QUESTIONS ABOUT THE QUANTITATIVE BASIS OF MUNICIPAL TRANSPORT PLANS

J W M CAMERON

TRC Africa (Pty) Ltd, PO Box 95230, Waterkloof, Pretoria, 0145.

ABSTRACT

The quantitative basis for transport planning in municipalities in the Republic of South Africa (RSA) is the so-called "Current Public Transport *Record*" (the *record).* The *record* first appeared in 1997 as a planning requirement known as TPR 2: Transitional Information Requirements for Public Transport. The *record* was first applied in 1998 in response to Department of Transport initiatives to kick-start the implementation of the passenger transport policies outlined in the White Paper on National Transport Policy. Since then the National Land Transport Transition Act No 22 of 2000 (the Act) was published, as were new regulations (requirements) pertaining to the information required to complete the *record.*

According to legislation and to the national requirements, the *record* should be the basis of the transport plans specified in the Act and in subsequent regulations. These plans include an Operating Licences Strategy, a Rationalisation Plan for subsidised bus transport, a Public Transport Plan and an Integrated Transport Plan.

The paper examines the assumptions around which the *record* is developed. Based on practical experience, a number of critical comments are made with regard to its conceptual basis as the main data-input for transport planning. Practical experience is used to highlight the weaknesses of the *record* and to explain why certain problems are encountered. The paper calls into question the validity of strategies and plans based solely on this source of information. Other questions which are raised include the costs and timing of annual surveys and their affordability to the RSA.

The paper concludes by suggesting alternative methods for providing a quantitative basis for transport plans in the RSA.

1. BACKGROUND

The objective of this paper is to make a critical evaluation of the basis of the transport planning process which has evolved since the publication of the White Paper on National Transport Policy in 1996 (the White Paper).

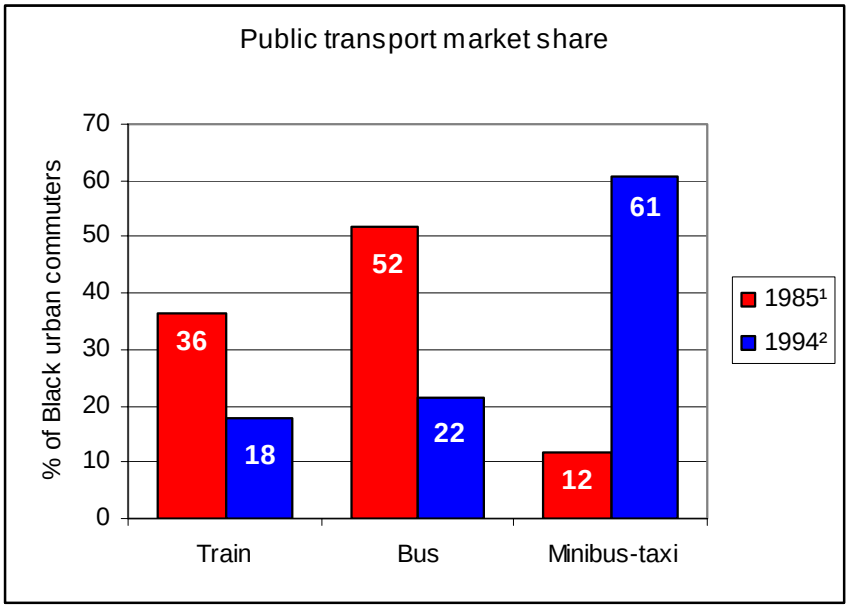
The recent history of passenger transport in South Africa is well known and well documented in, amongst others, the White Paper, the National Land Transport Transition Act and all the subsequent guidelines and requirements issued by the Department of Transport (DoT). The Act precipitated an avalanche of planning activity, with each of the 53 metropolitan and district municipalities being expected to produce, and annually update, 5 distinct sets of plans or strategies.

During the incubation stage of land passenger transport policy, the DoT was warned that

the proposed planning process would be costly and that South Africa had insufficient human resources to enable the process to be carried out effectively. This is still the case.

The proposed planning process evolved from transport planning undertaken by the designated metropolitan transport areas in terms of the Urban Transport Act No 7 of 1977. The architects of the policy and law intended the process to be applied only in metropolitan and large urban areas. It is not known why the DoT decided that “wall-to-wall” planning authorities were needed throughout South Africa. Even more problematic was the application of a “one-size-fits-all” planning process that was not necessary, appropriate or affordable in small urban and rural parts of the country. Possibly, the minibus-taxi crisis stampeded the government into the belief that all its problems could be solved by applying planning and subsequent economic regulation universally. In the meantime, all levels of government are failing to implement fairly straightforward traffic and safety laws. Examples include intoxicated drivers, mobile phone use while driving, unlicensed drivers and vehicles, and unroadworthy vehicles.

2. UNDERSTANDING THE EVOLUTION OF LAND TRANSPORT PLANNING PRACTICE



Notes:¹ Clark P M E, Cameron et al. Trends, patterns and forecasts of Black commuting in South Africa, CSIR Technical Report RT/120, April 1988.² Department of Transport. National Passenger Panel 1994 Research Report NSC09, Pretoria, March 1995.

Figure 1. Trends in travel modes used for work trips by black commuters.

Transport surveys undertaken in South Africa since 1980 show the emergence of minibus-taxis, particularly from the mid 1980’s. This trend is apparent in Figure 1**,** which shows the modal share for work trips made by Black commuters in the main urban areas. The minibus-taxi share went from 9 per cent in 1985 to 48 per cent in 1994. Bus services have been worst affected.

According to many recent press reports, minibus-taxis currently carry about 65 per cent of public transport passengers.

After 1985, regulation of the entry of minibus-taxi operators diminished significantly, largely through neglect caused by a lack of effective law enforcement. The industry became a largely informal activity. Many operations were illegal in the sense that vehicles did not always have permits, many drivers were unlicensed and many of the vehicles were unroadworthy. Traffic regulation was minimal, resulting in numerous speeding and other violations of the Road Traffic Act. To a large extent, this condition still prevails today.

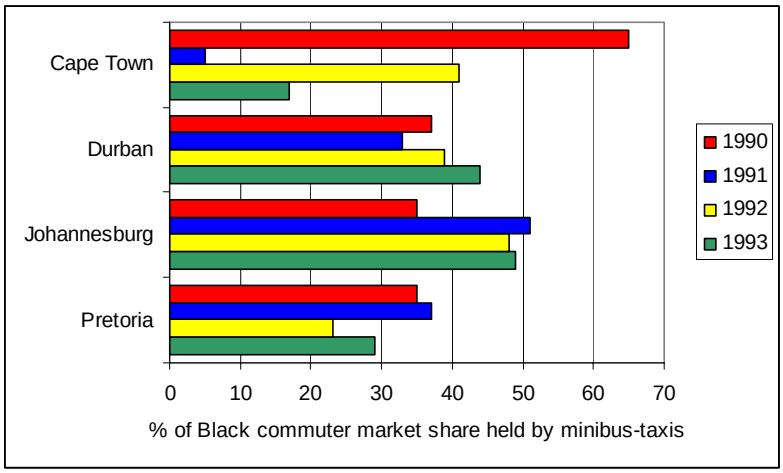


Figure 2. Fluctuations in minibus-taxi mode share between 1990 and 1993.

By the mid-1990's, the minibus-taxi industry was in turmoil and became a serious safety and security problem because of the violence that continuously flared between competing associations within the industry, and between minibus-taxi operators and other modes of transport.

These events shaped transport policies and the planning approach adopted to implement policy.

Figure 2 shows the fluctuation in modal use which was associated with taxi violence (National Passenger Panel (NPP), March 1994). The NPP report, which was commissioned by the DoT, commented on: *"The marked fluctuation in taxi patronage, depending on the taxi wars and the violence worrying passengers, particularly in Cape Town. The almost total boycott of taxis in Cape Town towards the end of 1991, was followed in 1992 by a recovery to nearly two-thirds of its previous patronage".*

This instability gave birth to the term "*destructive competition*", which as stated previously, shaped the regulatory approach to competition. All the ills of the public transport industry were attributed to this cause, rather than to the failure of government to effectively regulate the industry. Another phrase which emerged at the time, as an incentive to the minibus-taxi industry to participate in the policy reform process, was "*leveling the playing field*". This referred to the fact that the industry was not in receipt of government subsidy, as was the case for competing train and bus modes and could not, therefore, compete fairly with subsidised services.

After a protracted policy debate, various deals were struck through the National Taxi Task Team and a new policy was agreed and incorporated into the Act. In essence, the policy was that the minibus-taxi industry agreed to a *formalisation* process leading to *regulated competition*, whereby all public transport services would be *contracted* by transport or *planning authorities*. The state would assist the industry by *recapitalising* the fleet, thereby making it possible for the reformed (formalised) and recapitalised industry to compete fairly for both subsidised and commercial service contracts. Responsibility for regulated

competition was to be *devolved* to the lowest competent level of government (municipalities) and be based on *transport plans* prepared by municipal authorities in terms of the Act. The status of public transport, the so-called Current Public Transport *Record* was to be the quantitative basis of these plans. The *record* would help to determine the existing supply and demand for public transport services. This information would be used for the development of Operating Licensing Strategies, enabling authorities to advise the Licensing Boards about the advisability of granting additional operating licences on a route by route basis.

3. PROGRESS IN IMPLEMENTING LAND TRANSPORT POLICY

Even before the Act was completed, the Director General of the DoT was anxious to commence with policy implementation. In order to kick-start the process, in 1998 a grant of R16 million was made available through the Urban Transport Fund, for application of the *record* in eight of the metropolitan transport areas. The motivation was that the logical starting point for the transformation of passenger transport would be the preparation of transport plans. Planning could not proceed without a thorough understanding and quantification of the status quo.

The same logic ultimately influenced the Act which contained a framework and schedule, leading to the completion of Integrated Transport Plans, which would be the instruments for the transformation of passenger transport. The plans and preparation schedule for the initial start up frameworks and plans are shown in Figure 3. The permissions strategy came to be known as the Operating Licenses Strategy.

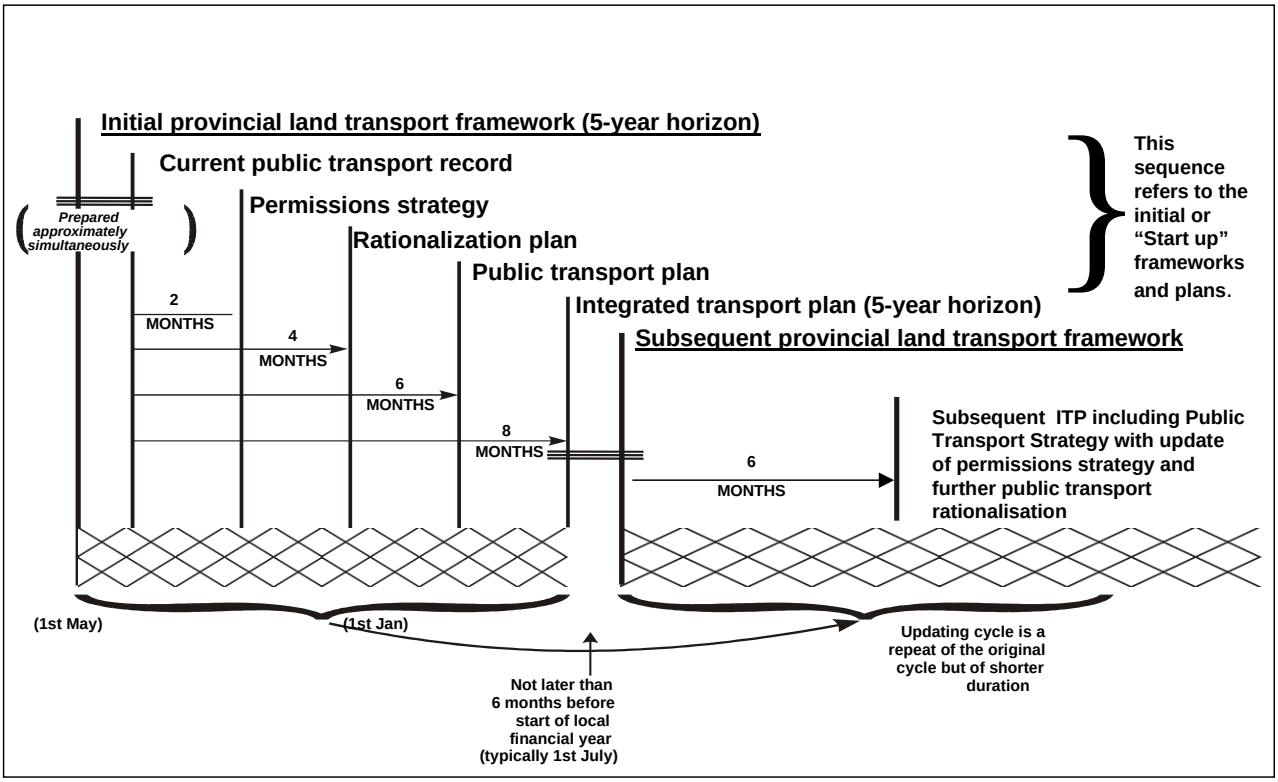


Figure 3. The framework and schedule for transport plans contained in the act.

Initial thinking was that the *record* would take from 4 to 6 months to complete. Thus an annual planning cycle would keep a municipal planning authority busy on its planning tasks for most of the year. The assumption was that the planning tasks would be carried out by a dedicated and professional Transport Executive or Transport Department. Its main task would be to carry out the requirements of the Act.

It is salutary to note that the first plan to be submitted to a provincial Member of the Executive Committee (MEC), was the City of Johannesburg ITP submitted to the City Council in August 2003 and to the MEC in December 2003, as prescribed. The 2004-2009 annual update, has now been approved by the MEC and may be gazetted and become a statutory plan in terms of the Act.

As the 5th anniversary of the promulgation of the Act approaches, it is appropriate to question what has gone wrong. It should be noted, that during the policy development process, as early as 1998, there were a few people who expressed misgivings about the envisaged regulatory and planning process.

4. FIRST ASSESSMENT OF THE RECORD (INITIALLY TPR 2)

The first application of the *record* took place in 1998. An memorandum by the author, presented to the DoT on 28 May 1999, reported the following:

To date, various problems have been observed, but the full extent will only become apparent once all final reports have been received. At this stage the following problems have been observed:

Definitions. Predictably, there have been some problems of interpretation of terminology. For example, the word “trip” has meant different things to different people, from “one-way trip between a rank origin to a rank destination” (the correct definition) to a “round-trip” from home rank to town rank and back. In some cases the words journey and trip have been used interchangeably and in others the correct definition of one-way (trip) and journey (round-trip) has been used.

Route sections. There have differing interpretations as to how a network is put together and confusion about “route sections” on overlapping bus and taxi routes. The requirements of TPR 2 have resulted in networks with many thousands of route sections. This has resulted in a database of enormous proportions with data of dubious quality at the route section level. This aspect of TPR 2 was a miscalculation and needs to be reviewed in future.

Passenger counts. In many centres bus counts, mostly conducted onboard buses, were seriously disrupted by the bus strike. In some centres e.g. (Moloto) patronage has been halved by the strike, and has not recovered. Taxi counts were made at ranks at both origins and destinations. Little is known, or has been collected, regarding the between-rank demand or vehicle utilisation.

Undercounting. Preliminary observations suggest undercounting of taxi utilisation because between-rank loading and unloading has been missed. The extent of this remains unknown.

Train counts. This is a serious deficiency because of an inability to correlate ticket sales with loading and unloading at stations. Fare evasion makes analysis by ticket sales something of a fruitless exercise. In Gauteng particularly, there is a serious problem with regard to train capacity utilisation data because the Gauteng TCC took a decision not to undertake passenger counts, but rather to rely on prior information. This has proved to be unreliable (or not in line with TPR 2 which requires station-to-station utilisation).

Demand estimation. TPR 2 was based on the assumption that over supply causes competition for peak-hour passengers. Accordingly, it required only that peak passenger counts should be undertaken to access capacity utilisation. Some centres undertook only peak hour counts, while others (Port Elizabeth and East London) undertook twelve hour counts.

Revenue estimation. The NDoT has been using the results for revenue estimation in the taxi industry, as the basis of its "taxi scrapping initiative". The absence of information for off-peak and weekend capacity utilisation has made it extremely difficult to estimate revenue.

Other. There are many problems of detail which will be dealt with in the final report.

Some results were provided from various centres and highlighted a number of anomalies, including the following:

- East Rand, Port Elizabeth and East London are reporting that on average taxis only make about three trips per day. This will translate into annual income (revenue from fares) for each taxi of only around R24 000 per annum. The taxi industry would definitely not be viable on this basis, if these results are to be believed;
- Cape Town is reporting an average of around 11 trips per day (5 peak- and 6 off-peak). This would result in annual revenue per taxi of around R75 000, which is a more believable figure and approximates the estimate made of taxi revenue by "Moving South Africa".

It is concluded that the DoT needs to exert pressure on metropolitan areas to deliver the CPTR.

The utility of some of the information may be questionable. It is, however, early days and a clearer picture will emerge once reports have been received.

The TPR 2 requirement for a route section analysis is seriously questioned. It will result in documentation which will be a "boost to the JSE shares of the paper industry".

The DoT should intervene to stop the documentation as envisaged in TPR 2. No-one will read it and no-one will use it in its paper form. The news is, however, not all bad. The GIS information systems which have been established will be an extremely useful building block in analysing public transport at a strategic level. Furthermore, in both a quantitative and qualitative sense, the surveys have provided some new insights into problems and possible solutions for the public transport industry. As such the CPTR can be regarded as a limited success

The NDoT needs to formalise its approach and take certain strategic decisions as follows:

- confirm its expectations for the annual monitoring of the CPTR;
- prepare a "guideline for use of the CPTR data";
- determine the necessary amendments to TPR 2; and
- plan future updates based on revised methods of updating the CPTR and GIS data base.

As a preliminary recommendation, it is suggested that statistically validated household and passenger surveys linked to sample rank and cordon counts, would be a more cost effective method of collecting information. Passenger surveys would also give richer information about problems from the passenger perspective and would enable more reliable estimates to be made of demand and revenue.

The Moving South Africa recommendation to focus resources on strategic corridors is supported. This strategy is somewhat contrary to the notions and assumptions of TPR 2, that public transport should be planned to match demand with supply in an optimal manner. Focus on the strategic public transport network, the enforcement of feeder services, the pursuit of "seamless" transfers and vigorous law enforcement can achieve the necessary public transport rationalisation and improvements without going to the lengths of route planning, which was the notional basis of TPR 2.

5. RECENT PROBLEMS ENCOUNTERED IN THE APPLICATION OF THE RECORD

In respect of the *record*, there is little documented evidence of problems that have occurred, things that have gone wrong, or money that has been wasted.

The only critical comments were those made in the report to the Transport Portfolio Committee of the National Assembly on key issues in the implementation of transport planning in terms of the Act (Palmer Development Group, August 2002). The report did not refer directly to the *record* but mentioned issues such as:

"lack of capacity at municipal level, inaccurate data, incompatibility between data (from the record) with Permit Board and Taxi Registrar data and the need to reduce the frequency (annual) of data collection and planning".

The evidence contained in this paper is derived from experience in implementing the *record* (East Rand 1998), and as an end-user responsible for the preparation of plans and strategies based on the *record.* The most serious criticism was obtained during a series of workshops conducted in all nine provinces on behalf of the DoT in 2004. During the course of week-long workshops, designed to enhance capacity to implement the Act and its planning requirements, participants outlined their experiences of the planning process. These formed the basis of discussion about the planning skills required by municipal government and the way to overcome problems experienced in implementing the Act.

In summary, the problems can be related to:

- 0tendering and the award of contracts to complete the *record*;
- manpower deficiencies;
- management and quality control deficiencies;
- poor specifications and the absence of research to verify their practicability and validity;
- variability.
- legal status of the *record*; and
- the absence of guidance on checking mechanisms and on the use of the *record*.

5.1 Tendering Problems

There have been major problems with tendering and the award of contracts in many areas where the *record* has been undertaken. Problems are usually related to lack of capacity of the tendering authority and questionable practice in the appointment of service providers, some of whom were not qualified in planning or transport and had no experience in undertaking transport surveys. There have been suggestions of nepotism and corruption in the award of some contacts. Cases have been cited where legal and accounting practitioners have won the tenders.

The tendering authority has to rely on the specifications prepared by the Department of Transport. Having no experienced officials, however, means that many authorities have not been in the position to judge whether the tender prices were realistic, excessive or far too

low. In some cases, prices were too low to cover logistics costs and comply with specifications.

5.2 Manpower Deficiencies

Apart from the scarcity of qualified and experienced service providers in the field, the main problem relates to the absence of expertise in the 53 planning authorities. On account of the scarcity of manpower, it is not uncommon for personnel to change during the course of a single contract, resulting in a lack of continuity and low levels of accountability. A concern relating to manpower deficiencies is that in some cases those responsible for the *record* were not qualified either to understand or interpret the results. or how to verify information to determine whether the results approximate the true situation.

5.3 Management and Quality Control Deficiencies

The problem of poor management is, in part, the result of manpower deficiencies dealt with in the previous section. There are indications that some of the contracted service providers and many officials responsible for the contracts in planning authorities have no training or experience in management practice or project management.

On the service provider side, the type of management problems that have been observed include lack of supervision of survey staff in the field, despite the fact that invoices reflect the fact that the majority of the work in preparing the *record* is done by high-level staff. Undercover checks have revealed that some fieldworkers socialise and even drink while on duty. On the authority side, the main management deficiencies relate to a “hands-off” approach, leaving contractors entirely to their own devices without intermediate meetings to report progress or to verify accounts. A serious management problem is that in some instances, there was no quality control. As a result many of the results are questionable.

5.4 Poor Specifications and an Absence of Research

The DoT specifications for the *record* and for other planning processes were largely developed without the benefit of research or pilot tests to determine their practicality. Although the specifications are fairly comprehensive and would be appropriate for a highly skilled and experienced contractor, in the main they are not suitable for those without experience. For example, they do not explain how fieldwork staff should be recruited, how they should be deployed in a cordon survey or in counts at a rank. There are many other instances where more detailed specifications are needed to guide inexperienced contractors.

Had research been conducted prior to finalising the specifications, many of the problems would not have arisen. Minibus-taxi ranks differ from place to place and the specifications do not provide guidance on how to deal with street-based operations and some informal ranks such as those in road reserves adjacent to ranks. Research would also have revealed information about the costs of completing the *record* in different circumstances. such as where operations include significant numbers of cross-border movements. These problems could have been ironed out by research and/or pilot studies.

5.5 Variability

Experience around the country reveals that the quality of the results varies significantly. Poor results can be caused by the problems and deficiencies mentioned in the preceding sections, but also by the survey methods applied. In most cases, the *record* has been undertaken by private sector contractors whose approaches differ from firm to firm. In

some cases untrained casual workers are employed, while in others professional market research companies have been sub-contracted. The latter have professional field supervisors and trainers and a core of experienced fieldworkers. In some instances, taxi association officials (e.g. operators or queue marshals) have not allowed fieldworkers on ranks unless the association has been “paid” for services rendered or for authorizing the counts. Using taxi associations as enumerators is tantamount to “setting a thief to catch a thief”.

In some authorities, full-time technical staff have undertaken the surveys, traffic counts and other transport related fieldwork. Reliable results have been achieved where trained fieldwork staff have been used, such as in Cape Town, largely because the officials are familiar with the operating environment and know how each rank is managed and which destinations are served by all ranks. In other cases where different contractors have been used, in three different applications of the *record* in 1998, 2001 and 2003, the results have shown significant variability. Despite the use of Global Positioning Systems (GPS) and GIS mapping, the number of ranks and terminals differed quite significantly in each of the three years. This point further exemplifies management deficiencies and the absence of quality control.

5.6 Legal Status of the *Record*

The *record* is not generally accessible to operators or the public at large. This is because either the data is stored on a unique GIS system which is the sole property of either the contractor or the planning authority. Logistically and practically there is no way that the voluminous paper versions of the results can be made accessible to interested parties. If, for example, the full tabular *record* for a metropolitan authority were to be printed, it would produce a pile of paper almost a metre high. It is not practical for interested parties to obtain detailed information about any particular rank or route under these circumstances.

Without transparency and accessibility, it is unlikely that the *record* can have any legal standing. To date, none of the *records* have been challenged in any dispute between an authority, a Licensing Board or an operator, largely because at present there are no aggrieved parties. In the event, however, of a dispute arising over the granting of a licence, it can be expected that an aggrieved operator could challenge the veracity of a *record* or the time discrepancy between the survey and the date of the application for the licence. Claims could be made that a *record,* which is biased towards peak-period operations and a single day of the week, cannot be truly representative of public transport operations which take place day and night for seven days of the week and during public holidays.

5.7 Absence of Guidance on Checking Mechanisms

The specifications give no guidance about checking mechanisms, for example how to compare the *record* counts with home interview surveys or other passenger surveys, or how to verify the numbers on the basis of the census undertaken by Statistics South Africa. For example, when comparing the number of *record-based* peak-period passenger movements by public transport with the number of employed persons and those attending educational institutions in a planning authority area, a rough idea can be gained of the numbers that should be commuting by public transport. Census 2001 included a question about modes used to work or school.

5.8 Absence of Guidance on the Use of the *Record*

The various DoT requirements have tended to deal with the different planning requirements in isolation. Although there is a guideline on the development of an Operating Licenses Strategy, there is no detailed account as to how the information in the *record* should be interpreted in drawing up an OLS or a Bus Rationalisation Plan. For example, there is no indication of the appropriate capacity utilisation level at which license applications should be denied. On any given corridor or route, there may be parallel train, bus, and minibus-taxi services but no guidance is given about how to determine whether the different modes are really “in competition”. Customer surveys reveal that most commuters do not perceive that they have a choice of modes. Little guidance is given about the appropriate role of individual modes.

The *record* purports to measure the demand for public transport services, but it is generally acknowledged that at best it represents a count of the number of passengers on any one day. As will be demonstrated, this is often an undercount. The *record* relies on counts undertaken at ranks, but it is a well-known fact that, in the morning peak period, many trips do not commence at ranks and go nowhere near them, particularly at the residential end of the trips. *En route* loading and offloading of minibus-taxi passengers is not recorded and latent demand is not measured because there are no mechanisms for determining the unserved public transport market. The White Paper policy expressed the desire for public transport to be demand-based but unfortunately the *record*. Is a supply-based planning tool.

5.9 Silence About Problems Associated with the *Record*

The relative absence of critical comment is not surprising in view of the fact that some stakeholders would lose face in the event of an exposé of these problems. The livelihood of others depends on the salaries and professional fees paid to those responsible for producing the numerous plans which are dependent upon the Current Public Transport Record.

Professionals know about these problems and the absence of critical comment is regrettable in view of the considerable costs of the process. As a conservative estimate, a cost of R2 to - R3 million for a metropolitan survey, is not unrealistic. The DoT recently conducted a pilot test in the City of Tshwane Metropolitan Municipality (CTMM) in an attempt to iron out some of the problems. The cost of that study, which did not have a full rail and bus component, was R2 million. There are six metropolitan areas and another 6 large urban areas, so for these the annual cost of a record would amount to at least R24 million. If the remaining district municipalities were included, at about R1 million each, the annual cost could easily top R70 million. Even in remote rural district municipalities, it is unlikely that *record* surveys can be undertaken for less than about R500 000, because of the size of the districts.

With all the logistic problems and scarce skilled manpower for administration and implementation, this expenditure is not sustainable in district municipalities. For this reason the *record* has generally not been repeated annually, despite the Act indicating that this is a requirement. Without an annual update, the validity of the *record* can also be questioned because it is a single “snapshot” of the state of public transport on one day of the week. Weekly changes in demand are commonplace and it is unlikely that the information obtained from the *record* would be robust enough to withstand cross-questioning in a court of law.

As professional people we should have a forum to express our concerns and misgivings about planning practice and procedures that clearly do not work. Hopefully, this conference is becoming such a forum where people can influence the way government goes about its business.

6. EXAMPLES OF PROBLEMS WITH THE CURRENT PUBLIC TRANSPORT RECORD

Figure 4 shows minibus-taxi ranks in the Bojanala-Platinum District Municipality. Pie charts over ranks are proportional to the number of passengers going through the rank in the morning peak period. The red segment in each pie indicates the percentage of rank space not utilised. In the residential and rural areas, many of the ranks had fewer than 10 passengers in the morning peak, so no pie appears over the rank marker. Most residential and rural ranks were either unused, or had considerable spare capacity.

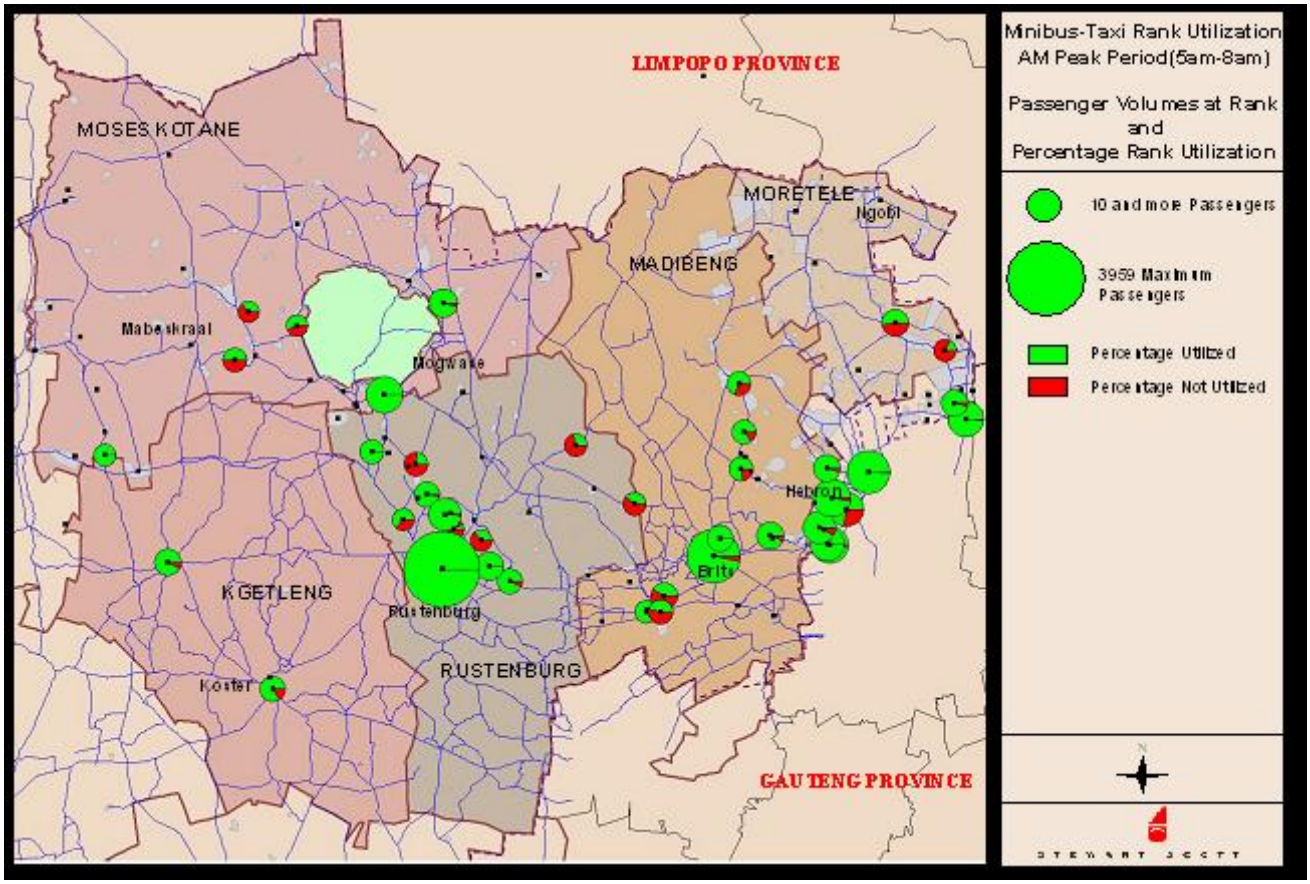


Figure 4. Morning peak utilisation of minibus-taxi ranks in Bojanala-Platinum District Municipality (ranks marked •).

The figure exemplifies what experience around the country has found, namely, that many passengers are not picked up at ranks during the morning peak period. Furthermore, the map shows that there are relatively few minibus-taxi passengers in municipalities such as Moretele, where most commuter movements are cross-border into the adjacent Tshwane municipality. As the *record* relies on rank counts, where trips do not originate on ranks, or where the ranks are in neighbouring municipalities, serious undercounts have resulted.

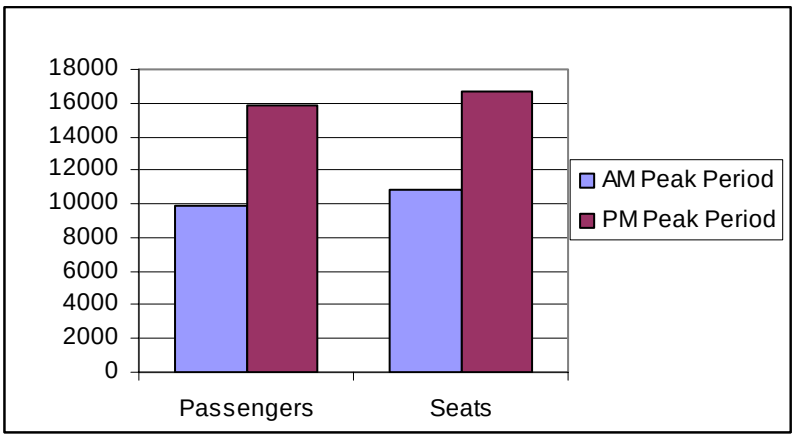


Figure 5. Peak period throughput of passengers at minibus-taxi ranks in Rustenburg.

To evaluate the undercounting problem, an analysis was made of passengers loading at ranks in, or near employment centres, during the afternoon peak. Figure 5 shows the significant difference in the number of passengers and vehicle movements between morning and evening peak periods in the Rustenburg municipal area. A difference of about 6 000 (60 %) is evident. If anything, it is likely that there would be more passengers in the morning peak than the afternoon peak, because of the number of half-day workers.

Another source of error in the *record* is also partially illustrated by Figure 4 and Table 1. According to the *record*, in Moretele municipality only 165 passengers used minibus-taxis in the evening peak period. This result cannot be correct. The 2001 Census indicated that there were over 23 000 employed residents in Moretele, of whom 2 400 made use of minibus-taxis (10 percent).

Table 1. Statistics from the 2002/03 CPTR in Bojanala-Platinum District Municipality.

Municipality	Data from the Current Public Transport Record						Stats SA Census 2001		
	Seats	Passengers / p.m. peak	Capacity utilisation	Peak vehicle trips	Passengers per peak vehicle	Taxi Mode share (%)CPTR	Employed Residents	Minibus-taxi users	Taxi Mode share (%)
Moretele	249	165	66	17	10	1	23 043	2 416	10
Madibeng	8 729	8 346	96	602	14	10	86 066	15 935	19
Rustenburg	16 679	15 820	95	1 130	14	12	132 017	33 677	26
Kgetleng River	283	269	95	21	13	3	10 272	636	6
Moses Kotane	1 623	1 437	89	111	13	4	36 488	9 450	26
External	4 827	4 647	96	342	14	n/a	n/a	n/a	n/a
Total	32 390	30 684	95	2 223	14	11	288 034	62 114	22

Apart from the fact that many minibus-taxi trips neither begin, nor end on ranks, the reason why the count in Moretele was so low was that because the contractors were employed by Bojanala municipality, they restricted their survey work to the area of the municipality. Unfortunately, however, most workers in Moretele are employed in Tshwane municipality and if using a minibus-taxi, would return home in the evening from a rank in Tshwane. Surveys in Tshwane would have had to be extensive and would not have been possible within the budget limitations of the contract. At the time that the plan was prepared

information from the Tshwane record was not available. Lack of co-ordination between neighbouring *records* has also been a problem in many cases.

Table 1 reveals the extent of the undercount of minibus-taxi passengers in all the Bojanala-Platinum local municipalities and in the district as a whole. The undercount amounted to about 32 000 minibus-taxi passengers, more than the number actually counted. Such was the size of the undercount that the *record* can be considered useless as a planning tool or for adjudicating the award of operating licenses.

Another result which questions the veracity of government statistics on public transport, concerns a comparison of the number plates of minibus-taxis in the *record*, with those in the register of the provincial Taxi Registrar (RAS). Of the 3 738 minibus-taxis counted in the *record*, only 449 had number plates corresponding to those listed in the RAS.

Table 2. Comparison between different sources of information about bus and minibus-taxi use.

Mode of travel	Peak period					
	Seats	Passengers / p.m. peak	Capacity utilisation	Peak vehicles	Passengers per peak vehicle	% difference
Bus - CPTR (2003)	86 108	51 132	59	812	63	
Bus - Census 2001	n/a	64 664	75	812	80	26
Taxi - CPTR (2003)	35 370	30 684	87	2 223	14	
Taxi - Census 2001	n/a	62 114	176	2 223	28	102

Table 2 compares the bus and minibus-taxi numbers from the Bojanala *record* with the estimates for Stats SA Census 2001. It shows that problems of undercounting in the *record* also apply to bus passengers. Bus data was obtained from operators.

The two tables illustrate methods that could have been employed by authorities and contractors alike for verifying the results of the *record*. This type of cross-checking has rarely been encountered and was not apparent in discussions held with provincial and municipal officials during the planning capacity building workshops held in all 9 provinces in 2004.

Table 3. Summary of 12 hour minibus-taxi surveys in a Metropolitan Municipality in 2003.

Description	South	North	Total
Number of Ranks	63	49	112
Number of Routes	209	253	462
Total number of vehicle trips	12 834	9 525	22 359
Total number of passenger trips	138 007	109 228	247 235
Total number of vehicle trips (AM peak)	4 028	2 340	6 368
Total number of vehicle trips (PM peak)	3 807	3 171	6 978
Total number of passenger trips (AM peak)	46 081	24 637	70 718
Total number of passenger trips (PM peak)	43 415	37 789	80 204
Total number of unique taxis (excl cordons)	5 136	4 732	9 868
Total number of unique taxis (+ cordons)	5 597	5 153	10 750

Another example of problems with the *record* was extracted from a metropolitan Integrated Transport Plan of 2004 to 2009.

The plan indicates that the information was derived from the 2003 *record* and notes that only 10 750 unique minibus-taxis were identified compared with 14 046 minibus-taxi and metered-taxi permits active or pending, according to the Permit Board Land Transport Permit System (LTPS).

Some simple arithmetic can be used to test the credibility of the data in Table 3. For example, if there are only 70 718 passenger trips made by minibus-taxi in the morning peak (06h00 to 09h00) in 10 750 unique vehicles, then the average number of passengers carried per minibus-taxi would only be 6.6. Likewise, the daily passenger load per minibus-taxi would be improbably low (247 235 / 10 750 = 23). No operator would be viable with a payload of only 23 passengers per day.

Table 4. Minibus-taxi passenger trips in the morning peak in a Metropolitan area according to different sources.

Purpose	Number of trips	Taxi main mode (%)
Current public transport record (06h00 to 08h00)		
All purposes	70 718	N/A
Household travel survey 1998-99 (06h00 to 08h00)[1]		
Work	90 000	22
Education	65 000	11
Work & education	155 000	15
All purposes	194 000	16
National Census 2001		
Work and school	152 860	13

[1]Weighted to Census population

The results of the *record* may be compared with the 1999 Household Travel Survey and the 2001 Census. The results in Table 4, show that there were 155 000 main mode trips by minibus-taxi and 194 000 trips for all purposes If there were around 10 000 minibus-taxis operating at the time, the average morning peak period payload would have been a much more believable 19.4 passengers per vehicle.

Census 2001 shows that some 153 000 residents of the municipality used minibus-taxis to travel to work or education centres. Most such trips normally take place between 06h00 and 08h00, so the result is comparable to the household survey undertaken 3 years earlier.

7. CONCLUSIONS

Section 23 (1) of the Act states that “every planning authority must as soon as reasonably possible after the commencement of this act …… prepare for its area a current public record which must become part of its public transport plan and constitutes the basis for the development of operating licenses strategies, rationalisation plans, public transport plan and integrated transport plans”. Furthermore, section 23 (6) states that “the current public transport record must be updated annually”.

On account of the cost and the poor results to date, in most cases, *records* are not being undertaken at present, nor are they being updated annually. The DoT is aware of the problem, but has been slow to amend the Act or to modify its regulations and requirements. The absence of funds for planning and implementation means that the Act is largely being ignored. This does not help to create respect for the law, a problem which is endemic in South Africa, and manifests itself through lawless behaviour, particularly on the road.

At a conservative estimate, the *record* has already cost the country over R50 million since the first application in 1998. The contract for the fieldwork alone for the Bojanala *record* was R1 million. The Tshwane pilot study which demonstrated nothing but the fact that the specifications are deficient, cost another R2 million. These are expensive and wasteful surveys, which should be discontinued.

It is known that the specifications for various guidelines and requirements prepared in South Africa after 1994 were not based on any feasibility studies or basic research. Practical research, in the form of pilot studies, would have highlighted many of the problems which have been discussed. Unfortunately, research does not enjoy a high priority in government. Research capacity has been eroded and dissipated by emigration, retirement and other forms of attrition.

If South Africa is to become a 'winning nation', research and development will be needed to find the most practical and sustainable means of providing essential services, such as public transport. The fact that South Africa does not have an adequate information base in the transport sector is a cause for concern. The failure to adequately define the size and scope of the largely informal minibus-taxi industry, is one of the reasons for the failure of government to reign-in the worst excesses of the industry.

It is recommended that the 2001 Census and the recently completed National Household Travel Survey should be used for countrywide research on the use of minibus-taxis. Such research can be used to devise strategies to more effectively quantify the minibus-taxi industry and customer reactions to, and expectations of, the industry. Simultaneously, research should be undertaken to assess the potential of new technology to be used in intelligent transport system (ITS) applications. Considering the abortive costs of the *record* and dependent plans, it should be financially feasible to replace this inefficient methodology with GPS tracking, or cell-phone triangulation or roadside transponders.

Armed with real-time information, transport authorities could use call centres to connect customers and suppliers, thereby making transport more demand responsive and facilitating service delivery. Operators are unlikely to resist regulation if they receive this type of assistance and guidance from transport authorities.

8. REFERENCES

[1] Republic of South Africa. National Land Transport Transition Act*;* Act No. 22 of 2000, Government Gazette, No. 21493. Cape Town. 23 August 2000.

[2] Republic of South Africa. Requirements and format for the preparation of Current Public Transport Records by Core Cities*.* Government Gazette. Cape Town. 22 May 1998 under General Notice No. 847 of 1998.

[3] Department of Transport. National Transport Planning Framework for implementation of the National Land Transport Transition Act. Final Draft. DoT. April 2001.

[4] Department of Transport. Integrated Transport Plan: Minimum requirements in terms of the National Land Transport Transition Act. Fourth Draft. DoT. December 2003.

[5] RSA National Assembly: Transport Portfolio Committee. Key issues emerging from background research on the progressive implementation of transport planning in terms of the National Land Transport Transition Act (2000). Palmer Development Group. August 2002.

[6] Republic of South Africa. National Land Transport Transition Act*;* Act No. 22 of 2000; Minimum requirements and format for preparation of Current Public Transport Records by all Planning Authorities. Government Gazette, Vol. 445 No. 23659. Cape Town. 24 July 2002.

[7] van der Reis, A P and MC Lombard. National Passenger Panel, 1993; TRC 7/94, Pretoria, RSA.