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POSSIBILITIES FOR DEMAND RESPONSIVE BUS OPERATION IN OUTER SUBURBS

J.C. USHER
MANAGING DIRECTOR
INVICTA UNITED BUS SERVICES
CROYDON, VICTORIA

ABSTRACT:

This paper outlines as background the problems of bus operation in outer-eastern suburbs of Melbourne, and includes data on factors which contribute to these problems.

It covers the setting-up and operation of an experimental demand-responsive bus service introduced, with financial assistance from the Victorian Transport Ministry, to meet these problems. Data collected on the operation up to the end of March, 1978 is included.

Comment is made on the difference between costs and revenue, and how the operation may be developed to possibly reduce costs and increase patronage.

Current data will be available at the May Conference.

OUTER SUBURBAN DEMAND RESPONSIVE BUS OPERATION

INTRODUCTION

The theme of this Conference is "Real Solutons to Real Problems". My aim is to outline the "real problems" of bus operation in the outer eastern suburbs of Melbourne and then discuss whether one form of demand-responsive bus operation shows any promise of being a "real solution" to any of these problems.

I hope it will be possible to draw some conclusions for possible future development of this type of operation.

BACKGROUND

My Company, Invicta United Bus Services, operates in the outer eastern suburbs of Melbourne - the Mt. Dandenong foothills. This has never been what could be called a "good" bus area, which intuitive statement can be illustrated as follows: (1)

- Majority of the area is above the average metropolitan social ranking, and socio-economic status rating.
- A larger proportion (35.4%) of the male workforce is in professional/managerial/clerical employment compared with the Melbourne average (29.8%).
- About 33% of the adult population is in the work-force, compared with 44% for Melbourne as a whole.
- Car ownership is higher than for the metropolitan average (1.25 vehicles per household against 1.14). In 1971 53.4% of households had access to one vehicle, compared with 47.8% for Melbourne as a whole. More importantly about 35% of households had access to two or more vehicles, compared with 28.5% for Melbourne as a whole.
- The area has a more youthful population than for Victoria as a whole - 40% of the population is of school age, or younger.
- Even the most dense population in the area is less than half the density of middle or inner metropolitan municipalities.

Our operational area is served by two electric sub-urban rail lines to the Central Business District of Melbourne, although with the trend away from the CBD as a major employ-ment destination, employment destinations for the area's population have become more diverse, both geographically and over time.

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1 Sources: Civil and Civic (1977), Maddox and Forsyth (1977), P.A. Management Consultants (1976).

Day by day operation has come to be characterised by a seemingly ever-increasing demand for school services to increasingly varied destinations. The demand for commuter peak feeder services to rail has decreased and the demand for shopping service appears to fluctuate with the convenience of the service and attractiveness of the shopping centre served; a factor of some importance in the present discussion.

The region is characterised by developing residential estates usually designed with no thought to the provision of efficient route bus operation. Until recently there has been no liaison between planners and bus operators, and even now this is the exception rather than the rule.

This situation has been compounded by post 1974 cost pressures which have meant that marginal development services into new estates have not been introduced. Since September 1974, in common with now all Melbourne private bus operators, we have been subsidised to maintain a service level status quo. It is therefore not surprising that any social survey of the area lists lack of transport as a major problem, even given the high level of car ownership.

Philosophy of Development

As a result of Churchill Fellowship undertaken in late 1975, I have come to believe that a good suburban transport network should include trunk services (bus, light or heavy fixed rail as existing or appropriate to demand) operating between nodal points, with feeder bus operation to these nodes. Co-ordination between connecting services is essential, therefore there must be radio control to maximise the reliability and effectiveness of this sort of operation. There must be a simple transfer ticket system.

Trunk services are basically conventional bus operation. The problem thus resolves itself to find the most cost-effective solution to providing feeder services in our "problem" operating area. So we come to demand responsive (DR) bus operation, which is meeting similar difficulties in, for example, similar areas of North America. DR operation seemed capable of modification to meet our peculiar operational requirements.

REQUIREMENTS TO BE MET BY THE SERVICE

It will be useful to set these out specifically.

Operational Requirements

1 The operation should be able to service developing residential estates from the initial stage to full development, and be adaptable to resulting demand changes without frequent re-organisation.

2 The residential estates in which the service would operate are usually laid out without thought to bus operation, therefore the system should be operationally flexible.

3 The service has to be attractive to passengers who have a preference for a second car and the (often unwilling) financial ability to operate it. It is assumed that every family will have one car, therefore the service is aimed at the second car user. This assumption may be criticised on social grounds, but we are not in a financial position to consider social benefits! From experience this meant catering for small numbers of rail commuters in a feeder service role, large numbers of school children to local schools or to connect with other bus services, and whatever shoppers we could attract through attractiveness of service and destinations.

4 Operational economics determine that the vehicle used must be capable of continuous use throughout the day, i.e. be able to cope with all loadings including school loadings; although the operation of a smaller than usual vehicle may have some cost savings.

5 Service should overcome the previous bad image of outer suburban operation. It should be "in" to use it, and attract favourable publicity.

6 To assist in planning, to ensure meeting specific demands and to assist in introduction, we needed liaison with an effective local representative body.

7 We had a commitment by the company to the installation of a UHF two-way radio system.

Costing Requirements

From overseas experience, it was obvious that if the operation was satisfactory the main scope for criticism would be in the area of costs. Therefore the service should be designed, operated and developed with the aim of maximising services but controllling and where possible reducing costs.

General Design Requirements

1 The more flexible a system in the senses of number of possible pick-ups and destinations and in short reaction times, the more complicated and expensive it is to operate, and the less likely

there is to be multiple loadings (passengers going to the same destination at the same time). As the service was to have a feeder role, departures from the co-ordination point could be timetabled to connect with the trunk service, hence the operation could be structured into a regular pattern. This is the first step to simplifying operation and reducing costs. The second step was to limit the number of major destinations served, thus the co-ordination point should be a significant demand generator in its own right, preferably a major shopping centre with other services, such as health, library etc. available.

2 Because the service was to be an experiment and in case of failure, the area needed to be easily and clearly defined, and separate from the rest of the network. There should not be any existing service, to simplify introduction and possibly later withdrawal of the service. (In fact there was an elementary school service) To assist control, the service should be close to our depot.

From this analysis, a suggestion for a limited off-peak experiment was put to the Transport Regulation Board late in 1975. The matter came under the notice of the Victorian Ministry of Transport, and ultimately two experiments were authorised, which both began in October 1977, for a period of six months.

One experimental service ("Phone-a-Bus") was introduced in the western suburbs of St. Albans, an area which has a different socio-economic pattern from that now being considered. The other ("TeleBus") is operated by my company in Chirnside Park, near Lilydale 35 km east of Melbourne. Both services are similar in vehicle and in time spread of operation. They differ in that while "Phone-a-Bus" operates each tour through fixed pick-up points as well as responding to telephone demands for service, and is controlled by a taxi despatch service, "TeleBus" relies on subscription and telephone demands, and provides in-house despatch.

Because the experiments are funded by the State Ministry, there were other considerations which ultimately ranked before costs, for example the time spread of service, and the setting of fare levels.

My paper deals with the TeleBus operation because this operation was a specific attempt to meet the particular problems already outlined.

OUTER SUBURBAN DEMAND RESPONSIVE BUS OPERATION

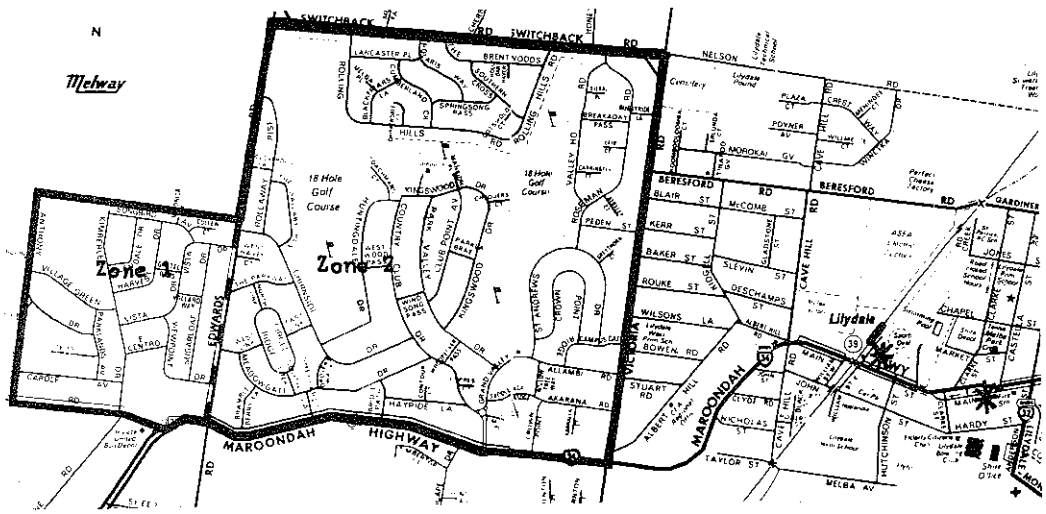
THE "TELEBUS" OPERATION AS SET UP

Area, Population and Characteristics

The experimental operation was set up in an easily defined area of 3.24 sq. km. in the Chirnside Park/North Croydon area 35 km east of Melbourne. The population of this area was just over 4,000 as at the 1976 Census, living in 1121 houses. Population growth of the general area was at an average of 3.6% 1971/76 and housing growth was at an average of nearly 5% p.a. in this period. At the time of the experiment there were approximately 4,500 people living in about 1,300 homes.

On data to date 88% of users surveyed had telephones, 22.9% of user households had incomes below $9,500 p.a., 44.3% had incomes between $9,501 and $14,000 p.a. and 32.8% had incomes over $14,001 p.a.

There is a golf course in the centre of the estate which makes the effective operation of fixed route buses impossible, and incidentally makes the selection of stop sequence for each DR tour both important and difficult if bus arrivals are to be matched with estimated times of arrival (ETA's). This means a high standard of liaison between driver and despatcher is essential.



* Indicates major departure points

Fig. 1: Map of "TeleBus" Operational Area and Destinations

Outline of Operation

To simplify operation and to control costs it was decided to limit major destinations to two, one at the railway station and the other central to the shopping centre. These destinations are outside the operational area.

Within the operational area the service can pick up and drop at will, and the area includes two local convenience shops, a Country Club, Kindergarten and a primary school. Thus the service can be described as a combination many to many/many to two system.

Travelling either to Lilydale suburban electric station or shopping centre, or to destinations within the operational area, passengers can:-

- Ring and book, and are quoted an estimated pick up time by the despatcher. The aim is to match ETA's with an actual pick up no more than five minutes away either side of the ETA. Bookings are requested at least 30 minutes before travelling.
- Make a permanent subscription booking, e.g. to catch the same train each morning, or to go to and from primary school.
- Hail the bus, although there is no fixed route and no fixed stops in the operating area.

It was decided to schedule tour departures from Lilydale, to connect with suburban rail services in the commuter peak to structure the operation, and to facilitate return journeys. Travelling from Lilydale, passengers can walk-on at either of the two fixed departure points (shopping centre and station) at known, approximately scheduled,departure times, and tell the driver their home address. Bookings are not needed, and TeleBus waits for trains. Liaison is maintained with the railway station by telephone as required. In the case of return journeys from Country Club and Kindergarten bookings are required, as they are for return journeys originating within the service area.

Hours of operation are as follows:

Weekdays	7.00 a.m. - 10.00 p.m.
Saturdays	8.00 a.m. - 1.00 p.m.

Fares are as follows:

The operational area is split into two zones (refer map).

	Adult	Concession
Zone 1 to Lilydale	50¢	25¢
Zone 2 to Lilydale	40¢	20¢
Within Zone 1 and/or 2	30¢	15¢

For comparison, the original fare to the primary school was 18¢ (cf. fixed route school fare of 20¢) which rose at the beginning of 1978 to 20¢. Adult fares over fixed route services for the same distances would currently be between 30¢ and 45¢.

Administration

No weekly or transfer tickets are issued. The control of the system is based on two lists, the Despatch Tour List and the Driver's Tour List. The former is the master list and must include full details of each tour as it builds up. The Despatcher uses this list to control the Driver's route.

DESPATCH TOUR LIST

Day/Date 28 3 78
Tour 10 45 / 11 25

Call Time	Name	Phone	Pick Up	No. of Pass	P/U Ord	ETA P/U	Act. P/U	Show N/S	Destination Notes
9 40	Hunt	735 2345	21 Spring Song	2+P	3	11 00	11 00	S	Station
10 20	Brown	735 4567	28 Village Grn	1	4	11 05	11 06	S	PO
10 39	Smith	735 6789	33 Harvest	1+2/2	5	11 05	11 08	S	Station
10 44	White	735 1234	118 Victoria	1	2	10 55	10 55	S	Station
		W/O PO		2	6				16 Edwards
		W/O Stn		1	1				12 Campus Gate
			(Incomplete)						

Fig 2: Despatch Tour List (Example)

The driver's list is similar but less detailed, and is used by the Driver to work out sequences at time of low pressure.

There is room for re-analysis and some streamlining of these procedures. However, under the present system there is always a cross check.

DRIVERS TOUR LIST

Machine	1c	10c	100c	Pass	Tour	Day/ Date 28/3/78
Finish	977	810	543	454	Finish 473	Tour Dpt. Lilydale 10 45
Start	961	752	543	436	Start 319	Tour Arr. Lilydale 11 25
Issued	16	58	–	28	Total 154	Driver K Donald Bus 54

Pick Up Address	Pass On	ETA P/U	STOP TIME	SEQ.	SEQ.	DEST./ DROP OFF	PASS OFF	STOP TIME
PO	2				6	16 Edwards		
Station	1				1	12 Campus Gate		
21 Spring Song	2+P	11-00		3		Station		
28 Village Grn.	1	11-05		4		PO		
33 Harvest Drive	1+3/2	11-05		5		Station		
118 Victoria	1	10-55		2		Station		

Advise despatch at each stop. Advise despatch of Walk-Ons.

(Incomplete)

Fig. 3: Driver's Tour List (Example)

Permanent bookings (subscriptions) are maintained on a Subscription Tour Card for each tour of the day, and details entered daily onto Despatch and Drivers Tour Lists from these cards which contain provision for recording variations in subscribers' requirements.

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TOUR CARD (SUBSCRIBERS)

TOUR 6 50/7·20a.m

START DATE	DAYS BOOKED FOR	NAME	PHONE	PICK UP	NO. PAS.	ETA P/U	DESTINATION	DELETED DATE
~~24/10~~	~~MTWTF~~	~~Mrs Smith~~	726 1234	46 Vista	1	~~6·50~~	~~Station~~	~~6/2/78~~
5/12	MTWTF	C Brown	735 5678	19 Wallaby	1	6 55	Station	
6/12	MT-TF	Mr White	735 3456	16 Rolling H	1	7·00	Station	
9/2	MTWTF	Mr Scott	735 5678	37 Country C	1	7·05	Station	

Fig. 4: Subscription Tour Card (Example)

Vehicle

TeleBus itself is a Hino AM100 "midi-bus" with seats for 23 adults, and space for two prams carried inside the bus. Drivers assist passengers with prams and shopping jeeps. From experience the bus has a peak load capacity of approximately 40 primary children without too many problems, which means it can be used throughout the operational day. It is diesel powered, with power weight ratio of 14.8 Kw/tonne (approx, 20BHP/ton), and three braking systems. It has manual transmission.

Control

Liaison and control between Driver and Despatcher is maintained by radio. In peak load situations particularly they work closely together - the Despatcher working out the sequence and next drop for the Driver, who concentrates on vehicle operation. With small loads this feature is not important, but it is important in improving reaction times (the time between booking and pick-up) when a booking is made for pick-up after the vehicle has left on a tour.

Publicity

General publicity was handled by the Ministry of Transport, and there was some reasonably favourable TV coverage. Radio news coverage was less than accurate.

Specific publicity was handled by ourselves, and included local press coverage, publicity in the area Newsletter, and two leaflets. The first gave general details of the operation, and was letterboxed by company staff. The second gave specific information, and was distributed by the estate committee.

We obtained a distinctive telephone number, installed an after-hours message-taking answering service and colour related the distinctive bus colour scheme and leaflet colours.

Staffing and Training

All staff were recruited from existing employees, and all more than met the challenge of a new type of bus operation. Training extended over a two week period prior to introduction of the scheme with Despatchers making up tour lists for Drivers to follow. It became something of a game just prior to introduction, with Despatchers making tour lists as complicated as possible within the tour time span, and Drivers endeavouring to improve on Despatcher's ETA's.

We have had no problems with the selected staff handling the level of operation, and while Despatchers also control the radio system for the rest of the bus fleet, they are not yet fully extended.

DATA DERIVED TO DATE

Data derived from the experiment to date are included as Tables 1 - 6.

TABLE 1

TELEBUS PASSENGERS AND REVENUE

1977		PASSENGERS Week	PASSENGERS Month	REVENUE Week	REVENUE Month
Oct. 24 - 29		572	572	185	$185
Oct. 31 - Nov. 5	(Cup Day)	536		166	
Nov. 7 - 12		812		253	
14 - 19		834		268	
21 - 26		910	3092	280	967
Nov. 28 - Dec. 3		835		252	
Dec. 5 - 10		934		298	
12 - 17		894		283	
19 - 24	(Schools End)	753		250	
26 - 31	(Christmas)	335	3751	119	1193
1978					
Jan. 2 - 7	(New Years Day)	480		163	
0 - 14		699		230	
16 - 21		725		251	
23 - 28		703	2607	254	898
Jan. 30 - Feb 4	(Aust. Day)	707		231	
Feb. 6 - 11	(Schools Began)	896		275	
13 - 18		979		306	
20 - 25		1102	3683	330	1142
Feb. 27 - Mar. 4		1083		310	
Mar. 6 - 11		1144		343	
13 - 19	(Labour Day)	919		280	
20 - 25	(Easter)	922	4068	280	1213
			17773		$5598

Source: Company Records

TABLE 2

REVENUE FLUCTUATION - TELEBUS AND CONVENTIONAL SERVICES

November 21 - 25, 1977 = 100

1977		Route Operation	TeleBus
Nov. 21 - 26		100	100
Nov. 28 - Dec. 3		94.9	90
Dec. 5 - 10		103.5	106
12 - 17		96.6	101
19 - 24	(Schools End)	80.7	89
26 - 31	(Christmas)	28.5	39
1978			
Jan. 2 - 7	(New Years Day)	43.6	58
0 - 14		55.3	82
16 - 21		65.0	89
23 - 28		71.1	91
Jan. 30 - Feb. 4	(Aust. Day)	60.0*	83
Feb. 6 - 11	(Schools Began)	95.7	98
13 - 18		103.3	109
20 - 25		99.2	118
Feb. 27 - Mar. 4		96.9	111
Mar. 6 - 11		103.9	123
13 - 18	(Labour Day)	87.1	100
20 - 25	(Easter)	80.5	100

* Revenue from conventional services adjusted down for this and subsequent weeks by 6% to eliminate effect of fare increase. No fare increase for TeleBus.

Source: Company records.

TABLE 3

TELEBUS PRODUCTIVITY

	Average Pass. per Tour		"Productivity" Pass. per Vehicle/hr.		"Demand Density" Pass. per Vehicle/hr/sq.mile	
1977	(a)	(b)	(a)	(b)	(a)	(b)
November	5.6	6.8	10.13	12.47	8.10	9.98
December	5.7	6.8	10.17	12.48	8.13	9.98
1978						
January	4.8	5.9	8.7	10.71	6.96	8.57
February	6.8	8.3	12.29	15.13	9.83	12.10

(a) For full time span 0700 - 2200 M - F)
0800 - 1300 Sat.)

(b) For reduced span* 0700 - 1900 M - F)
0800 - 1300 Sat.)

* Use of the reduced span illustrates the effect of discontinuing the evening service 1900 - 2200 M - F, which carries very few passengers.

Source: Company Records.

TABLE 4

OTHER DIAL-A-BUS OPERATIONS PRODUCTIVITY

	Productivity (a) Pass. per Veh/hr.	Demand Density (b) Pass.Per Vehicle/ Hour/Square Mile
Ann Arbor Mi. USA	8	7.2
Batavia N.Y. USA	11.5	5.8 - 7.7
Bay Ridges Ont. Canada	9.7	21.0
Haddenfield N.J. USA	5.4	3.9
Regina Sask. Canada	19.5	26.0

Sources: (a) Quoted by Schnell (1975);
(b) Quoted by Kirby, Blatt et al (1973).

TABLE 5

PRODUCTIVITY OF SELECTED ROUTE SERVICE

1977	Pass/Trip	Pass/Veh.hr
November	18.0	21.87
December	15.2	19.33
1978		
January	12.3	14.94
February	17.1	20.72

This service operates within 2.33 sq. km., containing about 1,300 households and a population of 4,500+

Source: Company Records.

TABLE 6

TELEBUS REVENUE AND COSTS

	Average Fare per passenger	Mean Direct Cost per passenger (a)	Mean Total Cost per passenger (b)
1977			
November	0.31¢	$1.04	$1.44
December	0.32¢	1.05	1.48
1978			
January	0.34¢	1.24	1.73
February	0.31¢	0.89¢	1.23
March (to 25th)	0.30¢	0.79¢	1.10
Week 6 - 11th	0.30¢	0.73¢	1.01

(a) Directo costs are those which would not be incurred if TeleBus was not operated;
(b) Total costs are those invoiced to Ministry of Transport.

Source: Company Records.

The following comments can be made:

Table 1. Within a relatively short period TeleBus has developed into a service which carries a significant number of passengers each month. The patronage appears to be still increasing.

Table 2. TeleBus is not as prone to revenue and patronage changes as normal fixed route operation.

Table 3-4. TeleBus, after only five months of operation, is at least in the same productivity "ball park" as North American systems, although it has some way to go to reach the figures of its namesake in Regina, Canada.

Table 5. TeleBus productivity is not yet as good as that for a roughly comparable route service; part of this shortfall can be attributed to a smaller population, and a less suitable area than for the service with which it is being compared. The golf course occupies 16% of the operational area and prevents direct access one side to the other. TeleBus also operates some non-productive mileage to and from the service area.

Table 6. The subsidy required for each TeleBus passenger is still in excess of that for a normal bus passenger in the same general area. For the last available full week, the nett difference is 29¢ (Direct Cost) and 57¢ (Total Cost) per passenger, assuming subsidy on normal services to be 14¢ per passenger.

Transport Regulation Board (Victoria) analysis provides the following facts:

Up to the end of December, after two months' operation, TeleBus had generated nearly 21% of new journeys, and increased travel frequency for 60% of users, mostly for shopping. For over 30% of all journeys, TeleBus replaced a car, for over 36% TeleBus replaced walking, and for over 27% TeleBus replaced a taxi.

The convenient and comfortable service was seen as the main attraction by over 40% of passengers. 16% thought that increased mobility was the main advantage, and another 16% were attracted by the relative low cost of the journey.

52% of passengers booked by telephone, in other words nearly all passengers out of the service area. Passengers returning do not need to book. Only 3% of passengers saw the cost of the telephone call as a problem.

The average deviation of actual pick-up from ETA has been 2.72 minutes late over the month of March.

A significant number of callers have been booked and picked up well under the 30 minute maximum notice requested.

WHERE DO WE GO FROM HERE?

As this is being written (end of March 1978) analyses are being made and decisions taken in regard to the future development (if any) of "Phone-a-Bus" and "TeleBus" after the end of the six month experimental period in April.

Details of these developments should be available for the May ATRF Conference, as should further operating statistics.

My concern so far has been to describe and explain the background, the operation and something of the results of the first five months of TeleBus operation. It has generated considerable traffic from an area that could not be effectively served by route operation. The service has worked, and worked efficiently. Each operational problem we have had was easily overcome.

The major problem, as anticipated, is the per passenger subsidy currently needed to operate the system in its present form.

In North America, public transport operators have access to a wide range of non-fare box funding, including Federal Section 3 and Section 5 capital and operating grants; access in some States to certain State taxes, and access to funds derived from local rate revenue. The farebox contribution is typically 50% or less of total operating costs.

By contrast, despite the social benefits of better public transport in the outer suburbs, I feel we must aim to operate TeleBus and similar services so as to approach subsidy levels applicable to normal fixed route services in similar areas.

I see the main aims of further developments to be reduction of operating costs by structuring and simplifying the operation, and toward raising revenue by increasing both fares and passengers. These aims need not be contradictory.

Reduction in Costs

Despatch Costs. The major additional cost over conventional bus operation is that of the Despatcher.

One journey characteristic of passengers who use TeleBus to catch commuter trains or to go to school is that it is a regular journey planned in advance. Over 90% of our morning TeleBus passengers to rail and to school are subscribers, who make a regular booking for the same time each day.

The factor of immediate despatch control does not remain essential to operation under these conditions, and in fact we have successfully operated both morning and evening peaks without radio. Our Driver followed the set pattern to pick up subscription commuter and school passengers in the morning and in the afternoon followed a system of planned group drops for school children (as is normal to handle the loadings) and in the evening worked out for himself the best drop sequence for the commuters returning home off scheduled trains.

By contrast, traffic during the day is unpredictable. People appear to decide to go shopping on the spur of the moment, and in this situation immediate despatch control is essential. It is this convenience of pick up at a nominated time which is the attractive factor, and it is shopping that has been the major reason for the increased travel arising from the introduction of TeleBus.

At the moment, TeleBus is one bus, and this one bus has to carry the whole cost of despatch services. Overseas experience has shown that one Despatcher can handle at least five buses, spreading costs over wider operation and more passengers. It is quite possible, and would be a response to specific demands, if one of these vehicles was dedicated to a specifically equipped many-to-many service for handicapped people in the same general operational area.

Hours of Operation. TeleBus has shown that, no matter how good the service, people in our particular area are just not interested in night service, and find Saturday services of little use. It is therefore reasonable and cost-effective to tailor hours of operation to actual demand. In my opinion, in the specific environment in which we operate, the social benefits of night and weekend operation do not come up to the additional costs involved.

Increase in Revenue

Increase In Fares. TeleBus surveys have shown that passengers regard the cost of the service as a relatively minor factor - a point that is not new to any practical transport operator. Passengers are prepared to pay, firstly for reliability, then for convenience and comfort. I believe that TeleBus fares could be increased by perhaps 25% without a dramatic drop in patronage. A concession periodical

ticket would be made available for subscription passengers.

Increase in Patronage. TeleBus surveys have shown that increased waiting time (up to 10 minutes) would have little effect on patronage. In as much as it is the Despatcher that finally sets the pick up time this will tend to disguise a drop in service frequency. I believe an expansion of the service area at a lower frequency of service is one way of attracting more passengers.

Feeder Service. TeleBus was conceived as a feeder service to trunk bus routes, and this aspect has not been yet introduced. Access to a trunk route system, with transfer tickets, will, by increasing the number of demand generators capable of being accessed, improve the attractiveness of the TeleBus operation.

CONCLUSION

If, in the first instance, we disregard the cost aspect, there is no doubt that "TeleBus" has shown the way to a "real solution" of a "real problem" in operating public transport in at least some outer suburban areas.

Someone more able than I can probably show that, even at the present level of per passenger subsidy, the costs are exceeded by the social benefits obtained from the operation. However, I believe that operational costs can still be reduced, without affecting the attraction of the service, and I hope we will be given the opportunity to develop along the lines suggested.

By the time of the Conference in May, further data on performance of the existing operation will be available, as will information on how the system has developed in the intervening two months.

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