PUBLIC TRANSPORT IN CAPE TOWN: CUSTOMER OPINIONS, ATTITUDES AND REVEALED PREFERENCES

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1. BACKGROUND

The Public Transport Restructuring Programme (PTRP) in the City of Cape Town (CCT) was a joint initiative between the CCT, the National Department of Transport (NDOT) and the Provincial Administration of the Western Cape (PAWC).

The programme resulted from the recommendations of Moving South Africa (MSA), the Action Agenda 2020, a NDOT strategic initiative. MSA was influenced by the policy objectives of the White Paper on National Land Transport Policy. The significant White Paper policy shift in respect of public transport was the objective of making the South African transport system more customer orientated. This shifted the emphasis in transport planning from supply-based policies towards satisfying the transport needs of customers.

The customer orientation of current transport policy resulted in the emphasis on customer market segmentation in MSA. In accordance with this priority, the NDOT commissioned studies in Cape Town and Durban aimed at restructuring the public transport systems to accord with the needs and preferences of specific targeted customers.

In Cape Town, the NDOT, PAWC and CCT were anxious to assess customer reaction to the proposed policy initiatives. Principal amongst these were the intention of rationalising bus service contracts, adjusting rail service quality in designated development corridors and recapitalising the mini-bus taxi industry and overall, to give effect to more integrated multi-modal public transport services. These policy initiatives and the necessary adjustments to the attributes and service characteristics of public transport were evaluated through the application of stated preference surveys and modelling. The policy tests, modelling and transport network adjustments resulting from these initiatives are described in other papers in the session (Cameron, van Zyl and Williams, 2002).

2. METHODS USED TO OBTAIN CUSTOMER OPINIONS, ATTITUDES AND PREFERENCES

2.1 Stages of the study

The customer preference surveys in Cape Town were conducted in two phases as follows:

- Phase 1, undertaken in 2001, was intended to determine customer responses to relatively short-term changes in the policies and supply of public transport services. The only significant change that materialised during the course of Phase 1 were relatively minor adjustments to METRORAIL services. Nevertheless, the Phase 1 user surveys questioned commuters about their preferences in respect of the proposed short-term changes in the system affecting all modes; and

- Phase 2, undertaken in 2002, was intended to focus on longer-term adjustments to the public transport system, including those to the public transport network, which were intended to align with the spatial development objectives of the integrated transport plan.

In sympathy with changing circumstances between the inception of the project in 2000 and the current situation in 2002, the user surveys can be said to have had the following characteristics:

- Phase 1 in 2001 focused on long-distance public transport commuters from the most populous parts of south-eastern Cape Town in Mitchell's Plain and Khayelitsha. The market segments targeted in this phase of the project were public transport captives;
- In Phase 2 in 2002, the focus shifted from public transport captives to include a car user market segment (the stubborn in MSA terms) living in close proximity to the existing northern and southern suburbs rail services. There was also a focus on public transport captives living at intermediate distances between the south- eastern extremities and the Central Business District. The latter were questioned about their preferences in respect of existing travel modes and possible future alternatives, such as midi-buses, more direct bus services and improved train services.

2.2 Focus Group Discussions

The survey methods applied in both Phase 1 in 2001 and Phase 2 in 2002 relied on both qualitative and quantitative techniques. Each of the phases commenced with focus group discussions with a small sample of users, to expose underlying attitudes about the modes of travel that they commonly use for work and educational trips and the alternatives available to them

Each focus group involved the recruitment of targeted customers and a two-hour discussion in the offices of the specialist market research agency. In Phase 1, where the emphasis was on long distance commuters from Khayelitsha and Mitchell's Plain, the discussions involved 15 different groups, with participants drawn from Khayelitsha, Mitchell's Plain and educational institutions within the corridors between Khayelitsha/Mitchell's Plain and the CBD. White residents of the City Bowl commuting to the CBD were also recorded. The Coloured and Black commuter discussion groups from Mitchell's Plain and Khayelitsha were differentiated according to gender.

In Phase 2, the discussion groups were restricted to four in number. They comprised White and Coloured groups from each of the northern and southern suburbs living within close proximity of train stations, but currently making use of cars to travel to work in the CBD. The purpose of the Phase 2 focus group discussions was to understand why middle-income Whites and Coloureds make use of cars for travel to work and what it would take to get them to shift to trains.

In both Phases 1 and 2, the qualitative results of the conversations exerted a major influence in the design of the questionnaires used to quantify the customers' attitudes, existing (or revealed) preferences of transport mode and their preferences in respect of possible future public transport alternatives.

2.3 Results of the Focus Group Discussions

Participants in the conversations listed the advantages and disadvantages of travel by various modes. Towards the end of the discussion, participants were asked about changes to the system, which would make them consider shifting travel mode. These opinions are used to help focus on the appropriate policy changes to be contemplated by government and operators.

In the case of the first focus group discussions, the 15 conversation groups indicated the problems characteristic of each mode and provided insight as to the changes necessary to satisfy customers' preferences.

Some examples of the constructive suggestions in respect to crime on public transport are as follows:

- better ticket control by means of swipe cards and security booms at stations;
- official conductors on board trains;
- a hot-line on trains in case of emergencies;
- checking commuters for weapons;
- on board cameras; and
- no smoking on trains and buses.

These are common-sense suggestions which operators should be aware of, but unfortunately, they are usually most concerned about the financial and technical aspects of the supply of services and less about the needs and insights of commuters.

The hostility of commuters can be gauged from the following quotations from the Phase 1 discussions:

> "*In general, the Department of Transport of our land is a headache. Operators make a big profit because the government subsidises them and, at the end of the day, they don't bother about us, the passengers. You sit in the train and the train's windows are broken. The other problem is that the train doors jam all the time. We sit with all these problems and you get a hell of a headache and then it sometimes rains as well"* (Coloured male, Mitchell's Plain).

In summary, in Phase 1 the focus group participants were unanimous that "attempts at increasing the use of public transport should be preceded by definite attempts to eliminate, or at least control the violence and criminal elements present on the existing public transport system". The research practitioners concluded that "the government of South Africa is expected to take steps towards eliminating this negative factor, particularly in respect of public transport violence. Dangers, such as violence, criminal attacks, petty crime, sexual harassment and reckless driving are all part of the lives of the Capetonian commuters. None of the modes of transport are a hundred per cent safe and customer choice is usually based on personal preference and interpretation of what is too dangerous and what is part of normal daily living in Cape Town".

The Phase 2 focus group views on the advantages of car travel are listed in Table 1. The perceived advantages of cars relate to the fact that the driver and occupants are in control of their own security and cars, are faster and offer greater flexibility to users. There were only minor differences between the focus groups for the different areas.

Table 1: Advantages and disadvantages of car travel

	Southern Suburbs Coloured	Southern Suburbs White	Northern Suburbs Coloured	Northern Suburbs White
Advantages of car	• Security • Flexibility	• Security • Speed • Reliability (on time) • Flexibility	• Security • Speed • Flexibility • Need car for work • In control	• Security • Flexibility • Independence • No waiting • You don't pay • Tax benefits
Disadvantages of using car	• Cost • Congestion • Parking	• Cost • Congestion • Parking • Risk of theft	• Cost • Parking	• (No parking problems)

Table 2 highlights the opinions of car users about train services and indicates the improvements that will be necessary before they will even consider using trains.

Opinions were similar in all areas, with the most serious concerns relating to personal safety and security. Most negative views related to exposure to crime and the bad behaviour of fellow passengers. Not all opinions were negative and some participants considered the train service to be preferable to other public transport modes.

The second stage of the analysis of consumer preferences involved the design and application of a questionnaire aimed at eliciting quantitative responses to questions about current preferences of travel mode and opinions about alternatives to the existing choice. The "stated preference" component of the questionnaire involves pair-wise comparisons between the attributes of the chosen mode and a hypothetical new mode or an existing mode with substantially different travel attributes. In the case of the latter, the new attributes are specified in response to changes in policies and the supply of the services. Typical changes include fare increases or decreases, changes of frequency or travel time or access time, improvements in safety and security and other attributes.

3. THE CONTENT AND DESIGN OF THE PREFERENCE SURVEYS

For both Phases 1 and 2, the questionnaires used to elicit information from commuters about their choices and preferences are standard with respect to demographics and the characteristics of travellers' usual choice of mode. These questions relate to race and gender, mode of travel, trip destination, car availability, travel time and all its components including walking, waiting, transfer and in-vehicle times. The revealed preference component of the surveys also focused on alternative modes available and reasons for not using alternatives. The survey elicited attitudes towards the services including security, crowding, travel times and other general characteristics.

The interviews involved the application of computer-aided personal interviews (CAPI) which facilitates on-the-spot data verification. For example, in respect of travel costs, an upper limit may be specified (say R15 per trip) so that any answer in excess of R15 may be queried. Discrepancies between the sum of the trip components and the difference between the departure and arrival times can be queried. The interview is interrupted, only allowing the fieldworker to proceed after verifying and correcting responses.

Table 2: Car user opinions about train services

	Southern Suburbs Coloured	Southern Suburbs White	Northern Suburbs Coloured	Northern Suburbs White
Attitudes to train services	• Dangerous • Walk to and from stations not safe • Disgusting behaviour of male passengers • Crowded • Ugly • Car not safe at stations • 3rd class passengers in 1st class coaches • Short travel time • Cheapest form of transport • Reliable compared with buses	• Dangerous (crime) • Walk to and from stations not safe • Car not safe at stations • Dirty • Windows missing • 3rd class passengers in 1st class coaches • Walk to station not safe	• Dangerous • Walk to and from stations not safe • Car not safe at stations • Dirty, disgusting • First class too expensive for what you get 3rd class passengers in 1st class coaches • Not reliable (stolen cables)	• Dangerous • Walk to and from stations not safe • Car not safe at stations • Dirty • 3rd class passengers in 1st class coaches • No communication when trains are late
Would use a train if:	• Railway police in uniform • Safe parking area • Conductors • Clean trains • Comfortable seats • Vending machines • Regular • Air conditioning • Intercom on train to announce next station • More carriages to prevent crowding	• Railway police in uniform • Surveillance cameras • Control access to stations • Safe parking area • Conductors • Clean trains • Comfortable seats • Toilets on trains • Vending machine • Trains every 15 minutes • Better communication with paying passengers • Separate carriages for males and females • Separate trains for 1st class – even separate lines	• Railway police in uniform • Control access to stations AND platforms • Safe, **free** parking • Conductors • Coffee, newspapers nice, but not important • Trains every 5 minutes • Skip-stop trains • Air-conditioning • Tinted windows with blinds (all working) • Upgrade station area	• Railway police in uniform • Control access to stations AND platforms • Conductors • Toilets • Luxuries not important • Air-conditioning
General	• Would pay more for better service	• Total restructuring needed, starting with security. • Would pay more for better service	• Sort out security and other basics, then increased ridership will enable Metrorail to provide the trimmings	• Security should start at stations

The main advantage of CAPI for stated preference surveys is the ability to use each respondent's current travel characteristics for the attribute levels of his current and alternative mode.

4. SOME RESULTS OF THE CUSTOMER PREFERENCE SURVEYS

4.1 Some Phase 1 results – Kayelitsha and Mitchell's Plain

An interesting result in Phase 1 relates to customer perceptions about alternative travel modes available to them.

Table 3 shows alternatives to the usual mode of travel given by users for each of the main modes of travel.

Table 3: Alternatives to the usual mode of travel by the main mode of travel

Alternative to Main Mode	Main Mode to Work		
	Bus	Minibus-Taxi	Train
	Percentage of respondents		
Bus		39.6	8.4
Taxi	22.7		17.4
Train	12.0	14.2	
Bus-Taxi	-	2.6	-
Bus-Train	0.7	0.7	-
Bus-Bus	-	1.3	0.6
Taxi-Taxi	12.6	-	9.7
Taxi-Train	8.0	2.0	0.6
Taxi-Bus	1.3	7.3	1.3
Taxi-Train-Bus	-	0.3	-
Taxi-Train-Taxi	0.7	-	-
Taxi-Taxi-Taxi	1.3	-	2.6
Taxi-Taxi-Train	-	-	0.6
Taxi-Bus-Taxi	-	-	0.6
Train-Taxi	2.0	1.0	0.6
Train-Train	1.3	1.0	-
Train-Bus	-	-	0.6
Train-Train-Taxi	0.7	-	-
Own car	4.7	3.6	1.9
Someone else's car	4.7	7.6	7.7
No other way	**27.3**	**18.8**	**47.1**
Number of respondents	**150**	**303**	**155**

For mini-bus taxi commuters, the bus was perceived as the main alternative to the mini-bus taxi in the vast majority of cases. Very few mini-bus taxi commuters perceived the train as an alternative (43 out of 303 in the sample). Amongst mini-bus taxi users, a large proportion of the respondents had to use various mode combinations as alternatives, thus being forced to transfer. It is interesting to note that many mini-bus taxi respondents indicated that either their own or someone else's car would be the favoured alternative. A large portion of the sample of mini-bus taxi users indicated that there was no alternative to the use of a mini-bus taxi. With regard to Table 3 the following observations are significant:

- A large proportion of bus commuters indicated that there was no alternative (27%) or, they favoured taxis as the alternative to bus services (23%);
- few bus users (12%) would choose trains as an alternative;
- relatively few bus users have access to cars as an alternative to the bus;
- the most favoured alternative for train users is taxi;
- relatively few train users perceive that buses are an alternative for the journey to work; and
- a large proportion of train users indicated that they have no other means of travel to work (73 out of 155, or nearly half the sample).

Table 4 contrasts the average reported travel costs and times of the current main mode and the perceived costs and times for the alternative mode of travel. In the case of respondents from both Khayelitsha and Mitchell's Plain, it should be borne in mind that their experience in the use of alternative modes appears to be low. Accordingly, the results of the alternative mode times and costs cannot be said to be the result of experience and largely reflect the perceptions of the commuters who are, in the main, captive to their chosen modes of travel.

Table 4: Reported (for current mode of travel) and perceived (for alternative mode) travel times and costs

Mean times and costs of main and alternative travel modes HOME ADDRESS: KHAYELITSHA				
Main Mode to Work	**Current main mode**		**Alternative to main mode**	
	Travel time (min)	**Trip cost (R)**	**Travel time (min)**	**Trip cost (R)**
Bus	90	4.51	83	7.81
Minibus-Taxi	67	7.85	97	5.55
Train	84	2.30	68	8.00
Total	**77**	**5.50**	**87**	**6.67**
Mean times and costs of main and alternative travel modes HOME ADDRESS: MITCHELL'S PLAIN				
Main Mode to Work	**Current main mode**		**Alternative to main mode**	
	Travel time (min)	**Trip cost (R)**	**Travel time (min)**	**Trip cost (R)**
Bus	79	3.95	71	8.95
Minibus-Taxi	70	7.04	85	5.82
Train	64	2.53	73	10.86
Total	**71**	**5.31**	**80**	**7.32**

For the Khayelitsha sample, the following results are of interest:

- reported travel times for the main mode of travel appear to match the actual times, with the mini-bus taxi being the fastest and buses the slowest;
- similarly, reported costs match the actual costs, with train being the cheapest and mini-bus taxi the most expensive;
- for bus users, the alternative (usually taxi) is perceived to be faster, but more expensive;
- for taxi users, the alternative (bus or train) is perceived to be slower and more expensive;
- for train users, the alternative is perceived to be slower and more expensive; and
- overall the alternative modes are, on average, considered to be more expensive and slower than the chosen mode.

With the exception of reported travel times (train being faster than mini-bus taxi) the pattern of the perceptions with regard to the alternative compared with the current mode of travel, is very similar to that revealed for Khayelitsha.

From Phase 1, the most interesting result was the reasons respondents gave for not having an alternative to the normal mode chosen. In descending order of importance, the following were significant:

- alternative transport is too expensive ;
- the distance to walk to reach the alternative transport is excessive; and
- the waiting time for alternative transport is too long.

In the Phase 1 SP experiments, respondents who did not switch to the new services were asked their reasons. In descending order of frequency, the following are of interest:

- there is distrust of alternative modes;
- additional costs would be incurred;
- stations are too far from home; and
- commuters just do not like the other modes.

The majority of these non-switching respondents indicated that nothing would persuade them to change. Service changes, which would help to cause a switch of modes, in descending order of significance, are the following:

- improvement in security;
- a cheaper service; and
- an express service.

4.2 Some Phase 2 User Survey Results – Northern and Southern suburbs, Mitchell's Plain and Gugulethu

The Phase 2 customer surveys focused on car users in the northern and southern suburbs and in bus and train users in Mitchell's Plain and Gugulethu. The surveys of car users, focused on the choice between continued use of a car or an improved train service. In Mitchell's Plain and Gugulethu, the choices were set up to reflect new modes, including a new and improved train service, a rationalised bus service resulting from a sparse primary line-haul network with higher frequencies, and a new midi-bus service, resulting from the taxi recapitalisation. The latter would, offer both line haul and feeder services.

Pilot surveys indicated that 55 per cent of car users in the southern suburbs and 67 per cent in the northern suburbs would not switch from cars to trains. As a result, a screening question had to be added to eliminate any respondents who would not make use of trains under any circumstances. Unfortunately, this made recruitment of car users more difficult, because the vast majority indicated that they would not consider using trains. Only 1 in 5 Coloureds who were canvassed as potential survey respondents indicated a willingness to consider using trains and only 1 in 12 White car users canvassed were open-minded about the possibility of switching to a new train service. Considering that the sample was restricted to those car users living within easy reach of stations, the result indicates that the **potential** market for improved train services is extremely small amongst car users. The conditions under which this small group of people may be prepared to switch to trains, are dealt with in the paper by van Zyl.

The samples for the surveys in Phase 2 are indicated in Table 5.

Table 5: Phase 2 - Samples for the user surveys

SUBURB → SP Experiment	Bellville (N Suburbs)	Southern Suburbs	Gugulethu/ Nyanga	Mitchell's Plain	Total
Car SP and RP	87	121			**208**
Train RP	154	162	158		**474**
Bus RP and SP			125	136	**261**
Taxi RP and SP			131		**131**
Train RP and SP				123	**123**
Total	**241**	**283**	**414**	**259**	**1197**

Table 6 shows the reported walking times to the nearest station from home for each of the categories of existing mode users in the sample. The result indicates that, as expected, train users have the shortest walking times to stations. It also shows that for the car users the perceived access times are high, although they live within close proximity (less than 15 minutes walking time to the station).

Table 6: Reported walking times from home to stations

Walking time	Percentage of respondents			
	Car	Train	Bus	Taxi
1-5 minutes	14	17	7	16
6-10 minutes	24	27	17	29
11-15 minutes	18	26	20	17
16-20 minutes	13	13	15	12
21+minutes	31	17	41	26
Total	**100**	**100**	**100**	**100**
Average walking time (minutes)	**18**	**16**	**22**	**18**

Respondents were asked about car availability (Table 7). The results were as to be expected amongst White and Coloured car users, a large proportion of whom have two or more cars. A surprising result, however, was the high percentage of train-using households in Bellville and the Southern Suburbs, who have at least one car.

Table 7: Car availability in survey households

Area	Percentage of Car users		
	Number of cars		
	1	2	3+
Bellville	27	55	18
Southern Suburbs	49	33	18
Area	**Percentage of respondents who have at least one car**		
	Train	**Bus**	**Taxi**
Bellville	62		
Southern Suburbs	57		
Gugulethu/Nyanga	4	3	8
Mitchell's Plain		20	

Table 8 shows the alternative modes of travel of car commuters. Trains did feature as an alternative to car travel but, on average, were only used about once a month by those who used alternative transport modes. Most car commuters (79%) did not use another mode in the month prior to the survey.

Table 8: Alternative modes used by car commuters

Alternative mode	%	Average times used per month
No other way	3	
Another car	13	
A lift	14	
Train	33	1.28
Bus	14	1.04
Taxi	4	1.56
Taxi-Taxi	5	3.7
Taxi-Train	12	2.3
Other	2	2
Total	**100**	
79% did not use the alternative last month		

Reasons why car users did not use train services are shown in Table 9. It is clear that the perceived crime and crowding on trains are the most important deterrents. The majority of respondents (65%) indicated that they did not use the train on account of the train, and almost a third on account of the crime. Although reliability is not often mentioned as the first reason for not using the train, it influences almost a third of the respondents. The comfort factors **appear** to be less significant, relative to crime and crowding, but it should not be assumed that they are not important.

Table 9: Car users' reasons for not using trains

Reason	% of respondents	
	First reason	All reasons
Crowding	**30**	**31**
Crime	**22**	**65**
Too slow	8	10
Not reliable	9	31
Too far from home	6	7
Dirty	5	15
Too expensive	3	3
Not at the right time	3	5
Too far from work	2	2
Not as convenient	2	14
Not as comfortable	2	9
Other	8	25

Finding and paying for parking in the CBD does not appear to be a serious impediment to the use of a car, as indicated in Table 10. It shows that parking is not a major cost factor affecting the choice of cars as a travel mode.

Table 10: The experience of parking in the CBD

Time to find parking (Minutes)	%
1-3	56
4-5	31
6+	13
Mean	4
Parking location	**%**
Street meter	2
Open space	37
Parkade	9
Employer's	51
Other	1
Parking costs per day (Rands)	**%**
Free	67
Up to R5	13
R 5.01 to R10.00	16
R10.01+	4

5. CONCLUSIONS

The user preference surveys revealed the delicate state of public transport in Cape Town. Attitudes towards public transport modes are generally negative and unless problems relating to crime, safety and the quality of services can be addressed in an effective and timely manner, the leakage of patronage will continue. From the results, it can be deduced that car usage is likely to accelerate, leading to increased congestion and rising commuting and environmental costs.

The limited network and system changes that could realistically be evaluated, because of financial and political constraints, do not encourage confidence in the ability of transport authorities to reverse the negative tide. In order to be credible, user choices must be practical and believable. It is no good testing rail alternatives, which promise “the end of crime on trains”, for example, when general perceptions exist that authorities are loosing the battle against criminals.

A large proportion of commuters consider that they do not have an alternative to the mode that they normally patronise. It may be concluded that nothing can be done about these circumstances (absence of services, poor access to services or inconvenient trip starting times amongst others) but more business-oriented operators would employ marketing strategies and market research to compete for custom. There is no evidence of any such activity and the focus group complaints about the absence of ‘communication’ bear testimony to this fact.

The restructuring project, even accompanied by minibus taxi recapitalisation, may be a case of “too little too late”. Customers perceive that operators are indifferent to their needs (trains and buses) and that minibus taxi services, which operate on narrow profit margins, are indifferent to their complaints.

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