



The Impact of a Busplan in South-West Sydney 1990-1991

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Abstract:

One way of ensuring that "researchers know what the users want" is for operational authorities to define research needs in close collaboration with researchers. This paper is an example where a bus authority introduced a major review of its bus services with an express objective of measuring reactions to it, both before and after its introduction.

The review process began with a large-scale information campaign to all households in the affected areas, accompanied by in-depth studies in areas perceived to be critical. The central theme of the paper, however, is an analysis of a panel survey which measured respondents' opinions before and after the introduction of the changes.

Results suggest that the introduction of this type of reactive Busplan contributed significantly to the increased level of satisfaction among respondents after it was introduced. A secondary, but possible equally important, outcome of the Busplan was an improvement in the perceived importance of the role of buses to the non-user.

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Introduction

In January 1989, the State Transit Authority of NSW was formed and the objectives of the organisation were focused on financial viability. The first Transit Corporate Plan (State Transit, 1989) set out a programme of operational efficiencies designed to move the organisation to a commercial break-even situation in 1992/93.

An important strategy in reaching break-even point was to identify commercial and non-commercial routes. Commercial routes were defined as those which recover their operating costs through fares and concessions granted by the government. Non-commercial services were those that required direct government subsidy to recover their operating costs. Non-commercial services would attract a subsidy as long as they were providing a community service which the government was prepared to support.

All operating divisions in State Transit undertook a review of their existing services to identify the commercial and non-commercial services. The main objective of the reviews was to enhance the financial viability of State Transit by improving the effectiveness and efficiency of bus services.

In the South and West Division of State Transit the review was known as Busplan and was introduced in October 1990. The review area included services operating along Victoria and Parramatta Roads (see Map) and impacted on 32 different routes which generated more than 20 million passenger trips per annum.

The **efficiency** was improved by the reduction of 20 buses over the morning peak hour to satisfy the existing level of patronage, thereby increasing the seat utilisation of the vehicles.

Effectiveness was to be improved by responding to customer needs. These needs were expressed through existing travel patterns and by the extensive community consultation process which accompanied the Busplan review. The results of the community consultation are the basis of this paper.

The Service Review Process

Planning for Busplan commenced in October 1989, when consultants from London Transport International were engaged to undertake a network analysis of the study area (London Transport International, 1990). The analysis included estimations of cost and likely demand for services under different travel time and frequency scenarios. The cost estimations were used to identify commercial and non-commercial services.

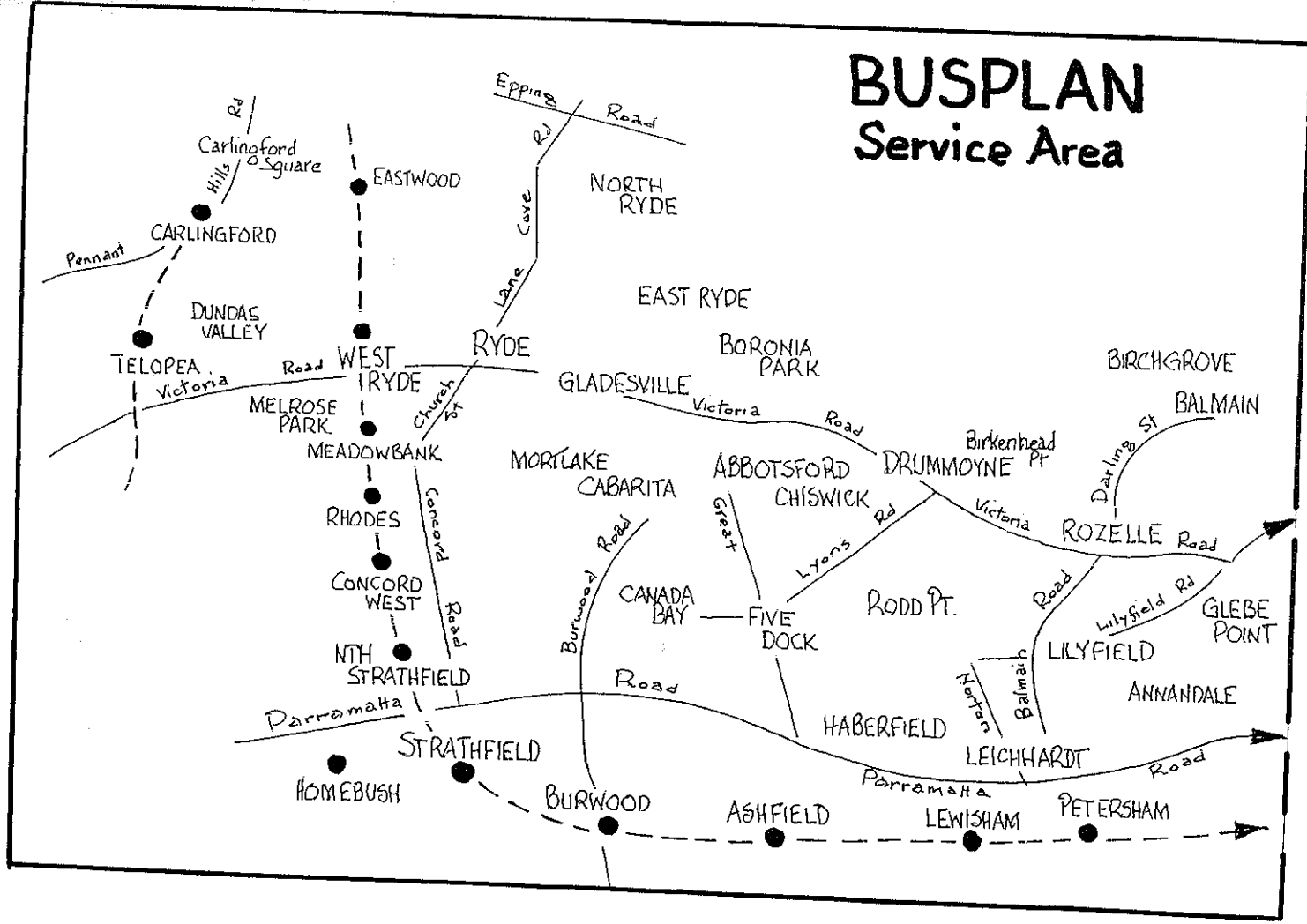
An internal project team was established to review the work done by London Transport International and to develop proposals for the various routes. These proposals were subsequently circulated to the community via the local newspapers seeking comment from both users and non-users.

Service quality guidelines were established and the project team used these in the development of the proposals. The guidelines were:

- To provide bus routes that will put 60% of all commuters in the network area within 400 metres walk of a weekday service and 700 metres on weekends
- To improve on-time operations of scheduled services from 91% to 97%. (In today's traffic conditions "on time" is regarded as arriving within 2 minutes before the scheduled time and 4 minutes after it.)

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- To provide a 20-minute frequency of weekday services in residential areas up to 6pm
- To maintain hourly services on non-commercial routes where it is justified by community need and where government subsidy allows it.
- To provide direct through services in every route where passenger numbers on all journeys average 30 or more per hour.
- To provide sufficient peak hour services to enable passengers to board a bus within 10 minutes of arriving at the stop.
- To space bus arrivals in maximum load times at 8, 10 or 12 minute intervals depending on the route.
- To provide a railway feeder service on city centre routes over the heaviest sections to enable convenient commuter interchange.

As a further part of the review process a strategy was developed to simultaneously test the effect of the removal of existing service and the ease with which a transfer to alternative service/s could be made. This was done for several of the services perceived to be most critical (Ampt & Kennedy, 1990).

The Community Consultation

Effective community consultation was an important element in the success of Busplan. State Transit was committed to becoming customer focused. Inviting comments from customers and the community prior to finalisation of plans was a significant step in focusing the organisation on the customers.

A series of meetings with community leaders including local MPs, local government officers, transport groups and the bus union was held during the consultation process. State Transit officers who attended these meetings received media and presentation skills training prior to the launch of Busplan.

In order to generate awareness of the Busplan proposals and seek community feedback on them, 300,000 broadsheets outlining the proposals were circulated in March and April 1990 as inserts in the local newspapers. The broadsheet was supported by editorial comments in the papers urging people to forward their views to State Transit within four weeks of publication.

State Transit received more than 1100 individual replies to its call for comment, as well as a number of petitions. Sixty per cent of replies were in opposition to specific service changes which were proposed. Thirty per cent were in favour of proposed changes. Ten percent contained general comment, criticism or support. The Division also received a large number of telephone calls and visits from customers who wished to discuss Busplan.

The most extensive changes proposed under Busplan were within the Balmain Peninsula. The strongest opposition focussed on the proposal to service the Mort Bay Housing Development via Mort Street. Forty seven individual replies opposed the proposal, as well as a number of petitions. Another 43 individuals, as well as the Community Transport group supported the proposal.

The project team analysed the comments received, resulting in many of the original Busplan proposals being withdrawn or modified. In addition, some new suggestions put forward during the community consultation were taken up. About fifty percent of replies included the names and addresses of respondents. The Division replied to all of these people who were invited to participate in a "Commuter Club" and the Busplan surveys which are described below.

An important element of the community consultation process was to genuinely involve the community in the development of transport services which would be better utilised and meet the community's transport needs.

Methodology

As noted above, the Busplan was first presented to the public living in the areas to be affected in April 1990 in the form of a broadsheet which detailed the plans for updating routes and services. It was delivered to most homes in the region and had the dual function of:

- informing users and non-users (prospective users) of the services which were available and which might change, and
- asking for comments on the system from the general public.

Each broadsheet had a small tear-off section offering people to "have your say before we go ahead" with the Busplan.

Since the changes proposed in the Busplan were to be widespread and had the objective of providing a better system for the public with "community consultation at the heart of the Plan" it seemed appropriate to obtain some measure of the public benefit of these changes.

Ideally, such a study should have sought the views of a representative sample of all members of the community which was to be affected. Time constraints rendered this impractical, however, and a slightly less statistically rigorous - but, exceptionally informative - method was chosen.

It examined the behaviour and satisfaction levels of those people who responded to the Busplan (and gave addresses) prior to its introduction and again after it had been in effect for about 5 months. The next sections document the way in which that study was carried out and the results which emerged.

Sample

The method used was essentially a panel study, with the same people being sampled for both the "before" and "after" surveys.

As noted above, the sample consisted of all people (662) who gave addresses when they responded to the Busplan broadsheet. While this was a skewed sample in the sense that it represents only those types of people who responded or felt the need to respond to the pamphlet, initial analysis showed that these people included represented the complete spectrum of opinions; some submitted positive comments only, some submitted negative comments only, and some gave both. It also included both users and non-users of the system - although, on the tear-off slips at least, the non-users comprised almost entirely people with negative comments. (As will be shown below many of these people actually had a very positive attitude to bus public transport as a whole, with only specific areas of complaint - "*we don't want the bus coming down our street.*")

Objectives

The following were the objectives of the study:

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- 1) To record and analyse the characteristics of trips currently being made on the system in the Busplan area,
- 2) to determine the level of satisfaction with the service existing prior to the plan,
- 3) to record and analyse the characteristics of trips being made after the introduction of the Busplan changes, and
- 4) to determine the level of satisfaction at that time.

Survey Instrument

The survey method chosen was a self-administered, mail-out/mail-back approach with multiple follow-ups. While this method normally results in lower response rates (and thereby, less accurate data) than personal interview surveys, there were two reasons suggesting that it may be better in this case:

- 1) the respondents were people who had already contributed to the Busplan and it was felt that further personal approaches may have been perceived as particularly intrusive
- 2) the respondents had already shown evidence that they are willing to respond by mail.

The final response rates of over 80% attest to the appropriateness of this selection.

Since it was considered important to gain information from both users and non-users, there were 2 different types of forms. In order to achieve the objectives of the survey, the user's questionnaire (Form 1) contained the following data items

- details on a recent trip (origin, destination, trip purpose, time of day travelled, frequency, route, ticket type, etc.)
- level of satisfaction with 4 service attributes of the trip:
 - reliability (at origin and destination)
 - seat availability
 - cleanliness.

On the non-user's form (Form 2), respondents were asked

- if they had *ever* travelled by bus
- approximately when was the last time
- their level of satisfaction at that time on the 4 service attributes
- an overall appreciation of the advantages and disadvantages of a bus public transport system in Sydney.

The introduction of the last series of questions in a structured rather than open-ended format was a conscious effort to portray to the non-user both sides of the picture.

Field Procedures

Pilot Survey: A pilot survey achieved an overall response rate of 84.6% and led to some minor changes to the questionnaire. During the pilot, 20 interviews were carried out, with personal follow-up to check the understanding of the mail-out questionnaire.

The "Before" and "After" Surveys: The survey before the introduction of the Busplan began on July 5, 1990. The follow-up survey began on February 21, 1991.

For both surveys there were 3 separate mailings. The first consisted of a letter from the General Manager (South and West Division) of State Transit together with Forms 1 and 2 and a returned stamped (not franked) envelope. The second, sent a week

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later to all persons who had not responded at that time, was a letter from the consulting firm, Ampt Applied Research. Finally, one week after that, another letter from the consulting firm was mailed - again with a return, stamped envelope.

Response Rates: The response rates for each mailing are shown in Table 1. Note that the 1990 response rate is 83.2% of all persons who responded to the Busplan initially, while the 1991 response rate is 83.3% of the 83.2% who responded to the 1991 questionnaire. It is interesting that respondents appeared to "learn" that they would receive 3 mailings, with the response to the first mailing being much higher in the 1991 than in the 1990 survey.

Table 1: Response Rates

	1990	1991
Total mailings	662 (100%)	544 (100%)
Response		
1st Mailing	46.9%	55.2%
2nd Mailing	40.8%	30.9%
3rd Mailing	12.1%	13.9%
Total response	544 (83.2%)	453 (83.3%)

Changes in Levels of Satisfaction, 1990-1991

This section discusses the changes that occurred in people's perceptions of aspects of the service between July 1990 and February 1991. Respondents were asked whether characteristics of the service had become better or worse, or remained the same over the last 6 months for the following 4 attributes:

- The chance of the bus arriving at my stop on time
- The chance of the bus getting to my destination on time
- The chance of getting a seat, and
- The cleanliness of the bus.

Once again they were asked for both "legs" of the most recent case of the bus journey they made most often.

Definitional Issues

At the beginning of the questionnaire, each respondent was asked to report on two components of a specific trip - the most recent occurrence of the journey "you make most often". This journey was divided into:

- "getting to where you are going", and
- the return trip

This approach was designed to get information about two separate trips made at different times of the day. It also removed any confusion from respondents about the definition of a trip.

For the purposes of analysis, trips "to" and "from" have been combined. All results from this point onwards represent the amalgam of all trips reported, thereby giving a better representation by characteristics such as time of day, trip purpose and so on.

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Arrival at Origin Stop

Table 2 shows the changes in perception of on-time running of buses at the origin stop. Overall, there was a large increase in the proportion of people who rated this as better in 1991 than in 1990.

The greatest perceived improvements to arrival times are in the peaks, possibly at the expense of the off-peak and evening peaks.

The overall improved perception was also most dramatic for work trips although there was a greater percentage of people who felt that on-time arrival of buses at the origin stop when travelling to work had deteriorated.

Table 2: Changes in Perception of Buses Arriving at the Origin Stop on Time by Time of Travel between 1990 and 1991 (%)

Time of Travel		Better	Same	Worse	Don't Know
6.30 - 9.00	1990	2.0	18.8	3.8	1.4
	1991	4.8	16.5	4.1	.6
9.00 - 15.00	1990	1.5	20.8	2.1	1.1
	1991	4.2	18.5	3.9	1.3
15.00 - 18.30	1990	1.3	18.8	5.7	2.0
	1991	4.2	16.0	5.3	1.2
18.30 - 6.00	1990	1.9	10.9	2.4	.4
	1991	2.2	8.8	2.4	.3
Saturdays & Sundays	1990	.2	4.1	.6	.2
	1991	.8	3.1	1.2	.8
TOTAL	1990	6.9	73.4	14.6	5.1
	1991	16.2	62.9	16.9	4.2

Arrival at Destination Stop

The arrival times at the destination stop were also perceived to have improved significantly since the introduction of the Busplan. In this case the greatest improvements were seen for trips bound to and (to a lesser degree) from work.

This is supported by the improved perception of travellers in the peak periods when people's satisfaction levels were examined by time of travel (Table 3).

Table 3: Changes in Perception of Buses Getting to the Destination Stop on Time by Time of Travel between 1990 and 1991 (%)

Time of Travel		Better	Same	Worse	Don't Know
6.30 - 9.00	1990	2.0	18.2	4.9	1.1
	1991	5.3	15.7	5.0	.8
9.00 - 15.00	1990	1.4	20.2	2.5	1.2
	1991	3.2	19.2	3.3	1.5
15.00 - 18.30	1990	1.5	18.7	6.1	1.9
	1991	4.9	15.5	5.7	.9
18.30 - 6.00	1990	1.6	9.9	2.7	.8
	1991	1.7	8.7	2.5	.4
Saturdays & Sundays	1990	.2	4.2	.5	.3
	1991	.5	3.0	1.7	.5
TOTAL	1990	6.7	71.2	16.7	5.3
	1991	15.6	62.1	18.2	4.1

In contrast, the off-peak and weekend periods were perceived as periods where there had been a decline in satisfaction with on-time arrival of buses at the destination stop.

Chance of Getting a Seat

Respondents felt that the chance of getting a seat on a bus had improved less than on-time running (Table 4), although they also thought that seats were less of a problem in the first place.

Table 4: Changes in Perception of Getting a Seat on Buses by Time of Travel between 1990 and 1991 (%)

Time of Travel		Better	Same	Worse	Don't Know
6.30 - 9.00	1990	3.3	19.7	2.7	.3
	1991	4.3	18.2	3.9	.1
9.00 - 15.00	1990	1.9	21.5	1.4	.4
	1991	4.3	21.7	1.9	-
15.00 - 18.30	1990	2.1	19.3	5.6	.6
	1991	3.5	17.8	5.1	.3
18.30 - 6.00	1990	2.1	12.3	1.1	.1
	1991	1.9	10.0	.9	.1
Saturdays & Sundays	1990	.5	4.8	.2	-
	1991	.8	4.4	.5	.3
TOTAL	1990	9.9	77.6	11.0	1.4
	1991	14.8	72.1	12.3	.8

The greatest improvement in the chance of getting a seat was on the journey to work, but it was also significant on non-discretionary trips (i.e. not school or work-related).

Getting a seat was generally easier throughout the day except for evenings where it was worse.

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Cleanliness of Buses

This aspect of service was seen as the most satisfactory of the attributes presented to the respondents. Correspondingly, improvement was proportionally small.

Improvements to both morning and evening peaks are indicated in Table 5. Weekends were thought to have changed very little.

Table 5: Changes in Perception of Cleanliness on Buses by Time of Travel between 1990 and 1991 (%)

Time of Travel		Better	Same	Worse	Don't Know
6.30 - 9.00	1990	4.9	19.1	1.3	.8
	1991	6.2	19.2	.7	.5
9.00 - 15.00	1990	5.3	17.6	2.1	.3
	1991	5.4	20.2	1.8	.5
15.00 - 18.30	1990	4.8	20.0	1.6	1.1
	1991	5.1	19.2	1.3	.9
18.30 - 6.00	1990	2.4	10.4	2.4	.4
	1991	3.3	7.9	1.7	.3
Saturdays & Sundays	1990	1.1	3.6	.7	-
	1991	1.2	3.9	.4	.3
TOTAL	1990	18.5	70.7	8.1	2.6
	1991	21.2	70.4	5.9	2.5

Other figures showed that the greatest improvements were perceived on the journey to work and on journeys to and from discretionary trips (eg shopping).

Non-Users

As noted earlier, there were 37 respondents who used a bus less than once a week in the 1990 survey and 36 in 1991. These people have been called non-users. They represent between 10% and 15% of respondents.

Previous Bus Use

Each respondent was asked whether they had ever used a bus of some sort. Only 2 people had never used a bus before. The year when respondents last used a bus is shown in Table 6.

Table 6: Estimated Year of Last Use of Bus

Year of Last Use	1990	1991
1991	-	50.0
1990	59.4	42.9
1989	21.9	3.6
1988	6.3	3.6
1985	3.1	-
Earlier	9.4	-
<i>Total</i>	<i>100%</i>	<i>100%</i>

The journey purpose of the most recent trip by bus is shown in Table 7. In both years, shopping is the most common reason, although work and sport and recreation are fairly important. Work increased in importance in 1991.

Table 7: Purpose of Most Recent Trip by Non-Users

Trip Purpose	1990	1991
Work	17.6	23.3
School/University/Tech	8.8	3.3
Shopping	44.1	39.9
Sport/Recreation	20.6	20.0
Visit Friends/Relatives	-	3.3
Other	8.8	10.0
<i>Total</i>	<i>100%</i>	<i>100%</i>

The reasons that a bus was used on the last occasion are shown in Table 8. Between 1 in 3, and 1 in 5 people used a bus when parking was thought to be too difficult. This percentage grew significantly in the post-Busplan era. It could be hypothesised that people chose to use a bus to work (Table 7) when their car broke down.

Table 8: Reason for Non-Users Last Use of a Bus (%)

Reason	1990	1991
Parking too difficult	21.9	34.6
Convenient for that trip	46.9	46.2
Car broke down	3.1	7.7
No other mode available	28.1	11.5
<i>Total</i>	<i>100%</i>	<i>100%</i>

Finally in this series of questions related to the last time non-users travelled by bus, respondents were asked whether the 4 service characteristics chosen for this study were thought to be satisfactory. The results are shown in Table 9.

Table 9: Perceptions of the Service Characteristics of Last Trip by Non-Users

Service Characteristics		Yes	No	Don't Know
Service on Time	1990	50.1	44.7	35.2
	1991	66.6	16.6	16.6
Destination on Time	1990	52.9	11.7	35.3
	1991	63.3	23.3	13.3
Seat available?	1990	85.2	14.7	-
	1991	89.7	10.0	-
Was it clean?	1990	73.6	14.7	11.7
	1991	75.0	14.3	10.8
OVERALL	1990	64.9	26.0	21.2
	1991	73.7	16.1	10.1

Perception of the Role of the Sydney Bus Network

One of the most interesting sets of results for non-users is the list of attitudes to the advantages and disadvantages of buses in Sydney. These are shown in Tables 10 and 11.

Table 10: Advantages of Public Transport Perceived by Non-Users

Advantages	1990	1991
Keeps cars off the road	86.5	75.0
Reduces Sydney's overall pollution	58.3	58.3
Reduces Sydney's overall congestion	70.3	80.6
Helps people with low incomes	67.6	66.7
Helps people with disabilities	35.1	36.1
Other advantages	45.9	30.6
<i>No advantages</i>	1.2	-

The first point of interest is the extremely high level of recognition that buses have advantages for Sydney as a whole. Over 70% of people felt that buses keep cars off the road and reduce Sydney's overall congestion. More than 50% also feel that buses contribute to a reduction of pollution, and about 1 in 3 feel that buses help people with disabilities. Only 1 person felt that there were no advantages.

Table 11: Disadvantages of Public Transport Perceived by Non-Users

Disadvantages	1990	1991
Noisy for local residents	48.6	38.9
Polluting for local residents	43.2	30.6
Increases congestion	29.7	13.9
Dangerous for pedestrians	21.6	16.7
Other disadvantages	35.1	16.7
<i>No disadvantages</i>	27.0	41.7

Table 11 shows that, in general, many fewer people attributed disadvantages to the bus public transport system in Sydney than people who listed advantages. The disadvantages listed in 1991, however, were significantly less than in 1990 and over 40% felt there were none at all.

Conclusions

There are two major conclusions which can be drawn from these results apart from the individual areas discussed in the report.

- 1) The first, and most obvious, is the fact that the Busplan appears to have contributed significantly to the increased level of satisfaction among the respondents selected to participate in this survey. This increased satisfaction has been indicated for all four of the service attributes studied - but particularly with on-time running during the peak periods. There is some evidence that this is offset by slightly less satisfaction at the off-peak times and on weekends, although sample sizes are generally small.
- 2) A secondary, but possibly equally important outcome of the Busplan appears to have been an improvement in the perceived importance of the role of buses to the non-user. This is vital to the ongoing strategic planning of State Transit since overall acceptance of the integral role of buses in the community is important for two reasons:
 - It is a first step in gaining acceptance for further improvements at the government level, and,
 - It increases the threshold of overall willingness to travel by bus among non-users, thereby increasing the source of potential users in the future.This aspect could well form the basis of further developmental work

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