

## A Critical Examination of Public Transport: A Case Study of Mangaung Metropolitan Municipality, South Africa

Lindelwa Toba, Mangaung Metropolitan Municipality, South Africa

Maléne Campbell, University of the Free State, South Africa

Danie Schoeman, Mangaung Metropolitan Municipality, South Africa

Phillip Lesia, University of the Free State, South Africa

### 1. Introduction

The City of Bloemfontein (see Figure 1) is situated in the Free State Province, the third-largest province in South Africa, covering 10,6% of the country's surface area. It falls under the jurisdiction of the Mangaung Metropolitan Municipality (MMM), together with the smaller towns of Botshabelo, Thaba Nchu and vast rural areas (see Figure 1). Bloemfontein is the sixth-largest city in South Africa and is the capital of the Free State Province. It serves as the administrative headquarters of the provincial government and is the Judicial Capital of South Africa. The city is the economic hub of the local and regional economy. Mangaung, the former black township, is located to the south-eastern side of Bloemfontein. It has a rich history, which includes the establishment of the African National Congress in 1912 (Mangaung IDP: 2011/2012:16).

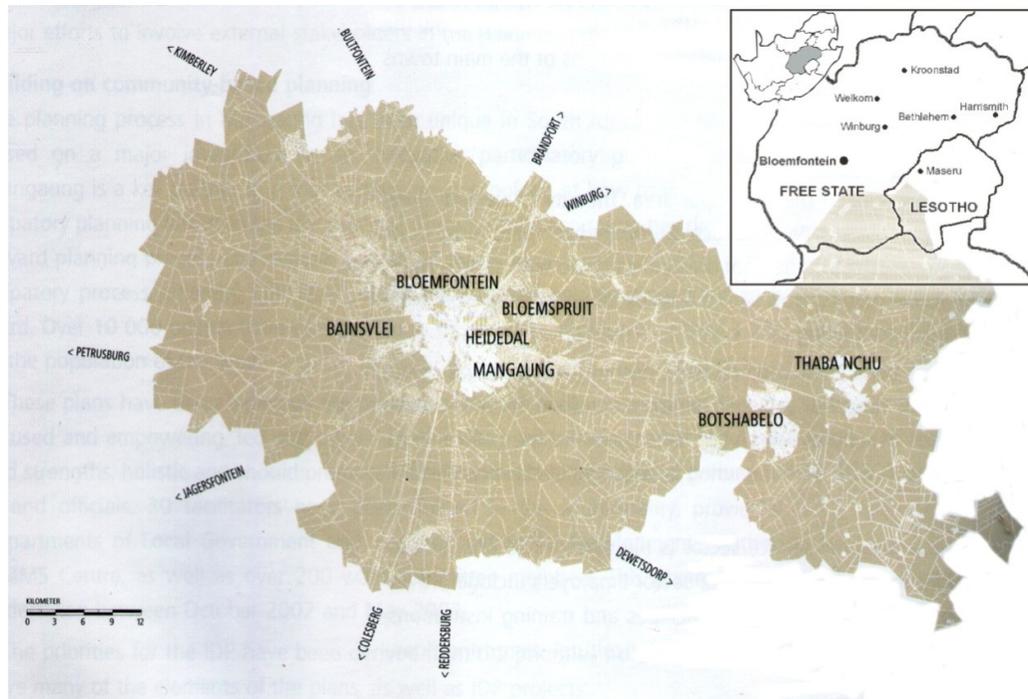


Figure 1: Mangaung Metropolitan Municipality: Locality Map

Botshabelo (see Figure 1) is located 55 kilometres to the east of Bloemfontein and is the single largest township development in the Free State Province (Mangaung IDP 2011/2012). It was spatially designed as a long, stretched-out town with a small

shopping centre, an industrial area and some schools. Botshabelo is highly underdeveloped and lacks most basic services. As a result of this, most of its residents rely on the City of Bloemfontein for employment and other economic activities. A large number of people commute between Botshabelo, Thaba Nchu and Bloemfontein daily by means of minibus-taxis or government-subsidised bus transport. Thaba Nchu (see Figure 1) is a rural area situated 12 km further to the east of Botshabelo. It consists of both private and communal land, while a substantial number of the residents live in the 37 adjacent, scattered villages (Mangaung IDP: 2011/2012:17). Access to transport is poor in these predominantly rural areas.

## 2. Methodology

Primary as well as secondary data Maléne Campbell, University of the Free State, South Africa were collected for this research. Structured questionnaires were developed and served randomly among community members travelling mostly by public transport and only sometimes by private transport. Purposive sampling was applied and the questionnaires were distributed at bus stops. A total of 998 completed questionnaires were returned, representing a sample of 0,2% of the total population using public transport in the study area. The purpose of the survey was to determine the satisfaction of the respondents, mainly with regard to public transportation, while also including information on the other modes of transport as well. Secondary data were collected from the National Households Travel Survey of 2003 in South Africa to determine the current state of public transport in South Africa, as well as from the MMM to get an overview of public transport in the study area.

## 3. Literature review

A reliable transport system is imperative and has to be sustainable, cost-effective and efficient. A sustainable transport system must provide access and mobility to residents in a manner that is safe and environmentally friendly. According to Kennedy *et al.* (2005:394), designing a sustainable transportation system is one of the most pressing issues faced by modern cities. This is due to an increase in sprawling and low-density suburbs where commuters rely mostly on automobile use.

### 3.1 Urbanisation and sustainable development

Apart from natural growth, urbanisation and migration are the processes resulting in an increase in the number of people living in cities, compared to the number of people living in rural areas. Urbanisation is therefore caused by rural-urban migration, natural population increase as well as annexation. It is the most rapid in Third-World Countries where the world's largest cities are situated (Korattyswaroopam, Mittal and Ittyerah, 2005:1). During the 20<sup>th</sup> century, a few cities in the world had populations of more than a million people, while more than 400 cities currently contain a million people and more (Ng, 2009). More than 50% of the world's population live in cities and towns, and by 2017 the developing world is likely to be more urban in character than rural.

Rural-urban migration occurs, to those cities that offer more opportunities for economic and social development and are focal points for economic growth, innovation, and employment. The vast majority of modern productive activities in the developing world are concentrated in cities, while the majority of paid employment opportunities are located in cities. Cities are also centres of modern living, where female labour force participation is the highest and where indicators of general health and wellbeing, literacy, women's status, and social mobility are typically high. Cities are important social and cultural centres that house museums, art galleries, film industries, theatres, fashion houses and other important cultural

centres (Cohen, 2006:64).

Some of the push factors of urbanisation include a weak agricultural sector, poor national economic performance, lack of a national policy that integrates economic and spatial planning, the relative absence of intermediate cities and market towns, and over-migration, leading to the growth of mega cities with poor economic bases and poor municipal capacity to provide minimum basic services (Cheru, [s.a.]).

### **3.2 Traffic congestion**

Congestion is the manifestation of stress on current transportation systems. It has an adverse impact on economic development and productivity; it also aggravates air quality and energy consumption problems. It leads to increased costs for travellers and freight movement, loss of time, accidents and psychological strain (Black, 1995). Congestion also involves transit vehicles during peak hours, pedestrians on sidewalks during lunchtime and bicycles. According to Black (1995), causes of congestion include: urbanisation, with a concentration of people and economic activities in urban areas; specialisation, with cities where people want to travel between different activities dispersed around the city; matching supply and demand temporarily, where the supply of transportation facilities becomes large, the demand varies and supply stimulates demand.

### **3.3 Land use management and transportation**

According to Litman (2005:10), land use and transportation are two sides of the same coin. Transportation affects land use and vice versa. Land-use planning decisions have a major impact on transportation needs, private car ownership and public viability (Frieslaar & Marks, 2007:24). As a result, it is important to coordinate transportation and land-use planning decisions to complement each other. Transportation makes provision for connections whereas land use imposes demands on the transport system, underscoring the need to plan both in close coordination as the region expands. According to Litman (2005:2), land use refers to the use of the land, including its location, type and design of the human development. Decisions on transportation planning influence land use in that they affect the amount of land use for transportation facilities, affecting it directly in terms of the land use accessibility.

### **3.4 Characteristics of urban travel**

Meyer & Miller (1984) state that knowledge of urban travel is used by transportation planners to match the needs of transportation facilities to actual planning and decision-making activities. Characteristics of trip-making behaviour that need to be considered in urban planning involves the trip purpose, the temporal distribution of trip making, the spatial distribution of urban travel, the selection of the mode used and the cost of making the trip. The trip purpose involves individual passenger trips that are often classified by the purpose of the trip and the trip's origin in transportation planning (Meyer and Miller, 1984). Work, shopping, social or recreation, business and school trips are the types of trips identified under trip purpose. In South Africa, most trips taken during the day are for education, shopping, visiting and work purposes. Modes of transport include buses, trains, metered taxis, taxi, private cars, trucks, motorcycles, animal transport and aircrafts (Dewar and Todeschini, 2004). The temporal distribution of trip making is the type of trip undertaken by individual people during the day.

Meyer and Miller (1984) state that the concentration of trips at certain times of the day is a primary cause of problems associated with congested transportation facilities. According to Meyer and Miller (1984), it is important to understand the spatial distribution of trip making, because it is an important element of urban transportation planning. It indicates the need for mobility in an urban area, the level to which the existing transportation system satisfies this need and those areas where action must be taken to improve system performance (Meyer and Miller, 1984). In the spatial distribution of trip making, the existence of transportation

facilities that connect any particular origin and destination permits an individual to travel. Thus, the spatial distribution of travel in an urban area is directly related to the configuration of the transportation system. According to Meyer and Miller (1984), the modal distribution of urban trips is related to both the trip purpose and the temporal distribution of travel, and is generally determined by the costs of using different modes for a given trip. Lastly, the cost of trip making is an important determining factor in mode choice and costs are typically broken into out-of-pocket costs and hidden costs.

### **3.5 Transportation planning and decision planning**

Historically, transportation planning followed the rational planning model of defining goals and objectives, identifying problems, generating alternatives, evaluating alternatives, and developing the plan. Other models for planning include rational actor, satisficing, incremental planning and political bargaining.

The rational actor model is the framework for understanding and modelling social and economic behaviour. According to Meyer and Miller (1984), this model is highly structured and data intensive. It consists of the identification of all feasible alternatives and a comparison of those alternatives according to evaluation criteria selected. These alternatives need to be ranked according to the defined goals. Finally, the optimal alternative must be selected (Meyer and Miller, 1984). In this case, the traveller enters into a decision-making process with a predetermined origin, destination and time-constraint requirements. The traveller must then determine all possible modes of transport for the trip and prioritise the mode-of-choice criteria, namely cost, travel time, quality of service, personal preferences and determining the values of these variables for each remaining mode of choice (Chumer & Turroff, 2009).

The model of satisfaction is a decision-making strategy attempting to meet the criteria for adequacy rather than identifying a solution. In decision-making, this strategy explains the tendency to select the first option that meets a given need or selects the option that addresses most needs, rather than the 'optimal solution'. It takes place in consensus building when the group looks towards a solution everyone can agree on, even if it may not be the best (Meyer and Miller, 1984).

Incrementalism involves the addition of many small changes in a project. It is advantageous in that no time is wasted on planning outcomes. A disadvantage is that time may be wasted dealing with immediate problems and no overall strategy is developed. The decision-making process in incrementalism is geared towards moving away from possible problems, rather than towards the attainment of objectives (Meyer and Miller, 1984).

In the the political bargaining approach the transport planner must take account of the social, economic and environmental context of their work, understand the legal, regulatory policy and resource framework within which they work, and create transport policies, strategies and plans that contribute to meeting social, economic and environmental needs. The transport planner must also design the necessary transport projects, systems and services and understand the commercial aspects of operating transport systems and services. Knowledge of and the application of the relevant tools and techniques of transport planning are essential. Competency in all aspects of management, personal skills and project management is important (Meyer and Miller, 1984).

## **4 South African population dynamics**

The South African rate of urbanisation has increased since the 1950s. This increase brought along problems such as the demand for land, water, housing, transport and employment

(Nevhutanda, 2009: 457). According to Gwala (2007:18), an increase in urbanization resulted in the Group Areas Act of 1950 (South Africa, 1950). Migrants moved to cities with their families and this caused increased demands for employment, education, health infrastructures and transportation. South Africa's urban population has increased by one million after this urbanisation thrust. An increase in urbanisation caused more pressure on the demand for transport in urban places.

South Africa has a history of urban land ownership characterised by the segregation and distortion of the urban land market. As a result, Africans (and, to a lesser extent, Coloureds and Indians) were denied access to land, adequate education and economic opportunities. This limited their earning capacity and resulted in high poverty and unemployment levels amongst these racial groups (Nell, 2007). The division of the city into group areas, each with their own administrative systems and the resultant land holding and management systems got confused with competing arrangements and regulations. Generally, there are high degrees of formal regulation in formal "White" areas and low degrees in African townships and informal settlements. The reduced levels of regulation impacted negatively on property prices in the affected areas. Also, there was a higher investment in infrastructure in "White" areas and much lower levels in African, Coloured and Indian areas. The lower levels of infrastructure impacted negatively on property prices in the affected areas. Apartheid policies led to an inefficient, inverted density pattern, with population densities in the outer part of the city much higher than in the white central neighbourhoods. This pattern perversely concentrated the majority of the city's population far from its employment centre and led to a heavy reliance on transport systems. This led to a system of transport subsidies that were required to underpin the system. These subsidies continue to this day, and in some cities amount to double the housing budget (Nell, 2007:4-5).

In South African cities households are separated on the basis of race, income and in some instances culture. Upmarket, formal residential areas were originally owned by middle to upper-income households who are largely "White" and the marginalised formal residential areas were occupied by lower income households who are predominantly "Black". Informal settlements are occupied by very low-income households who are predominantly "Black". These settlements are often located on the periphery of urban areas. Also, upper-income individuals (the majority of whom are "White") own large upmarket, formal industrial and retail areas. On the other hand, middle-income individuals and small and medium enterprises own decayed formal industrial and retail areas. Informal traders occupy land (usually illegally) to undertake light to medium industrial or retail activities. These traders, particularly those in the retail sector, often operate at a subsistence level (Nell, 2007).

Since 1994, the South African Government has committed itself to reverse the trends of apartheid and its impact on cities and the lives of individuals. There were a number of significant programmes and policies which have been implemented to this end, which include a million government-subsidised houses built for low-income recipients in its first term through the provision of a once-off capital housing grant, the National Subsidy Programme. Apartheid legislation had to be removed and a range of policies and programmes aimed at stimulating the economy and creating a social safety net for the poor were also implemented. Amongst other programmes which were implemented was land reform that sought to address land restitution, land redistribution and tenure reform whereby people disposed of land during apartheid could lay claim to the land. Finally, policy statements and documents which focused on shifting patterns of property ownership so as to change spatial patterns and densities of residential areas were also implemented (Nell, 2007).

## 5 South African legislation

The 1994 democracy opened new doors and challenges for most South Africans. The apartheid legacy still continues to haunt the country, despite freedom and democracy. A lot of intervention is still needed, even though the efforts to deal with this legacy have been instituted in all sectors of society. The Native Land Act (South Africa, 1913), also known as the Black Land Act, was passed in 1913. It was a powerful piece of legislation which formed the basis upon which South Africa was and is divided. Post-1994, the transport sector, in line with other sectors of the South African government, underwent a period of fundamental policy shift (Kane, 2004). The principle cause was the new, democratically elected government and the need to realign government policies with new priorities. The policy and strategy documents that were published by the National Department of Transport such as the White Paper on National Transport Policy of 1996 (South Africa, Department of Transport, 1996) in the 1990s reflect the transition to a more people-centred transport planning process, and use ‘customers’ as a central theme (Kane, 2004). The new era of political transformation in South Africa created a context of democracy and good governance. Through legislation, the local government sphere has been charged with the responsibility of being developmental in its approach, thus moving away from its dominant administrative function of the past. According to the Constitution of the Republic of South Africa Act, Act 108 of 1996 (South Africa, 1996), the Department of Transport (DoT) is responsible for maximising the contribution of transport to the economic and social development goals of society by providing fully integrated transport operations and infrastructure. The main roles of the DoT are developing policies, strategies and guidelines, while ensuring the provisions of the White Paper on National Transport Policy of 1996 (South Africa, Department of Transport, 1996), the National Land Transport Transition Act (NLTTA) of 2000 (South Africa, 2000) and other legislation such as the National Traffic Act and the National Roads Act, are implemented.

The Municipal Systems Act, Act 32 of 2000 (South Africa, 2000) forms part of a series of legislation which aims to empower local government to fulfil its Constitutional objectives. It requires from South African Municipalities to formulate strategic development plans called ‘Integrated Development Plans’ (IDPs). Table 1 below outlines the different transportation laws and its functions under different government spheres.

*Table 1: Transportation legislation*

<b>Sphere</b>	<b>Legislation</b>	<b>Functions</b>
<b>National</b>	White Paper on National Transport Policy (South Africa, Department of Transport, 1996)	Focuses on the need to promote the use of public transport over private transport and to ensure that public transport services address the needs of transport users.
	National Land Transport Transition Act (South Africa 2000)	Focuses on the general principles of transport planning and its relationship with land development.
	National Land Transport Strategic Framework	It is a legal requirement that embodies the national five-year land transport strategy, which gives guidance on transport planning and land transport delivery by the national government, provinces and municipalities over a five-year period.

	National Transport Master Plan	It provides an integrated mechanism for land-use patterns and how people can effectively interact with various modes of transportation. It is a framework for transport system planning, implementation, maintenance, operations and investments. It is a monitoring tool for decision-making for all modes of transport.
	Road Infrastructure Strategic Framework for South Africa	It is a framework that involves the improvement of the integrated planning of road networks, the creation of the environment towards improving road traffic operations, the allocation of adequate and consistent funding for maintenance and rehabilitation, etc.
	Public Transport Strategy for South Africa	It aims to accelerate the improvement in public transport by focusing on modal upgrading and the establishment of Integrated Rapid Transport Networks, which will introduce Priority Rail corridors and Bus Rapid Transit in metropolitan cities.
<b>Provincial</b>	Provincial Land Transport Frameworks	It serves as a guide for land-transport planning in the provinces. It serves as a basis for preparing the Integrated Transport Plans, Public Transport Plans and other plans required from planning and transport authorities.
<b>Local</b>	Urban Transport Act (UTA) (South Africa, 1977)	It helps to manage the preparation of transport plans, provide guidance to other metropolitan transport areas, implement the transport plans, etc.

## 6 Analysis and discussion of survey results

The analysis of results is divided into three sections, namely the analysis of data from the National Household Travel Survey of 2003 in South Africa, the analysis of public transport in the Mangaung Metropolitan Municipality (MMM) and finally, the data from the Bloemfontein survey undertaken for this paper.

### 6.1 Analysis of national household travel survey data

This section presents an overview of the South African demography pertaining to transport in general. It is therefore a macro-analysis on transportation before unpacking transport in the Mangaung Metropolitan Municipality and the City of Bloemfontein at micro-level. This section helps and gives insight into the status of public transport in the country as a whole in compared to what is happening in Bloemfontein as a city. According to the National Household Travel Survey of 2003, Gauteng is the most urbanised province in South Africa,

followed by Kwazulu-Natal and the Western Cape. The Free State Province has more people living in urban areas (about 2,6 million) than rural areas (0,6 million). This picture is also true in South Africa as a whole, where approximately 27,4 million people live in urban areas, compared to 19 million people living in rural areas. More females than males live in urban areas of South Africa and the majority of public transport users are females. More black people than any other racial group live in South African urban areas and they are the main users of public transport (National Household Travel Survey, 2003).

In terms of age, the majority of young people in South Africa live in urban areas. This is due to most of the economic and live opportunities which are centred around South African urban areas rather than rural areas. Most people in metropolitan areas travel between 31 to 60 minutes to work and about 27,4% of commuters take between 31 to 60 minutes in the Free State Province before they reach their work places. Most pupils in all areas in South Africa walk to school. In rural areas, about 90,6% of students walk to school, while 56,9% in metropolitan areas walk to school (National Household Travel Survey of 2003).

Travelling by taxis in South African metropolitan areas is time consuming. It takes about 16 to 30 minutes for people in these areas before they can reach their places of work by taxi. About 49% of households residing in metropolitan areas in South Africa do not have access to public transport. The figure is even higher in rural areas where up to 95% do not have access to public transport. The majority namely 66,4% of people living in South African metropolitan areas, earn less than 3 000 ZAR (283 €) per month, while in other urban areas the figure is 72%. The facilities at both bus and taxi stations are poor and security is the major concern for most commuters (National Household Travel Survey of 2003).

### 6.2 Analysis of Mangaung Metropolitan Municipality data

This section analyses public transport data and information taken from the Mangaung Metropolitan Municipality (MMM). The focus will be on the only available modes of public transport namely minibus-taxis and bus services. Tables 2 below unpack the analysis of minibus-taxis and bus service at Mangaung Metropolitan Municipality. Table 2 shows that there are 71 minibus-taxi routes originating in Mangaung, with distances ranging from 1 km to more than 500 km per route for long distances. The table below indicates the breakdown of these routes according to the distance of routes. From this table it can be seen that almost 23% of all minibus-taxi routes are longer than 10 km.

Table 2: Analysis of Minibus-taxi routes distances in MLM

Distance	Number of routes	Percentage (%)
Less than 10 km	26	39
10 km to 20 km	9	13
20 km to 50 km	7	10
50 km to 100 km	11	15
More than 100 km	18	23
Total	71	100

(Mangaung Local Municipality, 2009)

There are approximately 215 bus routes originating in Mangaung, with distances ranging from 3 km to almost 400 km per route. Table 3 shows the breakdown of these routes according to distance ranges. From this table it is clear that almost 50% of all bus routes in Mangaung range between 50 km and 100 km. Commuters travelling from Thaba Nchu and Botshabelo (see Figure 1) to work in Bloemfontein travel these routes to work and back twice every day. Only 2% of the routes exceed 100 km. This shows that the bus service in Mangaung covers longer distances, with more than 65% of all bus routes longer than 20 km.

Table 3: Bus route distances

Distance range	Number of routes	Percentage
Less than 10 km	36	17

10 km to 20 km	36	17
20 km to 50 km	31	14
50 km to 100 km	107	50
More than 100 km	5	2
<b>Total</b>	<b>215</b>	<b>100</b>

(Mangaung Local Municipality, 2009)

### 6.3 Analysis of Bloemfontein survey data

Data in this section were collected from interviewees in Bloemfontein. The issues addressed were based on the questionnaires distributed randomly among commuters at bus stations. An evaluation of public transport conditions in Bloemfontein is based on the response of the interviewees. Questions were asked pertaining place of residence, mode of transport used, public transport system rating and conditions propelling people to use public transport, including its benefits. Table 4 shows that the majority of the respondents were from Bloemfontein, while 30,4% travelled from Botshabelo and Thaba Nchu, covering between 50 and 100 km per route, as discussed in the previous section.

Table 4: Place of residence of the respondents

Area	Number of people	Percentage (%)
Bloemfontein	602	60,3
Botshabelo	197	19,7
Thaba-Nchu	107	10,7
Selosesha	77	7,7
Other	15	1,5
<b>Total</b>	<b>998</b>	<b>100</b>

Table 5 indicates the mode of transport most frequently used among commuters surveyed at bus stops in Bloemfontein are minibus-taxis, followed by buses, family or private cars, walking and cycling.

Table 5: Mode of transport

Mode of transport	Number of people	Percentage (%)
Taxi	349	35
Bus	248	24,8
Walking	91	9,1
Cycling	78	7,8
Family or Private	198	19,8
Other	34	3,4
<b>Total</b>	<b>998</b>	<b>100</b>

The results from the survey show that the majority, namely more than 70% of the surveyed respondents, do not own private cars, while 29,9% own cars or someone in their household has a car that the respondent can travel with. According to Mokonyama and Venter (2007), variables influencing household car ownership in South Africa are household income; car purchase and running costs; road density; population density and the availability and level of service of public transport; family legacy and social standing; and distance of household from essential amenities.

Table 6: Private cars owned by respondent or household

Car ownership	No.	%
More than 1	97	9,7
One	202	20,2
None	699	70
<b>Total</b>	<b>998</b>	<b>100</b>

Figure 2 below indicated the respondents' rating of the public transport system in

Bloemfontein. About 81% of the respondents indicated that the Bloemfontein public transport system is either very poor or poor. This is an indication that there should be great concern for public transport in Bloemfontein. These respondents indicated that better service such as adherence to the timetable, lower costs and more security at bus stops were their reasons for being unsatisfied with bus services. Improved safety for minibus-taxis and lower costs of traveling would encourage them to make use of these modes of public transport more regularly. The vast majority, namely 92% of the respondents, complained that the public transport routes were very far from their places of residence.

The main reason indicated for using public transport is that is more affordable and easier to use than private cars, since one does not have to find parking and pay for it. Other reasons provided by respondents included less stress by avoiding traffic and considering the impact on the environmental benefits. To conclude on this matter, it was discovered that more females than men staying in Bloemfontein use public transport. The majority of the respondents were under the age of 50 and 20% of the respondents indicated that they were unemployed.

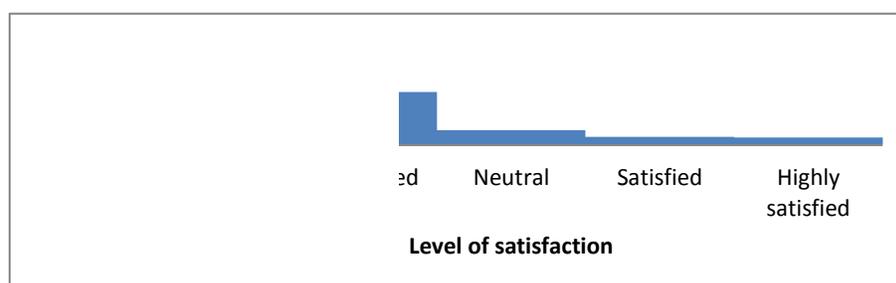


Figure 2: Public transport rating in Bloemfontein

## 7 Conclusion

A reliable transport system is imperative and has to be sustainable and efficient. Pressure on available resources exists partly due to the continuing rural-urban migration impacting on the provision of transport. This migration is mostly caused by the perceived economic opportunities in urban areas, although most residents in Mangaung are trapped in poverty and many are unemployed. 66,4% of people living in South African metropolitan areas earn less than 3 000 ZAR (283 €) per month while in other urban areas the figure is 72%.

The bus routes originating in Mangaung covers distances of between 3 km and 400 km per route, while almost 50% of all bus routes range between 50 km and 100 km. Commuters travelling from Thaba Nchu and Botshabelo to Bloemfontein travel these routes to work and back twice every day. Although the majority of the respondents were from Bloemfontein, 30,4% travelled from Botshabelo or Thaba Nchu and spent long hours on the roads.

A total of 998 completed questionnaires were returned, representing a sample of 0,2% of the total population travelling by public transport in the study area. The purpose of the survey was to determine the satisfaction with public transport among the respondents. According to the results of the survey, it was discovered that the respondents did not contribute that much towards traffic congestion as only 29,9% owned private cars, whereas over 70% of the respondents interviewed did not own private cars at all. Those that had private cars also indicated that they used public transport more frequently than their private cars. This is an indication that the provision of public transport is indispensable to all, but in particular to low-income commuters. About 81% of the respondents indicated that the public transport system was either very poor or poor. This is an indication that there should be

great concern for public transport in Bloemfontein. These respondents indicated that inadequate service such as not adhering to the timetable, high costs and no security at bus stops were reasons for them being dissatisfied with bus services. There is not only a need for more security at public transport stations, but also for commuters on their way to these stations. Improved safety for minibus-taxis and lower costs of traveling would increase their commuter satisfaction. The vast majority, namely 92% of the respondents, complained that the public transportation routes were very far from their places of residence. This is a problem in predominantly rural areas such as Thaba Nchu in particular, where access to transport is poor. Public transport users are also burdened in terms of not having options when travelling to different destinations and a daily commuter train travelling from Botshabelo and Thaba Nchu might be a solution.

Effective and informed planning which prioritises public transport and good land use management must be ensured. A quality public transport system that offers a realistic alternative to individual transport such as cycling is recommended. There is a need for increasing provision of transport infrastructure with focus on public transport friendly facilities and transformation of delivery. Ensuring efficiency and effectiveness of the transport system for the movement of people and goods is essential.

The apartheid era has done no justice to the infrastructure of this country and this legacy still haunts the country even though much has been done since democracy. The poor integration between land use and transport due to apartheid policies and laws is still visible when one walks or drives around the city of Bloemfontein. The levels of infrastructure are well below the levels of quality in the more affluent and traditionally white areas. Most people using public transport come from disadvantaged communities where the provision of these facilities is limited or not available at all and are still trapped in poverty. The design and construction of the transport network must fundamentally respond to the historical legacy of uneven spatial development, by seeking to shift resources in such a way as to break the apartheid spatial development pattern.

### References:

- Black, A. (1995) Urban mass transportation planning. Singapore: McGraw-Hill.
- Cheru, F. [s.a.]. [Online]. Globalisation and uneven urbanization in Africa: the limits to effective Urban governance in the provision of basic services. Available from <[www.international.ucla.edu/Africa/grca/publications](http://www.international.ucla.edu/Africa/grca/publications)> [Accessed 5 June 2012].
- Chumer, M. & Turroff, M (2009) [Online]. Command and control (C2): Adapting the distributed Military Model for Emergency Response and Emergency Management. Available from <<http://www.dodccrp.org/events>> [Accessed: 19 November 2009].
- Cohen, B. (2006) Urbanisation in developing countries: Current trends, future projections, and key challenges for sustainability. Committee of population, National Research Council: Washington.
- Dewar, D & Todeschini, F. (2004) Rethinking Urban Transport after Modernism: Lessons from South Africa. Surrey: Ashgate.
- Frieslaar, A & Marks, T. (2007) "International experience and best practices: transportation". Civil engineering. 15 (9) September, Pp 24-26.
- Gwala, S. (2007) Urban non-motorised transport (NMT): A critical look at the development of urban NMT policy and planning mechanisms in South Africa from 1996-2006. The Department of Transport. Pretoria. Proceedings of the 26<sup>th</sup> Southern African Transport Conference (SATC). 9 – 12 July 2007.
- Kane, L. (2004) Sustainable development? A practical tool for South African Transport Planners. Urban Transport Research Group. University of Cape Town. Rondebosch. Cape Town. Conference Organised by: Conference Planners. Proceedings of the 23<sup>rd</sup> Southern African Transport Conference (SATC 2004).
- Kennedy, C., Miller, E., Shalaby, A., Maclean, H. and Coleman, J. (2005). The four pillars of

- sustainable urban transportation. *Civil Engineering* 25 (4 - July), 393-414.
- Korattyswaroopam, N., Mittal, N. & Ittyerah, N. (2005). Urban transport crisis in India. *Transport Policy*, 2(3), Pp. 1-47, June.
- Litman, T. (2005) *Land use impacts on transport. How land use factors affect travel behaviour*. Victoria Transport Policy Institute. November, 16. 2005.
- Mangaung Local Municipality. (2011/2012). Integrated Development Plan 2011–2012. Free State Province.
- Mangaung Local Municipality (2009) [Online]. Annual Report 2007/2008. Available from <<http://www.manguang.co.za>> [Accessed: 12 November 2009].
- Mangaung Local Municipality (2009) Transport Master Plan. Unpublished report.
- Meyer, M.D. & Miller, E.J. (1984) Urban transportation planning: a decision-oriented approach. New York: McGraw-Hill Science.
- National Household Travel Survey (2003) [Online]. The First South African National Household Travel Survey. Available from <<http://www.transport.gov.za/projects/nts/techreport/part3>> [Accessed: 7 May 2009].
- Nell, M. (2007) Towards a Vision for the Urban Land sector in South Africa by 2020. Report prepared for Urban LandMark by Matthew Nell and Associates (Pty) Ltd.
- Nevhuntanda, A. 2009. [Online]. Impact of Rapid urbanisation of South African cities on their transport policies: A theoretical perspective. Available from: <http://www.up.ac.za/dspace/bitestream> [Accessed 5 June 2012].
- Ng, E. (Ed.) (2010) Designing High-Density Cities for Social and Environmental Sustainability. London: Earthscan.
- South Africa (1913) Native Land Act, Act 27. Pretoria: Government Printer.
- South Africa (1950) Group Areas Act, Act 41. Pretoria: Government Printer.
- South Africa (1977) Urban Transport Act, Act 78. Pretoria: Government Printer.
- South Africa (1996) Constitution of the Republic of South Africa Act, Act 108. Pretoria: Government Printer.
- South Africa Department of Transport. (1996) White Paper on National Transport Policy. South Africa: Pretoria.
- South Africa (2000) Municipal Systems Act, Act 32. Pretoria: Government Printer.
- South Africa (2000) National Land Transport Transition Act, Act 22. Pretoria: Government Printer.
- South Africa (2000) National Land Transport Transition Act, Act 22. Pretoria: Government Printer.