DII-2017-024

Importance of transport infrastructure for socio-economic development: a South African public opinion poll

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Abstract

This paper presents results of an investigation of the importance of transport infrastructure to socio-economic development. It reviews selected areas of transport infrastructure provision which inhibits the achievement of the transport objectives as described by selected policy documents, such as the South African White Paper on National Transport Policy, the National Development Plan and, more recently, the National Transport Masterplan (NATMAP). The results are from four years of the Institute of Transport and Logistics Studies' (Africa) State of Transport Opinion Poll, an annual survey of 1,000 adults across South Africa, which investigates the public's opinions on certain transport matters, including the importance of transport, the perceived highest transport priorities, conditions of transport infrastructure and services, and the perceptions on the current and future state of transport.

The findings indicate that the availability and overall condition of transport infrastructure is not delivering transport services which addresses the needs of the South African public. Major areas of concern for South Africans include mobility, accessibility, affordability and safety. The views from respondents included differences between provinces, indicating disparities in infrastructure provision across the country as well as from an urban/rural perspective, indicating the continuous divide between accessibility levels. Although the sample size could be viewed as a limitation of the study, the individual results over the four year period provides a comparable representation of public opinion on transport infrastructure matters across South Africa as a whole. This research provides an original contribution to transport research in that it is the only annual survey which gauges public opinion regarding transport infrastructure and services in South Africa.

Keywords: infrastructure, public transport, public opinion, TOPSA survey, South Africa.

1 The transport infrastructure policy environment in South Africa

The White Paper on National Transport Policy is South Africa's primary policy paper for the provision of transport in the country (Department of Transport, 1996). The White Paper provides a vision for transport for the country: "Provide safe, reliable, effective, efficient, and fully integrated transport operations and infrastructure which will best meet the needs of freight and passenger customers at improving levels of service and cost in a fashion which supports government strategies for economic

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and social development whilst being environmentally and economically sustainable" (Department of Transport, 1996, p. 5). The implication for infrastructure is that it needs to be provided and maintained in a manner that supports the vision. The goals of the white paper are more specific:

- To support the goals of the Reconstruction and Development Programme for meeting basic needs, growing the economy, developing human resources and democratising decision making
- To enable customers requiring transport for people or goods to access the transport system in ways which best satisfy their chosen criteria
- To improve the safety, security, reliability, quality and speed of transporting goods and people
- To improve South Africa's competitiveness and that of its transport infrastructure and operations through greater effectiveness and efficiency to better meet the needs of different customer groups, both locally and globally
- To invest in infrastructure or transport systems in ways which satisfy social, economic or strategic investment criteria
- To achieve the above objectives in a manner which is economically and environmentally sustainable and minimises negative side effects (Department of Transport, 1996, pp. 6-9)

Analysis of the White Paper's vision and goals indicate that transport infrastructure, both new and existing, needs to assist in meeting basic mobility needs; it should assist in providing a reasonable level of accessibility; the quality of the infrastructure should be such that the movement of people is not constrained and more particularly, that safety is enhanced rather than jeopardised by infrastructure; that infrastructure should enhance the functioning of the economy and not limit it and that it should prioritise environmentally friendly means such as public transport over less environmentally sensitive transport such as motor vehicles. Transport infrastructure thus needs to support the socio-economic development of the people of South Africa.

The White Paper also makes specific recommendations in respect of transport infrastructure. It provides that as part of the overall long-term vision for the South African transport system, transport infrastructure will, amongst others:

- be structured to encourage public passenger transport and to discourage excessive private passenger transport in urban areas,
- allow for seamless intermodalism,
- provide adequate accessibility together with safety and security within the constraints of social affordability,
- incorporate technological advances which promote and enhance the role of transport in the economy and development, and
- be structured to ensure environmental sustainability and internationally accepted standards (Department of Transport, 1996, p. 17).

The mission for transport infrastructure is described as "To provide an integrated, well-managed, viable and sustainable transport infrastructure meeting national and regional goals into the 21st century, in order to establish a coherent base to promote accessibility and the safe, reliable, effective and efficient movement of people, goods and services" (Department of Transport, 1996, p. 17)

The mission is supported by strategic objectives, including:

- Maintain and develop the transportation infrastructure system, and prioritise its development in terms of sustainable economic and development needs,
- Aid the promotion of a strong, diverse, efficient and competitive transportation industry within the limits of sustainable transport infrastructure,
- Promote environmental protection and resource conservation,
- Enhance the competitiveness of South African industry and the quality of life of its citizens by providing protection of consumers, safety and security, and meeting accessibility, reliability and mobility needs by providing transport infrastructure to serve the purpose,
- Ensure that the transport needs of the country's disabled population are taken into account when new infrastructure is planned and designed (Department of Transport, 1996, p. 18).

The specific principles regarding transport infrastructure, in as far as people movement is concerned, are that infrastructure should provide for an integrated system, which favours public transport. It should be competitive, safe, reliable, affordable, accessible, world class and environmentally sustainable. It should also support socio-economic development, enhance mobility needs and cater for passengers with special requirements.

Transport policy in South Africa is not however only guided by the White Paper on National Transport Policy. More recently, the government issued the National Development Plan (NDP) (National Planning Commission, 2011). Although this plan is aimed at the development of the economy as a whole, it makes specific recommendations regarding transport. In particular, the NDP requires that, by 2030, investments in the transport sector ensure that it serves as a key driver in empowering South Africa and its people, enabling, amongst others:

- Improved access to economic opportunities, social spaces and services by bridging geographic distances affordably, reliably and safely
- Greater mobility of people and goods through transport alternatives that support minimised environmental harm (National Planning Commission, 2011, p. 161).

Crucially, in its executive summary, transport is seen as one of the pillars to increase employment and broaden opportunities (National Planning Commission, 2012). An investment priority is therefore public transport infrastructure and systems, including the renewal of the commuter rail fleet, supported by enhanced links with road based services (National Planning Commission, 2012, p. 56). The plan emphasizes the provision of public transport which is safe, effective, energy efficient and affordable and is part of an overall strategy to alleviate poverty. Transport should also be reliable and there should be better coordination between modes. Transport costs should be reduced as a means of reducing the cost of living for low-income households. The National Development Plan thus largely focusses investments in public transport infrastructure on the need to provide affordable, high quality public transport to those who need it most.

A more recent development in transport policy in South Africa is the National Transport Masterplan (NATMAP 2050), a plan that guides transport policy to the year 2050. The NATMAP 2050 vision is that transport is the heartbeat of the economy and the fabric of the country’s socio-economic development as well as its alignment with key policy, legislation and planning frameworks recently developed. NATMAP 2050 therefore aims to achieve an integrated, smart and efficient transport system supporting a thriving economy that promotes sustainable economic growth, supports a healthier life

style, provides safe and accessible mobility options, socially includes all communities and preserves the environment (Department of Transport, 2015, pp. 0-3). In this document road infrastructure interventions, as they affect passenger transport, are largely aimed at reducing congestion by developing freeway bypass systems for urban areas and reducing passenger volumes. As far as passenger rail infrastructure is concerned, it is envisaged that by 2050 all metropolitan areas, and high density and income district centres, will have a rail commuter system. Based on modal threshold specifications, residential areas will connect with CBDs (central business districts). Similarly, linkages and integration of various passenger transport systems and modes will be implemented by means of transfer facilities and ticketing systems (Department of Transport, 2015, pp. 6-18). In essence, transport infrastructure investment needs to support the strategic themes, relevant ones of which are outlined as:

- Is well planned, integrated & aligned across sectors
- Is responsive to growing passenger and freight customer needs
- Is well maintained and preserved and further developed to advance developmental challenges
- Offers safe, affordable and accessible modal options for passengers
- Preserves the environment
- Is innovative / adaptive and reflect emerging priorities
- Is sustainably funded (Department of Transport, 2015, pp. 0-3).

Analysis of the policy documents indicates that, although the policy is described in a variety of documents, common themes emerge. Transport infrastructure needs to be developed in such a way that it prioritises the needs of passengers. As such principles that must be taken into account when investing in infrastructure for passenger transport are:

- Safety
- Affordability
- Mobility
- Accessibility
- Integration
- Choice
- Socio-economic development
- Inclusivity
- Environmental sustainability
- Responsive to people’s needs

Whilst the policies are clearly outlined in terms of the above stated objectives, the repetition of the same policy objectives in various documents over the past 21 years provides an indication that policy objectives are not being met and transport infrastructure remains of an insufficient standard to meet the needs of the South African commuting public. This is further illustrated by the numerous public transport service delivery protests at any given time in South Africa (Africa News Agency, 2016; Herman, 2016; Motlhale, 2016; Tswanya, 2016). This suggests that the current public transport service offering does not meet commuters expectations and this can partly be attributed to the fact that infrastructure constrains, rather than enhances, service delivery.

This research aims at determining public opinion on public transport infrastructure and seeks to determine whether it has an impact of public transport services in the country and whether the imperatives, as described by the various policies regarding transport infrastructure are being met.

2 Research Methodology

The objective of the annual ITLS (Africa) State of Transport Opinion Poll South Africa (TOPSA) is to assess the South African public opinion on a broad range of transport related issues, including public passenger transport, toll roads, and transport usage. It is also the intent of TOPSA is to gain an indication of community confidence regarding transport in South Africa. TOPSA is a telephone survey of 1,000 South Africans citizens, over the age of 18 years, and representative of all the South African provinces. The first TOPSA survey was conducted in 2012 and has been conducted for four consecutive years (Heyns & Luke, 2016; Luke & Heyns, 2013). The purpose of this paper is to evaluate the results of the four TOPSA surveys to reveal the prevailing public opinion on transport matters, and to examine the importance of transport infrastructure to socio-economic development through any shifts in public perception.

The TOPSA surveys was conducted using a two-phased approach. During the first phase, an initial list of prospective respondents were randomly chosen from database of valid subscriber phone numbers which is representative of the geographical and socio-demographic (ethnicity, location and employment status) characteristics of the population in South Africa. During the second phase, respondents were chosen at random from the predetermined list and requested to partake in a computer aided telephonic interview (CATI). Through the quota and random sampling approach, a total of at least 1,000 willing South Africans participated annually in the TOPSA surveys. Trained interviewers from two different market research companies was used to conduct the annual telephonic surveys. Although the sample size could be viewed as a limitation of the study and while a larger sample would lessen the sampling error, the selected sampling size signifies a trade-off with the costs of conducting these surveys.

The research instrument requested demographic information such as locality, age, gender and employment status from the respondents to ensure that the sampling is representative of the geographical and social-demographic diversity of the South African population. The gender split of the sample population over the four-year period is, 58.9% are males and 41.1% are females. For the first three surveys the majority of the respondents (53.8%) were between the age of 25 and 45 years. In the 2015 survey the age group periods were reduced to five categories and indicated that the majority of the respondents (64.5%) were between the ages of 31 and 50.

Across the four TOPSA surveys the majority of the respondents, on average, lived in metropolitan areas (36,2%), followed closely by respondents in towns/villages (29,2%). The rest of the respondents resided in small cities (16,6%) and rural areas (14.5%). The majority of the respondents across the four surveys (69,7%), were employed in some capacity, compared to the 20,7% who were unemployed.

As depicted in Figure 1, the demographic profile from the annual TOPSA surveys approximated a fairly accurate reflection of the South African demographic profile (Statistics South Africa, 2012).

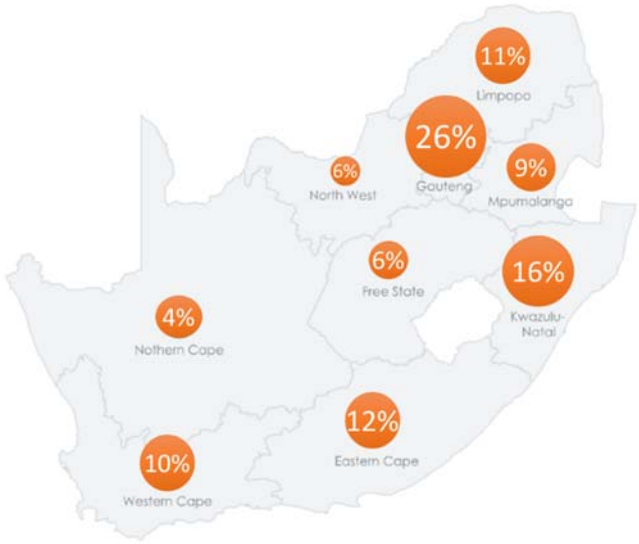

Figure 1: Respondents' geographical location

While the survey sample size may possibly be viewed as a limitation, the authors believe that it is sufficiently large to indicate public opinion on transport matters in South Africa. The Roper Centre for Public Opinion Research (Cornell University, n.d.), states that if a random sample size is increased to 1,000, given a 95% confidence level, the statistical error drops to 3%.

3 Research results

Respondents were requested to indicate what they thought were the most critical issues facing South Africa. Most of the TOPSA participants are of the opinion that education is the top priority in the country, shadowed closely by health and transport, signifying that transport is one of the most crucial issues facing South Africans today.

The TOPSA surveys indicated, for four consecutive years, that *education* was the highest priority issue in South Africa. It appears that concerns around the state of education has increased significantly with 79% of the respondents nominating it as priority issue in 2015, compared to 56% and 64% in 2012 and 2014 respectively. *Health*, *transport* and *safety & security* are identified as the other main areas of importance. In 2015, for the fourth year in a row, *transport* was identified as the third highest priority issue in South Africa, nominated by 74% of South Africans. This has increased significantly from 47% in 2012 and 57% in 2014, clearly indicating growing concerns. The maintained presence of transport in the top 3 priority list further suggests that, despite certain investments in transport infrastructure and possible improvements in transport services, there are still a growing concern amongst South Africans that the current state of transport is insufficient in providing the required mobility and accessibility. Over the four year period, *infrastructure* as a broad priority area, was identified as the tenth highest priority concern in South Africa, with 50% of the respondents nominating it as a very high priority issue.

When asked to indicate what they believed to be the highest transport priorities in the country, respondents stated, consistently over the four year review period, that the state of public transport is the

highest transport priority issue in South Africa. This is depicted in Figure 2. Specific responses regarding public transport reveal that respondents are of the opinion that there are insufficient levels of public transport (i.e. unsatisfactory frequencies and operating hours); poor service quality and inadequate public transport service availability (i.e. service coverage). Although only a major issue in Gauteng and the Western Cape, concerns regarding the e-tolling system seems to have lessened in importance since its peak in 2013. Reasons for this could be attributed to waning media coverage, the reassessing of e-toll pricing, or other associated factors. The cost of transport, irrespective if it is public or private, remains a key concern for South Africans. Although generally perceived as being high by all respondents, transport costs are of far higher concern to unemployed and younger respondents.

Generally, these results reveal that the transport priorities highlighted by South Africans have not significantly changed over the past few years, perhaps indicating that these issues have not been adequately addressed by policy intervention focussing on service improvements and infrastructure developments at all levels of government.

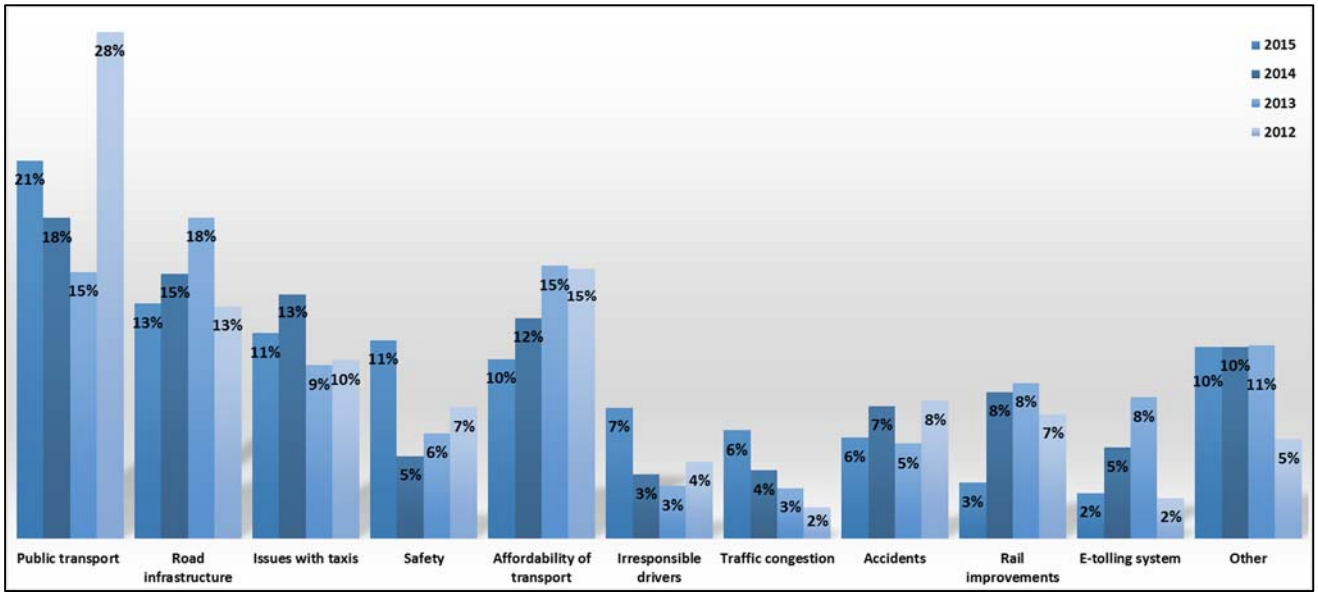

Figure 2: Highest transport issues (2012-2015)

Respondents further highlighted road infrastructure, taxi-related issues, safety and the affordability of transport as high priority issues. Road infrastructure related issues has been the second highest priority issue for most of the four year review period. Specific responses regarding road infrastructure indicate the poor state road infrastructure (i.e. potholes); lack of maintenance and insufficient road infrastructure (i.e. require more roads, traffic lights not working).

At a provincial level, the combined data indicated that public transport is the major transport issue for all provinces. Road infrastructure is the second highest priority for most of the provinces. This is illustrated in Figure 3. The provinces that indicated relatively higher than average concerns regarding road infrastructure are: Limpopo, North West, Free State and the Eastern Cape.

Noticeably, the results further indicate that road infrastructure issues are less of a concern for respondents from urban areas than rural areas. This can largely be ascribed to road building and maintenance programmes being directed on high volume traffic areas in metropolitan areas and cities. Road infrastructure priorities are also more of an issue to older than for younger respondents.

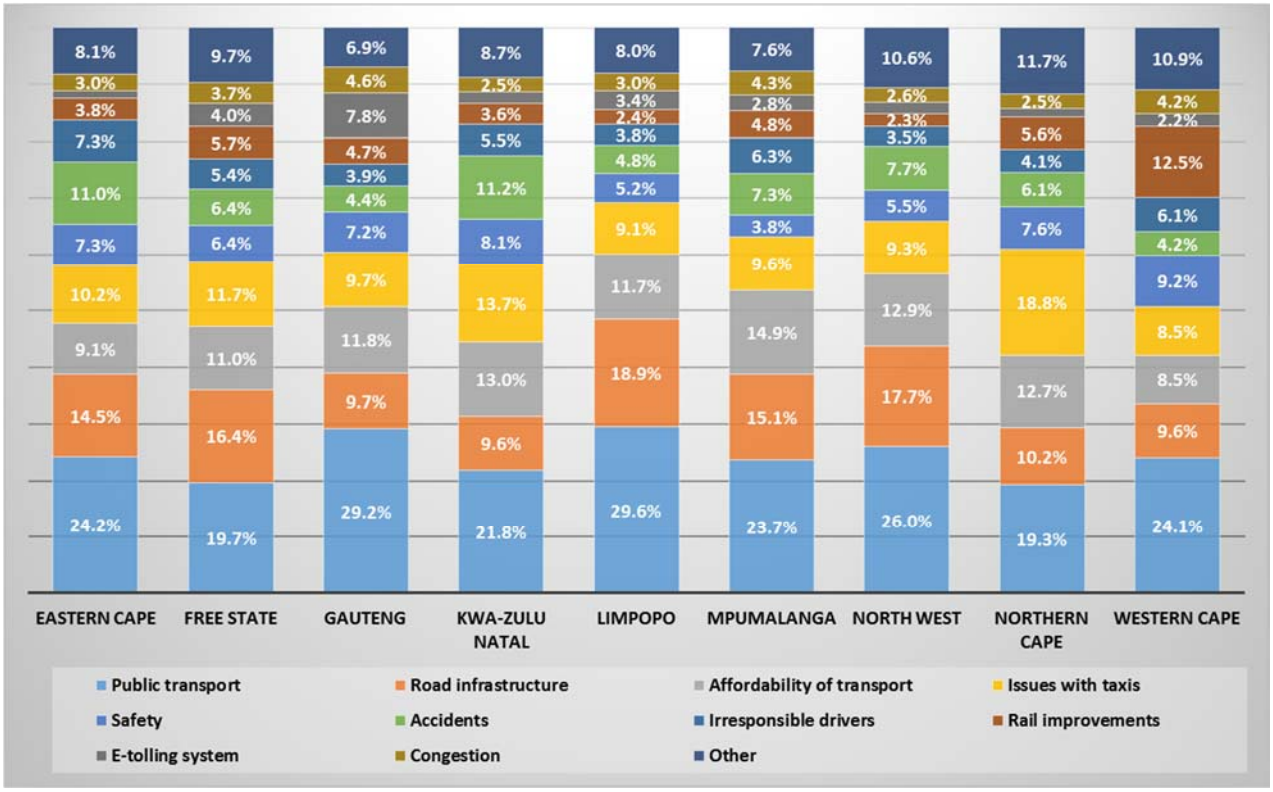

Figure 3: Highest transport issues per province

Since 2013, a number of specific transport issues were surveyed to gauge whether respondents believed the services or issues were generally good or poor. As the purpose of this enquiry was only to establish the respondents' general impressions of specific issues, no specific service characteristics were explicitly tested. These are illustrated in Figure 4.

Transport issue	2013	2014	2015
Bus Rapid Transit	58.6	57.9	62.0
Bus services	56.2	55.9	58.1
Minibus taxis	57.9	54.8	55.3
Condition of roads	50.2	50.1	52.2
Passenger rail services	50.2	49.2	49.3
Road congestion	50.9	49.8	48.5

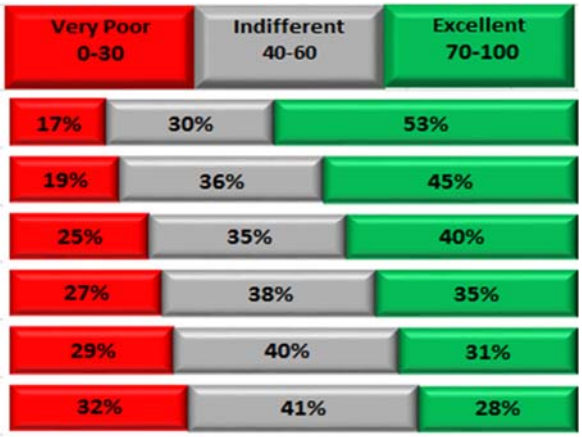

Figure 4: Rating of specific transport issues

Respondents indicated that the significant infrastructure investments in BRT services in many of the metropolitan areas have generally been positively received, with 69% of Western Cape residents and

68% of Gauteng residents rating their respective BRT systems as very good. On the contrary, attitudes towards road conditions, bus services and passenger rail services have worsened.

Generally, the respondents from Gauteng, KwaZulu Natal and the Western Cape are positive about of the quality of their roads, however respondents from all the other provinces indicated that the conditions of their road infrastructure is very poor and gave it their lowest or second lowest rating. Figure 5 below indicates the perceptions of the state of the various transport features per province from the 2015 results. Green and red shading is used to indicate the most positive or negative impression of the transport features within each province.

Transport Issue	Eastern Cape	Free State	Gauteng	Kwa-Zulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Condition of roads	45.8	37.2	58.3	58.3	44.5	53.7	47.0	38.5	56.7
Road congestion	51.9	41.7	44.2	54.6	56.1	56.4	43.5	47.2	37.2
Passenger rail services	56.4	55.2	49.6	54.3	45.0	58.1	47.8	50.4	34.2
Bus services	53.1	57.0	57.1	58.9	58.4	65.8	67.0	50.7	60.4
Bus Rapid Transit	55.6	56.1	67.9	56.9	56.1	66.5	55.0	55.1	69.0
Minibus taxis	59.9	45.4	53.9	58.2	59.3	64.8	70.0	47.5	42.7

Figure 5: State of various transport features by province

Respondents were also asked to indicate the current state of local transport. A noticeable decline in community confidence regarding local transport services and conditions is measured. In 2015 only 37% of South Africans were of the opinion that transport in their local area is better now than a year ago, as appose to the 42% in 2012. The respondents that suggested that transport in their local area was worse or slightly worse than a year ago, gave a broad range of reasons for this, as depicted in Figure 6 below.

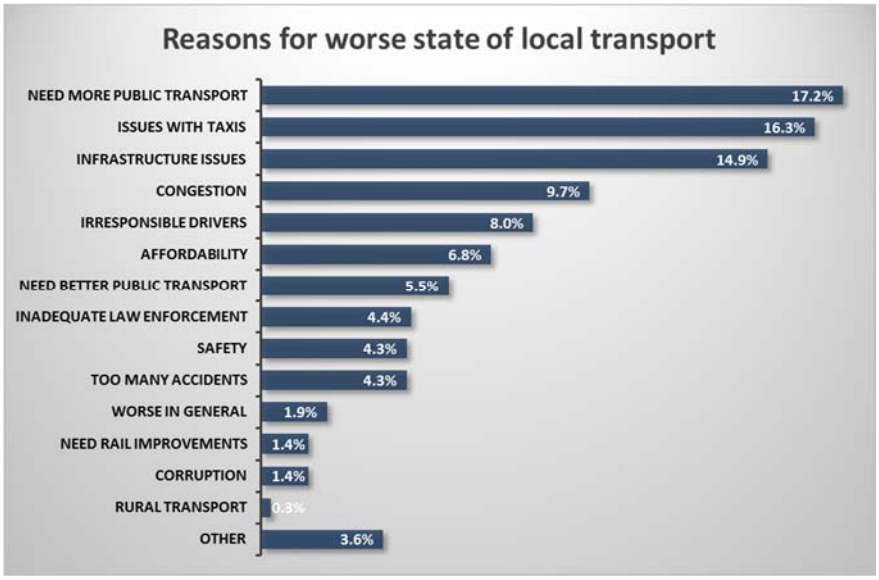

Figure 6: Reasons given for the worsening state of transport

Respondents mostly mentioned reasons related to a lack of adequate of public transport, concerns with taxis (both as road users and as public transport service providers), infrastructure issues (notably potholes), congestion (both insufficient supply of road space and the excessive demand during peak periods), irresponsible drivers and high transport costs.

When questioned on the broad outlook on transport over the next five years, the majority (53.1%) of the 2015 respondents revealed that they are of the opinion that transport prospects would be worse or

they were indifferent. This is contradictory to the 2012 results which showed that the majority (67.1%) of respondents believed that transport would be much better in five years' time. It seems that the respondents' outlooks on the general state of local transport has remained mostly unchanged over the review period, however South Africans seemed to be far less enthusiastic on the state of national transport.

4 Conclusion

The aim of the ITLS (Africa) State of Transport Opinion Poll South Africa (TOPSA) is to gauge public opinion on a broad range of transport related issues in South Africa. The results from the last four TOPSA surveys have provided the basis for this assessment of public opinion on transport infrastructure and services and trends. In general it if found that transport is found to be one of the most critical priority issues in the country and infrastructure in general also being one of the ten top priorities, indicating that transport infrastructure is not of an appropriate standard to meet the needs of South Africans, and needs to be prioritised in future investment and other government interventions. In as far as specific transport issues are concerned, the results indicate that transport infrastructure is almost consistently the second highest transport priority, indicating that South Africans consider this critical to the delivery of an appropriate transportation service. Typically, lack of appropriate infrastructure also has a knock-on effect on the other highlighted issues such as public transport, safety, accidents and affordability, as well as being directly associated with other highlighted issues such as rail improvements and e-tolling. It is thus evident that South Africans believe that transport infrastructure is not at the level aspired to in the policy documents. Some provinces also indicate higher levels of concerns than others, suggesting an inconsistent application of the policy aspirations. Of note is that, when government does invest in appropriate infrastructure such as the Bus Rapid Transit system, it is very positively received by respondents. The general dissatisfaction with other infrastructure such as taxi facilities, roads, buses and rail suggests that the levels of investment are insufficient to meet the policy promises and the quality of the available infrastructure therefore remains below the required standard. It is of interest that, for a large percentage of respondents, the deterioration of transport services and the quality of transport in the country is largely attributable to infrastructure issues. The results reflect that respondents believe that inadequate levels of investment in transport infrastructure has had a direct impact on safety, affordability and choice. Resultantly, mobility, accessibility, inclusivity and therefore socio-economic development are negatively impacted. The results show that, until such time as investment in transport infrastructure reaches appropriate levels, the system will be unable to meet a core aim of the various policy documents, i.e. being responsive to people's needs. Environmental sustainability is also unachievable without investment in transport infrastructure, thereby suggesting that key requirements such as the reduction of congestion cannot be achieved. For government to achieve its minimum transport policy objectives, it is imperative that transport investment be increased and aimed at reducing the mobility and accessibility constraints currently inherent to the system. It is suggested that further research be aimed at expanding the current annual survey figures of 1000 to ensure that views are truly representative of the general population, and that the survey be expanded to determine the specific infrastructure investment interventions that are most likely to enhance mobility and accessibility and meet the requirements of enhancing socio-economic development in the country.

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