in the main report.

Apart from the information being gathered for the compilation of the updated Integrated Transport Plan, the City has, over recent years produced:

- a detailed business plan for Phase 1 of MyCiTi, with more recent updates of the plan including a service referred to as the N2 Express
- an Integrated Public Transport Network plan for the whole metropolitan area, including a business plan which was adopted by Council in August 2017
- a financial plan for the next phase of MyCiTi, referred to as Phase 2A, with a multi-year financial operational plan incorporating updated figures for Phase 1 and the N2 Express, also at the end of August 2017;
- some useful work on the fiscal impact of land use scenarios.

The City has no jurisdiction over the rail services and is provided with very limited access to rail information. This may be because of a reluctance on the part of PRASA/Metrorail to share information, but could also be because the very centralized approach to management of PRASA results in limited information on the Cape Town region.
The financial analysis work done for the City’s integrated Public Transport Network assumes that all rail costs and subsidies are absorbed by PRASA. Refer to chapter 6 for more information on this.

This chapter summarises the key information and issues arising from the City’s work on the road based services, and draws some analytical conclusions. Most importantly, this work gives useful insight into the key strategic variables affecting financial sustainability of road based services.

The finances of the City’s road based services have been combined with the national figures on rail finances to provide an overall estimate of the financial implications of public transport for all metros for the modeling for the Urbanisation Review. See the Appendices below.

### 10.2 Integrated Transport Plan (CITP)

The latest version of the Comprehensive Integrated Transport Plan is being compiled. The following table summarises some of the key dimensions of Cape Town’s current transport system, as contained in the most recent version of the ITP (2015), which mostly uses 2013 statistics, a recent (2015) infographic from the City of Cape Town, and various other internal documentation.

<table>
<thead>
<tr>
<th>Population</th>
<th>3.7 million</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modal share (morning peak, main mode)</strong></td>
<td></td>
</tr>
<tr>
<td>Private cars</td>
<td>48%</td>
</tr>
<tr>
<td><strong>Total kms road</strong></td>
<td></td>
</tr>
<tr>
<td>Freeways (Class 1)</td>
<td>133 kms (1.4%)</td>
</tr>
<tr>
<td>Expressway (Class 1)</td>
<td>213 kms (2.3%)</td>
</tr>
<tr>
<td>Higher order roads (Class 1,2,3)</td>
<td>1804 kms (19%)</td>
</tr>
<tr>
<td>Other roads (Class 4,5)</td>
<td>8032 kms (81%)</td>
</tr>
<tr>
<td>Signalised intersections</td>
<td>1500</td>
</tr>
<tr>
<td><strong>Kms rail (mostly 2 way)</strong></td>
<td>342 kms</td>
</tr>
<tr>
<td>Owned by PRASA (passenger services)</td>
<td>169 kms</td>
</tr>
<tr>
<td>Owned by Transnet</td>
<td>120 kms</td>
</tr>
<tr>
<td>Owned by City (mostly dormant sidings)</td>
<td>53 kms</td>
</tr>
<tr>
<td><strong>Trainsets available</strong></td>
<td>68</td>
</tr>
<tr>
<td><strong>Trainsets required for normal operations</strong></td>
<td>88</td>
</tr>
<tr>
<td><strong>Punctuality 2016/17 - worst month - March</strong></td>
<td>58.98%</td>
</tr>
<tr>
<td><strong>Punctuality 2016/17 - best month - Sept</strong></td>
<td>79.61%</td>
</tr>
<tr>
<td><strong>Train routes</strong></td>
<td>23 routes on 4 main corridors</td>
</tr>
<tr>
<td><strong>Stations</strong></td>
<td>118</td>
</tr>
<tr>
<td><strong>Modal share (morning peak, main mode)</strong></td>
<td></td>
</tr>
<tr>
<td>Passenger Rail</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Kms rail</strong></td>
<td>342 kms</td>
</tr>
<tr>
<td>Owned by PRASA (passenger services)</td>
<td>169 kms</td>
</tr>
<tr>
<td>Owned by Transnet</td>
<td>120 kms</td>
</tr>
<tr>
<td>Owned by City (mostly dormant sidings)</td>
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</tr>
<tr>
<td>Trainsets available</td>
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<tr>
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<td>79.61%</td>
</tr>
<tr>
<td>Train routes</td>
<td>23 routes on 4 main corridors</td>
</tr>
<tr>
<td>Stations</td>
<td>118</td>
</tr>
<tr>
<td><strong>Conventional bus fleet (Golden Arrow Bus Services)</strong></td>
<td></td>
</tr>
<tr>
<td>Conventional bus routes</td>
<td>1073 peak buses</td>
</tr>
<tr>
<td><strong>MyCiTi</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Peak MyCiTi fleet</strong></td>
<td>255</td>
</tr>
<tr>
<td>Dedicated roadway</td>
<td>32 kms</td>
</tr>
<tr>
<td><strong>Minibus-taxis</strong></td>
<td></td>
</tr>
<tr>
<td>Conventional bus routes</td>
<td>900</td>
</tr>
<tr>
<td><strong>Modal share (morning peak, main mode)</strong></td>
<td></td>
</tr>
<tr>
<td>Walking</td>
<td>17%</td>
</tr>
</tbody>
</table>

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42 Sources: Transport for Cape Town infographic; Transport for Cape Town (2013) Comprehensive Integrated Transport Plan 2013-2018; City of Cape Town internal report on PRASA; Division of Revenue Act 2018
10.3 Integrated Public Transport Network Plan\textsuperscript{43}

10.3.1 Summary of plan

Cape Town has developed an Integrated Public Transport Network (IPTN) plan, setting out the long term strategic vision for the development of public transport in Cape Town as a whole. The planning process has consisted of a number of iterations, including a network plan, operations plan, implementation plan and business plan. The IPTN Business Plan was adopted by Council end August 2017. It represents the latest iteration of the planning and includes a comprehensive, costed, strategic approach demonstrating awareness of recent international mobility trends.

For demand modelling purposes the plan assumes 2032 population numbers and full implementation of the envisaged system by that date, although it anticipates actual implementation to take far longer, depending on the availability of the requisite finances.

The IPTN Business Plan provides for a multi-modal integrated public transport approach, encompassing three broad sets of motorised services, including:

- Passenger rail services;
- Scheduled road based public transport services consisting of (a) Bus rapid transit (BRT) with dedicated roadways and median stations and (b) scheduled formal bus services, with enhanced features, which run mostly in mixed traffic, but with prioritisation measures, including queue jumping infrastructure and Bus (BMT) lanes where feasible. These latter services, referred to as ‘Quality Bus’, will provide feeders to the trunks as well as direct services across the city.
- Minibus-taxis and ‘new generation’ services, which will provide the majority of feeder / distribution services.

The full planned trunk network of rail and BRT services is shown below. Most of the rail network (shown with dotted lines) is already in place. Most of the BRT network, shown with continuous colored lines is yet to be built.

\textsuperscript{43} This section is a summarized version drawn directly from Cape Town’s IPTN Business Plan 2032.
‘New generation services’ is the name given by the City of Cape Town in its IPTN business plan to ‘anticipated new forms of service provision that are emerging as a result of new technologies, especially mobile phone technologies which, inter alia, offer a new and highly efficient way of matching supply and demand’. This is already reflected, for example, in the rapid growth of services such as ‘Uber’. Currently these services mostly offer individualised taxi services; however, the Cape Town IPTN business plan sees substantial potential in extending adaptations of this system to collective services, ‘especially amongst more flexible, demand responsive modes using smaller vehicles, such as minibus-taxis’. It argues that ‘the emergence of new transport modes based on new technologies is inevitable over the time scale of IPTN planning; however, the precise nature of such services is not yet clear, and is the subject of research both in Cape Town and globally’.

The plan envisages the city taking direct responsibility for overall strategic management of the single integrated network, contracting out actual mobility services to independent service providers as illustrated in Figure 14.

According to the documentation, the IPTN ‘will be implemented incrementally, within affordability limits, prioritising the allocation of resources to the services which will give the highest social, economic and financial returns’.

The multi-faceted nature of the IPTN is illustrated in Figure 15.

**Figure 14: Multi-modal integrated public transport approach**

**Figure 15: The ten elements of the IPTN Business Plan 10 point plan**

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44 Uber and similar services also offer pooled services in some cities

45 For a recent example of such research see the OECD’s International Transport Forum’s research report entitled ‘Shaping the Relationship between Public Transport and Innovative Mobility’. www.itf-oecd.org
The key elements constituting the high level approach include:

1. Improving demand patterns, through changes in land use towards ‘Transit Oriented Development Comprehensive’ (TODC) as described in the TOD Strategic Framework and effective Travel Demand Management.
2. Recapitalising rail, building key rail links and improving operations (including revenue / cost ratios), with the assumption that national government continues to cover all rail related costs;
3. Implementing BRT on key corridors not addressed by rail, based on careful prioritisation as per the approved IPTN Implementation Plan but within the financial resources available to the City;
4. Providing quality bus services as high order feeders and a selection of direct services, partly through re-engineering and integrating the current GABS services into the network;
5. Investing in the minibus-taxi industry to improve their services as an integral part of the service mix, including on-demand and demand responsive services, while also integrating industry stakeholders into other vehicle operations as service operators;
6. Advancing non-motorised transport to improve the quality of streets and public spaces, improve the ‘last mile’ for public transport users, and reduce passengers on the motorised transport system;
7. Developing innovative technological solutions by, inter alia, building on new mobile phone based e-hailing technologies to develop ‘new generation’ public transport services, improve regulation and enforcement, and ensure an integrated, cost-effective and user friendly fare system;
8. Improving performance through prioritisation where feasible not only on BRT trunk routes, but for all forms of public transport, through infrastructure provision and other measures;
9. Optimising revenue generation including through fares, grants from other spheres of government, and the development of new own revenue sources;
10. Ensuring optimal management of the multi-modal network to realise its full integrated potential, including through scheduling integration, sound regulation and effective enforcement.

10.3.2 The importance of integration of traditional public transport services with minibus taxis; and land use issues

The City of Cape Town implemented its first phase BRT service in line with national government’s thinking and under pressure to meet the 2010 FIFA World Cup deadline. In compiling its current IPTN business plan it was able to build on the knowledge gained in this first phase.

Two key shifts that are incorporated in future IPTN planning relate to

1) Changing from a model which envisages the full replacement of minibus-taxi services with formal MyCiTi services to a ‘hybrid’ model where minibus-taxis operate in conjunction with the MyCiTi services, creating synergies between the two.
2) the need for improved urban form and transit oriented development in order to enhance the fiscal and financial sustainability of the public transport system. A critical component of this is the development of a mixture of activities along corridors, particularly at key nodes, which in turn leads to greater seat turnover along the corridor, reverse flow, and – in conjunction with transport demand management strategies – a lower peak to off-peak demand ratio.

10.3.3 Hybrid approach

The following tables show the difference between the costs of the road based formal BRT and Quality Bus services (excluding rail services, which are assumed to be covered by PRASA funding) under the ‘full replacement’ scenario and the ‘hybrid’ scenario as set out in the IPTN Business Plan.

As can be seen summarized in the tables, in the full replacement scenario all current minibus-taxi and scheduled bus services are replaced by a new formal bus system consisting of trunk and feeder vehicles with a total fleet size of 4220 vehicles.

In the hybrid scenario the formal bus services are focused on providing services where they have a comparative advantage, i.e. along BRT trunk services, with only a relatively limited number of the most financially viable and economically and socially appropriate feeder and direct services being provided. Even on the trunk services it is anticipated that 30% of the total modelled public transport demand will use other services, including minibus taxis. The hybrid model assumes a total fleet of 1528 formal buses (ie 36% of the size of the full replacement model). The proposed number of BRT trunk buses in the end state is 1128. To that are added 400 feeder and direct service formal buses to result in a total fleet of 1528.

In the full replacement model all road based costs and revenues are included in the scenario. In the hybrid model significant parts of this occur in a private transaction between minibus taxis and users. The hybrid model offers some incentivization to minibus taxis/users for the users to be ‘fed’ to the formal network.

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46 On demand services are those services that are rendered as demanded, such as metered taxis or uber, where the service is requested. Demand responsive services are those services that are flexible enough to quickly respond to demand, e.g. minibus taxis.
### Figure 16: Full replacement model - key revenue cost drivers and financial outcomes (July 2016 Rands)

**FULL REPLACEMENT MODEL**

<table>
<thead>
<tr>
<th>Key revenue cost drivers</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road based demand supplied by the trunk network</td>
<td></td>
</tr>
<tr>
<td>Extent of scheduled feeder and direct services</td>
<td>Full Feeder Network replacing all current MBT and scheduled buses</td>
</tr>
<tr>
<td>Land use scenario</td>
<td>TODC by 2032</td>
</tr>
<tr>
<td>Bus operating variables</td>
<td>As in Phase 1 (2016)</td>
</tr>
<tr>
<td>Reduction in VO costs from Phase 1 levels</td>
<td>None</td>
</tr>
<tr>
<td>Indirect costs</td>
<td>Realistic (if driven)</td>
</tr>
</tbody>
</table>

**Financial outcome**

- Fare revenue: R3,785 M
- Less Direct Operating Costs: R6,973 M
- Less Annualised Fleet Costs: R2,249 M
- **Surplus / (Deficit)**: - R5,437 M
- R/C Ratio (including fleet): 41%
- R/C Ratio (excluding fleet): 54%
- No. of buses: 4,220

---

**FUNDING SOURCES**

- PTNG (one third): R317 M
- PTOG: R871 M
- City Rates (4%): R420 M
- Other System Income: R150 M
- Parking Levy: R170 M
- Share of Provincial Fuel Levy Surcharge: R200 M

**Bottom Line**

- R5,030 M

*No growth above inflation*

---

**Recommended financial support**

- **Expansion of existing revenue sources**
  - PTNG (one third): R435 M
  - PTOG: R871 M
  - City Rates (6%): R623 M
  - Other System Income: R223 M

- **Additional revenue sources**
  - Parking Levy: R252 M
  - Share of Provincial Fuel Levy Surcharge: R297 M

- **Bottom Line**: +11 M

---

### Figure 17: Multi-modal IPTN model - key revenue cost drivers and financial outcomes (July 2016 Rands)

**FULL REPLACEMENT MODEL**

<table>
<thead>
<tr>
<th>Key revenue cost drivers</th>
<th>70%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road based demand supplied by the trunk network</td>
<td></td>
</tr>
<tr>
<td>Extent of scheduled feeder and direct services</td>
<td>400 high order feeder / direct buses</td>
</tr>
<tr>
<td>Land use scenario</td>
<td>TODC by 2032</td>
</tr>
<tr>
<td>Bus operating variables</td>
<td>Realistic (if driven)</td>
</tr>
<tr>
<td>Reduction in VO costs from Phase 1 levels</td>
<td>15%</td>
</tr>
<tr>
<td>Indirect costs</td>
<td>Realistic (if driven)</td>
</tr>
</tbody>
</table>

**Financial outcome**

- Fare revenue: R2,420 M
- Less Direct Operating Costs: R2,468 M
- Less Annualised Fleet Costs: R922 M
- **Surplus / (Deficit)**: - R970 M
- R/C Ratio (including fleet): 71%
- R/C Ratio (excluding fleet): 98%
- No. of buses: 1,528

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**Recommended financial support**

- **Expansion of existing revenue sources**
  - PTNG (one third): R435 M
  - PTOG: R871 M
  - City Rates (6%): R623 M
  - Other System Income: R223 M

- **Additional revenue sources**
  - Parking Levy: R252 M
  - Share of Provincial Fuel Levy Surcharge: R297 M

- **Bottom Line**: +11 M

---

*PTOG grows at inflation; PTNG grows at inflation + 2.0% pa: City’s own revenues grow at 2.5% pa in line with economic growth*
The average revenue / cost ratio on the BRT trunks in the hybrid model is estimated at 109% of direct costs excluding the cost of fleet purchase, resulting in a combined BRT and quality bus revenue / cost ratio of 98% (excluding fleet costs). The combined revenue/cost ratio drops from 98% to 71% if the cost of the fleet is included.

10.3.4 Impact of land use

The City’s detailed Transport Planning model (EMME) predicting future public transport demand is significantly influenced by assumptions relating to land use and travel demand management. Land use patterns translate into transport demand patterns, of which the most important characteristics affecting profitability are:

- Peak to off-peak passenger demand ratio
- Seat renewal (turnover)
- Peak reverse flow demand.

It is often assumed that more passengers translate into greater fiscal sustainability. But this is incorrect. High total demand that has high peak to off-peak ratios, low seat turnover on a route and low reverse flow is likely to incur high deficits while much lower demand which is consistent throughout the day in both directions with high seat turnover is more likely to generate a surplus.

The city developed a number of different land use scenarios. These are referred to as

- Business as usual (BAU)
- Pragmatic Transit Oriented Development (PTOD)
- Transit Oriented Development Comprehensive (TODC)

BAU’ reflects the current spatial development patterns including the inefficiencies of apartheid spatial planning where the poor live far from their places of work. The land use scenario used in the model to produce EMME data outputs is the ‘Pragmatic Transit Oriented Development’ (PTOD) scenario. It represents an improvement on current patterns arising mostly through densification. The TODC scenario represents a significant change in development patterns with residential areas (trip origins) created within commercial and industrial areas (trip destinations) and vice versa.

The City has decided to aim for TODC, however, this is very ambitious, and even if pursued with great vigor it will only be achievable in the very long term.

For the purpose of the IPTN Business Plan, and to understand the impact of land use change, rough proxies were developed translating different land use patterns into different demand patterns, as shown in the table below.

Since only 15 years remain to drive such land use changes it will not be possible to achieve full TODC by 2032, which is the assumed date for the modelled scenario – nor, even PTOD. The figures in the last column estimate feasible progress towards full TODC that may be expected by 2032, and have been used as the basis for the revenue and cost estimates contained in the tables above.

Table 41: Land use proxies used to calculate operating costs and income

<table>
<thead>
<tr>
<th>Land-use variables</th>
<th>BAU</th>
<th>PTOD</th>
<th>TODC</th>
<th>Level of TODC achieved by 2032</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak reverse flow demand</td>
<td>25%</td>
<td>50%</td>
<td>70%</td>
<td>36%</td>
</tr>
<tr>
<td>Seat turnover factor (all stop services)</td>
<td>1.3</td>
<td>2.1</td>
<td>2.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Seat turnover factor (express services)</td>
<td>1.1</td>
<td>1.9</td>
<td>2.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Peak pax demand per hour to day percentage, or</td>
<td>16.0%</td>
<td>14.0%</td>
<td>12.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Peak pax demand per hour to day ratio</td>
<td>6.3</td>
<td>7.1</td>
<td>8.3</td>
<td>6.7</td>
</tr>
</tbody>
</table>

Sensitivity of operating deficit to key variables

Figure 10-18 shows the five most important sets of factors influencing operating financial sustainability. It shows a range of possible scenarios for each of these factors, and indicates the outcome assumed by the IPTN. The outcomes assumed to be achieved collectively result in a balanced operating budget.

In the diagram the choices or assumed outcomes are shown by vertical dashed lines. An outcome to the left of each dashed line (ie in the red section of each bar) indicates a worse outcome and a higher deficit than anticipated. To the right of each vertical dashed line (ie in the blue portion) indicates a better outcome.

The illustration assumes the 2032 land use scenario of TOD Comprehensive, although, as will be explained, also shows the impact of a different set of land use outcomes.
**IPTN BUSINESS PLAN**

**COST MODELLING FOR FULL SYSTEM**

Contribution to operating deficit after deducting fare income and other funding from costs

- **Extent of formal, scheduled feeder provision**
  The first bar shows the impact of choices as to whether a full replacement model is implemented or a hybrid approach. A comprehensive provision of feeders across the whole metropolitan area (ie the original model initially required by NDoT, where minibus-taxis are ‘fully replaced’ by formal services) results in a deficit that for the fully rolled out system is approximately R3.5 billion (2016 rands) worse than a model with no feeders. The approach chosen in the IPTN business plan envisages a relatively limited set of core, subsidized feeder services.

- **Bus operating variables**
  The second bar shows the impact of improved bus operating parameters, which include issues such as journey speed, ratio of drivers to vehicles, and vehicle capacity. This is influenced by the technical system design, the presence and effectiveness of a dedicated busway, distance between stations, etc. If comprehensive improvements over the operating variables initially achieved in the first phase of MyCiTi are realised, then the deficit for the metropolitan wide system as a whole could reduce by as much as R1.5 bn (2016 rands). As can be seen in the graphic, the IPTN Business Plan assumes that some but not all improvements will be achieved.

- **VOC rates**
  The transitional process and negotiated contracts applicable to the first MyCiTi phase resulted in higher costs than could have been achieved through a competitive tendering process. While similar costs are possible during further transitional phases, the IPTN Business Plan assumes that a 15% reduction against current rates can be achieved through a competitive tendering process once the full network has been rolled out. This is illustrated by the third bar from the top, which also shows a figure if higher savings are achieved, which could be feasible.

- **Land use and travel demand patterns**
  The fourth bar shows the very dramatic impact of land use on annual costs. The financial outcomes of the IPTN Business Plan show that influencing patterns of demand is one of the most important factors in reducing operating costs and achieving financial and fiscal sustainability. The assumptions on land use are a crucial driver of fiscal and financial sustainability, and the importance of achieving the envisaged land use changes to achieve sustainability cannot be emphasised enough. However, land use change is slow, so that while the impact of achieving Comprehensive TOD will result in significant financial benefit, the extent to which these can be practically realised by 2032 is limited.

- **Non-fare revenue funding**
  The IPTN Business Plan argues that new sources of revenue are needed to fund the operational costs of public transport, in a manner which incentivizes greater use of public transport. These need for long term funding sources needs further research.
There has been discussion on a potential share of a provincial fuel levy, but with the City facing very high costs related to a very severe drought this was not pursued in the Business Plan taken to Council.

Table 42: Proposed funding or operating costs showing estimates in some sources by 2032

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>2016/17 (R’ m)</th>
<th>2032 (R’ m) (with estimates of real growth per item)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full PTOG</td>
<td>871</td>
<td>871</td>
</tr>
<tr>
<td>One third PTNG</td>
<td>317</td>
<td>435</td>
</tr>
<tr>
<td>6% Rates</td>
<td>420</td>
<td>623</td>
</tr>
<tr>
<td>Other System Revenue</td>
<td>150</td>
<td>223</td>
</tr>
<tr>
<td>Parking related income</td>
<td>170</td>
<td>252</td>
</tr>
<tr>
<td>Additional local / provincial / national revenue sources</td>
<td>200</td>
<td>297</td>
</tr>
<tr>
<td>Total Funding</td>
<td>2,098</td>
<td>2,701</td>
</tr>
</tbody>
</table>

10.4 Conclusion

- Ten years ago Cape Town had almost no involvement in, or responsibility for public transport
- Since then it has implemented a relatively successful BRT project which carries on average 66000 passengers per day, although operating costs are high
- More importantly, it has built up substantial capacity in the public transport sector
- It now has greater capacity in this sector than provincial government and is in the process of getting organized to take over the PTOG funded bus contract with GABS from the province
- It has begun to consider the possibility of taking over some of the responsibility of the commuter rail service, especially in the light of the current collapse of rail and the statements on devolution of commuter rail authority in the draft White Paper on rail.
- The IPTN business plan takes a multi-modal approach, which seeks to create a co-ordinated system including rail, BRT, conventional bus, minibus taxi.
- The IPTN business plan also identifies what it calls ‘new generation’ services – defined as ‘anticipated new forms of service provision that are emerging as a result of new technologies, especially mobile phone technologies which, inter alia, offer a new and highly efficient way of matching supply and demand’ – and signals its intent to explore and develop the scope for these.
- The business plan states that it will construct BRT ‘on key corridors not addressed by rail, based on careful prioritisation as per the approved IPTN Implementation Plan but within the financial resources available to the City’.
- It also intends to give right-of-way prioritization to all public transport services, not only BRT, indicating that only half of the PTNG capital resources will be allocated to BRT and the other half to generalized priority for buses and minibus-taxis at intersections and on congested sections. This includes pursuing HOV/bus/taxi lanes on the highway system.
- While the City places a fairly strong emphasis in its IPTN Business Plan on further BRT phases, most of the available resources are likely to be absorbed in 1) taking over responsibility for PTOG funded services, and re-organising them within the wider service vision; 2) beginning to take over responsibilities for rail; and 3) managing the minibus taxi industry, including facilitating the development of new generation services.
- Thus, if national funding continues more or less at current levels the city will not easily be able to build new BRT corridors, but should be able to make progress re-organising and enhancing the PTOG funded services and the minibus taxis, while implementing generalized public transport prioritization on an incremental basis
- The devolution of rail has very unclear financial implications
- Becoming the key locus of responsibility for public transport, integrating it with land use planning is the correct path; however it does present very significant fiscal risk
- The City of Cape Town needs reliable financial support from national government in doing so. This needs to take the form, inter alia, of a new revenue source, such as an origin based share of VAT. A new revenue source needs to be predictable, buoyant, and create an incentive for the city to grow the economy through enhancing agglomeration economies, inter alia by improving access.
Some key source documents

City of Cape Town (2017) Integrated Public Transport Network Business Plan
City of Cape Town (2015) Comprehensive Integrated Transport Plan
Department of Transport (2017) Draft Rail White Paper
Hunter van Rynveld (2014) Expenditure and Performance Review of South Africa’s Public Transport and Infrastructure System, conducted for the Presidency and National Treasury,
Moving South Africa (1999)
Metrorail website http://www.metrorail.co.za/
National Land Transport Act (Act 5 of 2009) (NLTA)
Passenger Rail Agency of South Africa (PRASA) Corporate Plan 2017-2020

TomTom Traffic Index https://www.tomtom.com/en_gb/trafficindex/

Appendix 1: Consolidated comparative tables on transport service attributes

Table 43: Reasons for not using a taxi by metropolitan and geographical area 2013

<table>
<thead>
<tr>
<th>Area</th>
<th>Not available</th>
<th>Prefer train</th>
<th>Prefer bus</th>
<th>Prefer private transport</th>
<th>Can walk</th>
<th>Don’t travel much</th>
<th>Service attributes</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>3.1% 1.5%</td>
<td>1.4%</td>
<td>36.8%</td>
<td>5.3% 4.4% 44.4%</td>
<td>3.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tshwane</td>
<td>4.9% 1.6%</td>
<td>1.3%</td>
<td>38.7%</td>
<td>3.7% 6.2% 41.7%</td>
<td>1.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>6.3% 1.7%</td>
<td>1.0%</td>
<td>39.7%</td>
<td>7.6% 6.9% 36.0%</td>
<td>0.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cape Town</td>
<td>4.1% 2.4%</td>
<td>2.3%</td>
<td>36.8%</td>
<td>7.0% 5.5% 40.1%</td>
<td>1.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethekwin</td>
<td>13.0% 1.4%</td>
<td>4.1%</td>
<td>39.3%</td>
<td>3.7% 5.5% 31.9%</td>
<td>1.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>1.0% 0.5%</td>
<td>3.4%</td>
<td>62.9%</td>
<td>6.5% 8.9% 16.2%</td>
<td>0.8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo City</td>
<td>2.1% 0.5%</td>
<td>0.0%</td>
<td>44.0%</td>
<td>10.6% 12.5% 30.1%</td>
<td>0.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mangaung</td>
<td>7.0% 0.5%</td>
<td>4.1%</td>
<td>43.8%</td>
<td>3.9% 4.1% 32.2%</td>
<td>4.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro</td>
<td>5.1% 1.7%</td>
<td>1.9%</td>
<td>39.0%</td>
<td>5.8% 5.8% 38.8%</td>
<td>1.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>12.1% 0.3%</td>
<td>1.1%</td>
<td>35.5%</td>
<td>11.8% 8.1% 28.8%</td>
<td>2.3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>32.6% 0.1%</td>
<td>6.4%</td>
<td>10.6%</td>
<td>9.3% 15.1% 23.7%</td>
<td>2.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RSA</td>
<td>13.0% 0.9%</td>
<td>2.6%</td>
<td>32.0%</td>
<td>8.3% 8.4% 32.7%</td>
<td>2.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTNG cities</td>
<td>5.4% 1.6%</td>
<td>2.0%</td>
<td>39.3%</td>
<td>5.9% 6.2% 37.8%</td>
<td>2.0%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 44: Reasons for not using a bus by metropolitan and geographical area 2013

<table>
<thead>
<tr>
<th>Area</th>
<th>Not available</th>
<th>Prefer taxi</th>
<th>Prefer train</th>
<th>Prefer private transport</th>
<th>Can walk</th>
<th>Don’t travel much</th>
<th>Service attributes</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>21.7%</td>
<td>12.1%</td>
<td>1.6%</td>
<td>16.7%</td>
<td>5.1%</td>
<td>5.0%</td>
<td>36.3%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Tshwane</td>
<td>10.8%</td>
<td>11.3%</td>
<td>1.0%</td>
<td>20.7%</td>
<td>4.3%</td>
<td>6.4%</td>
<td>44.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>37.2%</td>
<td>13.4%</td>
<td>1.9%</td>
<td>14.2%</td>
<td>5.2%</td>
<td>4.4%</td>
<td>23.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Cape Town</td>
<td>11.2%</td>
<td>10.3%</td>
<td>3.5%</td>
<td>22.3%</td>
<td>6.1%</td>
<td>5.8%</td>
<td>39.9%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Ethekwini</td>
<td>26.6%</td>
<td>13.9%</td>
<td>1.9%</td>
<td>14.4%</td>
<td>2.0%</td>
<td>3.7%</td>
<td>36.9%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>2.1%</td>
<td>15.7%</td>
<td>0.5%</td>
<td>24.9%</td>
<td>5.0%</td>
<td>5.9%</td>
<td>45.4%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>38.1%</td>
<td>17.4%</td>
<td>0.9%</td>
<td>8.9%</td>
<td>2.8%</td>
<td>3.4%</td>
<td>28.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Mangaung</td>
<td>6.0%</td>
<td>22.1%</td>
<td>0.4%</td>
<td>17.7%</td>
<td>3.7%</td>
<td>17.5%</td>
<td>30.9%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Metro</td>
<td>21.0%</td>
<td>12.8%</td>
<td>1.9%</td>
<td>17.6%</td>
<td>4.7%</td>
<td>5.4%</td>
<td>35.7%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Urban</td>
<td>46.4%</td>
<td>13.4%</td>
<td>0.1%</td>
<td>15.5%</td>
<td>3.0%</td>
<td>6.6%</td>
<td>14.3%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Rural</td>
<td>40.6%</td>
<td>14.3%</td>
<td>0.3%</td>
<td>13.8%</td>
<td>6.3%</td>
<td>5.8%</td>
<td>18.3%</td>
<td>0.5%</td>
</tr>
<tr>
<td>RSA</td>
<td>35.4%</td>
<td>15.4%</td>
<td>0.3%</td>
<td>4.1%</td>
<td>4.8%</td>
<td>7.7%</td>
<td>31.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>22.3%</td>
<td>13.2%</td>
<td>1.7%</td>
<td>17.3%</td>
<td>4.6%</td>
<td>5.7%</td>
<td>34.4%</td>
<td>0.8%</td>
</tr>
</tbody>
</table>

Table 45: Reasons for not using the train by percent of non-users (2013)

<table>
<thead>
<tr>
<th>Area</th>
<th>Not available</th>
<th>Prefer bus</th>
<th>Prefer taxi</th>
<th>Prefer private transport</th>
<th>Can walk</th>
<th>Don’t travel much</th>
<th>Service attributes</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>26.4%</td>
<td>1.0%</td>
<td>10.9%</td>
<td>14.5%</td>
<td>4.0%</td>
<td>4.7%</td>
<td>36.7%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Tshwane</td>
<td>16.2%</td>
<td>1.4%</td>
<td>10.4%</td>
<td>16.6%</td>
<td>3.6%</td>
<td>6.4%</td>
<td>44.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Ekurhuleni</td>
<td>18.8%</td>
<td>0.7%</td>
<td>12.2%</td>
<td>15.7%</td>
<td>5.6%</td>
<td>6.5%</td>
<td>40.0%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Cape Town</td>
<td>14.0%</td>
<td>1.9%</td>
<td>7.7%</td>
<td>23.7%</td>
<td>5.1%</td>
<td>6.8%</td>
<td>39.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Ethekwini</td>
<td>35.4%</td>
<td>1.6%</td>
<td>8.9%</td>
<td>10.6%</td>
<td>1.4%</td>
<td>2.8%</td>
<td>38.9%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Nelson Mandela</td>
<td>22.4%</td>
<td>1.7%</td>
<td>8.0%</td>
<td>20.1%</td>
<td>3.5%</td>
<td>6.2%</td>
<td>37.8%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Buffalo City</td>
<td>29.1%</td>
<td>0.1%</td>
<td>16.4%</td>
<td>8.4%</td>
<td>3.4%</td>
<td>4.9%</td>
<td>37.2%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Mangaung</td>
<td>21.7%</td>
<td>2.9%</td>
<td>13.2%</td>
<td>13.6%</td>
<td>1.4%</td>
<td>25.2%</td>
<td>18.6%</td>
<td>3.3%</td>
</tr>
<tr>
<td>Metro</td>
<td>22.5%</td>
<td>1.3%</td>
<td>10.4%</td>
<td>16.0%</td>
<td>3.9%</td>
<td>6.3%</td>
<td>38.5%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Urban</td>
<td>51.7%</td>
<td>0.6%</td>
<td>11.3%</td>
<td>10.8%</td>
<td>5.1%</td>
<td>5.5%</td>
<td>14.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Rural</td>
<td>71.4%</td>
<td>2.2%</td>
<td>9.3%</td>
<td>2.0%</td>
<td>2.9%</td>
<td>4.0%</td>
<td>7.8%</td>
<td>0.4%</td>
</tr>
<tr>
<td>RSA</td>
<td>44.3%</td>
<td>1.3%</td>
<td>10.4%</td>
<td>10.7%</td>
<td>4.0%</td>
<td>5.5%</td>
<td>23.2%</td>
<td>0.8%</td>
</tr>
<tr>
<td>PTNG cities</td>
<td>27.8%</td>
<td>1.3%</td>
<td>10.1%</td>
<td>14.8%</td>
<td>3.7%</td>
<td>6.1%</td>
<td>35.1%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Source: derived from the raw data from the 2013 National Household Travel Survey 2013
Table 46: Users who are dissatisfied with various attributes of the train service by metro and geographical area 2013

<table>
<thead>
<tr>
<th>Attributes of train services</th>
<th>Jhburg</th>
<th>Tshwane</th>
<th>Ekurhuleni</th>
<th>Cape Town</th>
<th>Ethekwini</th>
<th>Nelson Mandela</th>
<th>Buffalo City</th>
<th>Man gaung</th>
<th>Metro</th>
<th>Urban</th>
<th>Rural</th>
<th>RSA</th>
<th>PTNG Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the train station and your home</td>
<td>47.8%</td>
<td>60.8%</td>
<td>58.6%</td>
<td>44.2%</td>
<td>54.7%</td>
<td>71.8%</td>
<td>67.8%</td>
<td>51.8%</td>
<td>58.9%</td>
<td>52.4%</td>
<td>52.4%</td>
<td>51.8%</td>
<td></td>
</tr>
<tr>
<td>The travel time by train</td>
<td>56.3%</td>
<td>66.1%</td>
<td>55.4%</td>
<td>35.0%</td>
<td>55.3%</td>
<td>22.8%</td>
<td>58.2%</td>
<td>50.5%</td>
<td>51.4%</td>
<td>39.0%</td>
<td>50.3%</td>
<td>50.5%</td>
<td></td>
</tr>
<tr>
<td>Security on the walk to/from the station</td>
<td>47.6%</td>
<td>55.3%</td>
<td>62.1%</td>
<td>66.9%</td>
<td>58.9%</td>
<td>50.9%</td>
<td>57.2%</td>
<td>58.7%</td>
<td>39.5%</td>
<td>40.9%</td>
<td>56.5%</td>
<td>58.6%</td>
<td></td>
</tr>
<tr>
<td>Security at the stations</td>
<td>29.6%</td>
<td>32.3%</td>
<td>36.2%</td>
<td>33.5%</td>
<td>40.8%</td>
<td>33.2%</td>
<td>26.8%</td>
<td>33.5%</td>
<td>22.1%</td>
<td>33.6%</td>
<td>32.4%</td>
<td>33.5%</td>
<td></td>
</tr>
<tr>
<td>Security on the train</td>
<td>46.4%</td>
<td>42.0%</td>
<td>54.5%</td>
<td>53.7%</td>
<td>46.3%</td>
<td>21.6%</td>
<td>38.9%</td>
<td>49.3%</td>
<td>31.4%</td>
<td>33.1%</td>
<td>47.3%</td>
<td>49.3%</td>
<td></td>
</tr>
<tr>
<td>The level of crowding on the train</td>
<td>81.3%</td>
<td>81.3%</td>
<td>84.3%</td>
<td>81.9%</td>
<td>70.2%</td>
<td>43.9%</td>
<td>78.7%</td>
<td>80.7%</td>
<td>58.2%</td>
<td>56.8%</td>
<td>78.0%</td>
<td>80.6%</td>
<td></td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>28.1%</td>
<td>41.8%</td>
<td>33.7%</td>
<td>26.5%</td>
<td>25.4%</td>
<td>14.8%</td>
<td>19.6%</td>
<td>30.0%</td>
<td>26.2%</td>
<td>22.2%</td>
<td>29.4%</td>
<td>29.9%</td>
<td></td>
</tr>
<tr>
<td>The frequency of trains during peak period</td>
<td>47.6%</td>
<td>58.0%</td>
<td>55.4%</td>
<td>39.8%</td>
<td>45.7%</td>
<td>47.3%</td>
<td>39.9%</td>
<td>47.7%</td>
<td>41.4%</td>
<td>33.4%</td>
<td>46.8%</td>
<td>47.7%</td>
<td></td>
</tr>
<tr>
<td>The frequency of trains during off-peak period</td>
<td>52.1%</td>
<td>60.8%</td>
<td>53.5%</td>
<td>48.8%</td>
<td>51.1%</td>
<td>43.7%</td>
<td>40.4%</td>
<td>52.1%</td>
<td>40.6%</td>
<td>38.9%</td>
<td>50.7%</td>
<td>52.0%</td>
<td></td>
</tr>
<tr>
<td>The punctuality of trains</td>
<td>63.3%</td>
<td>70.1%</td>
<td>71.1%</td>
<td>61.5%</td>
<td>55.8%</td>
<td>21.0%</td>
<td>51.9%</td>
<td>63.9%</td>
<td>53.4%</td>
<td>40.3%</td>
<td>62.4%</td>
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<td></td>
</tr>
<tr>
<td>The train fares</td>
<td>8.6%</td>
<td>13.1%</td>
<td>13.2%</td>
<td>26.2%</td>
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<td>10.5%</td>
<td>15.3%</td>
<td>15.7%</td>
<td></td>
</tr>
<tr>
<td>The facilities at the station e.g. toilets, offices</td>
<td>36.5%</td>
<td>49.5%</td>
<td>53.0%</td>
<td>54.3%</td>
<td>38.6%</td>
<td>42.5%</td>
<td>37.7%</td>
<td>47.3%</td>
<td>34.2%</td>
<td>36.5%</td>
<td>45.8%</td>
<td>47.2%</td>
<td></td>
</tr>
<tr>
<td>The train service overall</td>
<td>47.5%</td>
<td>54.6%</td>
<td>53.6%</td>
<td>49.2%</td>
<td>37.2%</td>
<td>25.1%</td>
<td>43.4%</td>
<td>49.0%</td>
<td>32.5%</td>
<td>33.2%</td>
<td>47.0%</td>
<td>48.9%</td>
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</table>

Source: derived from the raw data from the 2013 National Household Travel Survey 2013
<table>
<thead>
<tr>
<th>Attributes of bus services</th>
<th>Jhburg</th>
<th>Tshwane</th>
<th>Ekurhuleni</th>
<th>Cape Town</th>
<th>Ethekwini</th>
<th>Nelson Mandela</th>
<th>Buffalo City</th>
<th>Man-gaung</th>
<th>Metro</th>
<th>Urban</th>
<th>Rural</th>
<th>RSA</th>
<th>PTNG Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the bus stop and your home</td>
<td>25.0%</td>
<td>20.6%</td>
<td>30.9%</td>
<td>18.5%</td>
<td>30.5%</td>
<td>37.2%</td>
<td>51.7%</td>
<td>21.4%</td>
<td>25.3%</td>
<td>24.1%</td>
<td>29.1%</td>
<td>26.7%</td>
<td>26.5%</td>
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<tr>
<td>The travel time by bus</td>
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<td>26.5%</td>
<td>26.8%</td>
<td>23.8%</td>
<td>30.8%</td>
<td>27.4%</td>
<td>32.6%</td>
<td>18.7%</td>
<td>24.9%</td>
<td>25.8%</td>
<td>32.4%</td>
<td>28.3%</td>
<td>24.6%</td>
</tr>
<tr>
<td>Security on the walk to/from the bus stop</td>
<td>29.5%</td>
<td>31.8%</td>
<td>35.4%</td>
<td>48.0%</td>
<td>43.3%</td>
<td>51.1%</td>
<td>27.2%</td>
<td>39.2%</td>
<td>38.3%</td>
<td>32.6%</td>
<td>33.0%</td>
<td>35.1%</td>
<td>38.5%</td>
</tr>
<tr>
<td>Security at the bus stops</td>
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<td>31.8%</td>
<td>34.7%</td>
<td>51.3%</td>
<td>47.6%</td>
<td>48.2%</td>
<td>231%</td>
<td>44.0%</td>
<td>40.2%</td>
<td>31.8%</td>
<td>33.0%</td>
<td>35.7%</td>
<td>39.5%</td>
</tr>
<tr>
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<td>30.3%</td>
<td>29.9%</td>
<td>35.9%</td>
<td>43.5%</td>
<td>29.8%</td>
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<td>28.3%</td>
<td>29.4%</td>
<td>32.4%</td>
</tr>
<tr>
<td>The level of crowding in the bus</td>
<td>38.4%</td>
<td>44.3%</td>
<td>28.5%</td>
<td>41.9%</td>
<td>50.7%</td>
<td>42.4%</td>
<td>28.4%</td>
<td>47.4%</td>
<td>43.2%</td>
<td>37.9%</td>
<td>49.1%</td>
<td>44.9%</td>
<td>44.1%</td>
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<tr>
<td>Safety from accidents</td>
<td>27.2%</td>
<td>30.9%</td>
<td>21.4%</td>
<td>33.0%</td>
<td>32.8%</td>
<td>21.1%</td>
<td>24.8%</td>
<td>25.9%</td>
<td>29.4%</td>
<td>25.6%</td>
<td>27.1%</td>
<td>27.8%</td>
<td>27.5%</td>
</tr>
<tr>
<td>The frequency of buses during peak period</td>
<td>28.7%</td>
<td>32.6%</td>
<td>26.5%</td>
<td>25.7%</td>
<td>36.4%</td>
<td>23.0%</td>
<td>33.3%</td>
<td>28.5%</td>
<td>30.3%</td>
<td>29.2%</td>
<td>33.1%</td>
<td>31.4%</td>
<td>29.1%</td>
</tr>
<tr>
<td>The frequency of buses during off-peak period</td>
<td>29.4%</td>
<td>35.1%</td>
<td>32.2%</td>
<td>34.0%</td>
<td>40.1%</td>
<td>27.9%</td>
<td>24.7%</td>
<td>32.2%</td>
<td>34.0%</td>
<td>29.1%</td>
<td>34.8%</td>
<td>33.6%</td>
<td>33.3%</td>
</tr>
<tr>
<td>The punctuality of buses</td>
<td>28.5%</td>
<td>38.0%</td>
<td>27.7%</td>
<td>30.0%</td>
<td>33.6%</td>
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<td>24.7%</td>
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<td>24.5%</td>
<td>26.7%</td>
<td>28.0%</td>
<td>28.8%</td>
</tr>
<tr>
<td>The bus fares</td>
<td>26.5%</td>
<td>33.1%</td>
<td>23.0%</td>
<td>46.5%</td>
<td>28.3%</td>
<td>12.6%</td>
<td>31.4%</td>
<td>26.7%</td>
<td>30.8%</td>
<td>24.7%</td>
<td>23.0%</td>
<td>26.4%</td>
<td>28.9%</td>
</tr>
<tr>
<td>The facilities at the stops e.g. shelters</td>
<td>41.0%</td>
<td>49.4%</td>
<td>35.2%</td>
<td>50.9%</td>
<td>46.3%</td>
<td>45.4%</td>
<td>31.3%</td>
<td>54.5%</td>
<td>46.3%</td>
<td>43.7%</td>
<td>52.6%</td>
<td>48.6%</td>
<td>45.4%</td>
</tr>
<tr>
<td>Behaviour of the bus drivers towards passengers</td>
<td>171%</td>
<td>28.8%</td>
<td>16.6%</td>
<td>21.3%</td>
<td>29.2%</td>
<td>10.8%</td>
<td>23.5%</td>
<td>28.1%</td>
<td>23.3%</td>
<td>17.9%</td>
<td>21.5%</td>
<td>21.7%</td>
<td>22.1%</td>
</tr>
<tr>
<td>The bus service overall</td>
<td>24.9%</td>
<td>38.2%</td>
<td>18.5%</td>
<td>28.8%</td>
<td>37.6%</td>
<td>14.9%</td>
<td>29.2%</td>
<td>25.0%</td>
<td>30.3%</td>
<td>23.8%</td>
<td>26.1%</td>
<td>27.2%</td>
<td>28.7%</td>
</tr>
<tr>
<td>Availability of information</td>
<td>23.3%</td>
<td>32.8%</td>
<td>23.3%</td>
<td>33.4%</td>
<td>37.2%</td>
<td>26.5%</td>
<td>31.8%</td>
<td>14.0%</td>
<td>29.7%</td>
<td>23.4%</td>
<td>28.5%</td>
<td>28.1%</td>
<td>28.4%</td>
</tr>
</tbody>
</table>

*Source: derived from the raw data from the 2013 National Household Travel Survey 2013*
<table>
<thead>
<tr>
<th>Attributes of minibus-taxi services</th>
<th>Jhbburg</th>
<th>Tshwane</th>
<th>Pretoria</th>
<th>Ekurhuleni</th>
<th>Cape Town</th>
<th>Durban</th>
<th>Nelson Mandela</th>
<th>Buffalo City</th>
<th>Manega</th>
<th>Metro</th>
<th>RSA</th>
<th>PTNG Cities</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between taxi rank/route and your home</td>
<td>18.8%</td>
<td>20.3%</td>
<td>26.2%</td>
<td>22.1%</td>
<td>21.3%</td>
<td>26.4%</td>
<td>28.1%</td>
<td>27.7%</td>
<td>27.7%</td>
<td>27.7%</td>
<td>27.3%</td>
<td>28.2%</td>
</tr>
<tr>
<td>The travel time by taxi</td>
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<td>14.9%</td>
<td>20.7%</td>
<td>12.6%</td>
<td>18.8%</td>
<td>20.9%</td>
<td>16.4%</td>
<td>21.1%</td>
<td>27.6%</td>
<td>21.1%</td>
<td>21.1%</td>
<td>27.6%</td>
</tr>
<tr>
<td>Security on the walk to/from the taxi rank</td>
<td>35.2%</td>
<td>43.5%</td>
<td>51.3%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
<td>31.7%</td>
</tr>
<tr>
<td>Security at the taxi ranks</td>
<td>36.0%</td>
<td>40.6%</td>
<td>46.1%</td>
<td>31.8%</td>
<td>31.8%</td>
<td>31.8%</td>
<td>31.8%</td>
<td>31.8%</td>
<td>31.8%</td>
<td>31.8%</td>
<td>31.8%</td>
<td>31.8%</td>
</tr>
<tr>
<td>Security on taxis</td>
<td>34.2%</td>
<td>46.6%</td>
<td>43.9%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
</tr>
<tr>
<td>The level of crowding in the taxis</td>
<td>42.9%</td>
<td>31.8%</td>
<td>56.9%</td>
<td>55.0%</td>
<td>26.9%</td>
<td>24.5%</td>
<td>46.1%</td>
<td>39.7%</td>
<td>28.4%</td>
<td>30.2%</td>
<td>30.2%</td>
<td>30.2%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>53.2%</td>
<td>51.3%</td>
<td>56.0%</td>
<td>59.0%</td>
<td>36.6%</td>
<td>41.1%</td>
<td>52.0%</td>
<td>43.6%</td>
<td>32.9%</td>
<td>33.6%</td>
<td>33.6%</td>
<td>33.6%</td>
</tr>
<tr>
<td>The frequency of taxis during peak periods</td>
<td>25.2%</td>
<td>22.3%</td>
<td>33.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
</tr>
<tr>
<td>The frequency of taxis during off-peak periods</td>
<td>27.6%</td>
<td>22.9%</td>
<td>33.1%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>22.9%</td>
<td>22.9%</td>
</tr>
<tr>
<td>The waiting time for taxis</td>
<td>30.2%</td>
<td>38.1%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
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<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
<td>22.3%</td>
</tr>
<tr>
<td>The taxi fares</td>
<td>52.0%</td>
<td>55.4%</td>
<td>60.2%</td>
<td>49.4%</td>
<td>46.9%</td>
<td>49.4%</td>
<td>46.9%</td>
<td>49.4%</td>
<td>46.9%</td>
<td>49.4%</td>
<td>46.9%</td>
<td>49.4%</td>
</tr>
<tr>
<td>The facilities at the taxi ranks</td>
<td>55.6%</td>
<td>56.6%</td>
<td>61.5%</td>
<td>49.9%</td>
<td>60.4%</td>
<td>57.4%</td>
<td>49.9%</td>
<td>57.4%</td>
<td>57.4%</td>
<td>57.4%</td>
<td>57.4%</td>
<td>57.4%</td>
</tr>
<tr>
<td>Roadworthiness of taxis</td>
<td>52.8%</td>
<td>53.2%</td>
<td>54.6%</td>
<td>55.2%</td>
<td>51.1%</td>
<td>47.1%</td>
<td>52.0%</td>
<td>47.1%</td>
<td>57.2%</td>
<td>50.9%</td>
<td>57.2%</td>
<td>50.9%</td>
</tr>
<tr>
<td>The behaviour of the taxi drivers towards passengers</td>
<td>58.5%</td>
<td>59.6%</td>
<td>65.5%</td>
<td>59.2%</td>
<td>59.2%</td>
<td>59.2%</td>
<td>59.2%</td>
<td>59.2%</td>
<td>59.2%</td>
<td>59.2%</td>
<td>59.2%</td>
<td>59.2%</td>
</tr>
<tr>
<td>The taxi service overall</td>
<td>47.7%</td>
<td>43.6%</td>
<td>49.6%</td>
<td>46.6%</td>
<td>48.2%</td>
<td>42.4%</td>
<td>43.6%</td>
<td>48.2%</td>
<td>46.6%</td>
<td>48.2%</td>
<td>46.6%</td>
<td>48.2%</td>
</tr>
</tbody>
</table>

Source: Data from National Household Travel Survey analysed for this project
Table 49: Percentage metro users dissatisfied with different attributes of bus, taxi and train services 2013

<table>
<thead>
<tr>
<th>Attributes of bus services</th>
<th>Bus</th>
<th>Taxis</th>
<th>Trains</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distance between the bus stop/taxi rank/station and your home</td>
<td>25.3%</td>
<td>22.1%</td>
<td>51.8%</td>
</tr>
<tr>
<td>The travel time by bus/taxi/train</td>
<td>24.9%</td>
<td>16.4%</td>
<td>50.5%</td>
</tr>
<tr>
<td>Security on the walk to/from the bus stop/taxi/train</td>
<td>38.3%</td>
<td>41.8%</td>
<td>58.7%</td>
</tr>
<tr>
<td>Security at the bus stops/taxi ranks/stations</td>
<td>40.2%</td>
<td>42.1%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Security on the buses/taxis/trains</td>
<td>33.0%</td>
<td>39.7%</td>
<td>49.3%</td>
</tr>
<tr>
<td>The level of crowding in the bus/taxi/train</td>
<td>43.2%</td>
<td>43.6%</td>
<td>80.7%</td>
</tr>
<tr>
<td>Safety from accidents</td>
<td>29.4%</td>
<td>55.9%</td>
<td>30.0%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/trains during peak period</td>
<td>30.3%</td>
<td>28.6%</td>
<td>47.7%</td>
</tr>
<tr>
<td>The frequency of buses/taxis/trains during off-peak period</td>
<td>34.0%</td>
<td>30.5%</td>
<td>52.1%</td>
</tr>
<tr>
<td>The punctuality of buses/waiting time for taxis/punctuality of trains</td>
<td>30.8%</td>
<td>31.6%</td>
<td>63.9%</td>
</tr>
<tr>
<td>The bus/taxi/train fares</td>
<td>30.8%</td>
<td>52.3%</td>
<td>15.7%</td>
</tr>
<tr>
<td>The facilities at the stops e.g. shelters/taxi ranks/train stations</td>
<td>46.3%</td>
<td>57.4%</td>
<td>47.3%</td>
</tr>
<tr>
<td>Roadworthiness of taxis</td>
<td></td>
<td></td>
<td>52.0%</td>
</tr>
<tr>
<td>Behaviour of the bus/taxi drivers towards passengers</td>
<td>23.3%</td>
<td>57.1%</td>
<td></td>
</tr>
<tr>
<td>Availability of information</td>
<td>29.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The bus/taxi/train service overall</td>
<td>30.3%</td>
<td>44.4%</td>
<td>49.0%</td>
</tr>
</tbody>
</table>

Source: Data from National Household Travel Survey analysed for this project

Appendix 2: Projected summary of total public transport expenditure and revenue in South Africa’s metropolitan areas

The analysis of the fiscal dimensions of urban public transportation was intended to feed into efforts to model the long-term sustainability of urban finances under different policy options.

The methodology for this was to use Cape Town’s 10 year financial transport plan as a basis. These were much the most comprehensive and well-structured plans available. They included a projected second phase of BRT based on the experience of a fully operational first phase. The plans also assumed the incorporation of the provincially subsidized commuter bus services into the city system.

This was supplemented by returns provided to the national Department of Transport on the use of the Public Transport Operating Grant for the Golden Arrow Bus Services contract with the Provincial Government of the Western Cape. While the Cape Town 10 year plan had included the subsidy in its calculations it did not have access to figures on fares collected under this subsidy.

The fare income, which was recorded in the returns to national DoT, made it possible to calculate the total income to the bus services which could be assumed to be equal to total expenditure including profit.

These figures were then factored up 5.89 times as an estimate of total metropolitan government road based public transport spending. The figure of 5.89 was derived from the formula based allocation to each of the metropolitan government in the Public Transport Network Grant. The grant formula allocates resources amongst the metropolitan governments based on population, size of the economy and number of public transport users excluding rail. 5.89 is the factor that the Cape Town figure, based on this formula, needs to be increased by to equate to the national figure.

To this was then added the national figures for PRASA’s commuter rail services.

The calculations and results for this projected 10 year summary are included in an accompanying Excel file.

Scenarios based on these figures are contained in the RUIM model, which is part of the wider Urbanisation Review.
This is one of nine background papers prepared as part of the South African Urbanisation Review (UR), which was commissioned by the Cities Support Programme (CSP) of the National Treasury to inform national policy and the Integrated Urban Development Framework (IUDF) on options for enhancing spatial integration. The other background papers and the overall report ("Managing Urbanisation to Achieve Inclusive Growth") is available from the CSP website.

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