

THE INNOVATIVE USE OF THE COMMUTER CAR

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ABSTRACT: To increase the average occupancy of commuter cars, whilst simultaneously reducing the peakiness of public transport demand, holds out the prospects of better utilisation of both private and public transport resources and of giving some relief to public transport deficits. How to achieve this is a challenge which has for the most part been unmet.

The paper describes the results of research carried out for the Director General of Transport South Australia to investigate whether there may be a practical and publicly acceptable way for this objective to be achieved.

The paper presents an outline of such a scheme and how it could operate and be administered, and examines findings on public acceptability, operational feasibility and economic viability.

INTRODUCTION

A major contributor to urban public transport deficits in Adelaide and elsewhere is the need to provide substantial additional capacity to meet the peaks in public transport demand which occur in the commuting hours. As a result much of this capacity remains idle at other times of the day. At the same time commuter cars used in the peak hours have low average occupancies (about 1.3 persons per car in Adelaide) and have long been recognised as one of the most underutilised resources in the transport system.

To reduce the peakiness of public transport demand and supply, whilst simultaneously increasing the average occupancy of commuter cars holds out the prospect of better utilisation of both public and private transport resources, and might offer some relief to public transport deficits. But how to achieve this is a challenge which has for the most part been unmet.

Schemes for car pooling and car sharing have been sponsored on an experimental basis in many cities around the world but the emphasis of these has usually been on increasing car occupancies through pooling of persons who usually use cars, rather than by effecting a transfer from public transport to car. They have also usually depended upon pre-matching of particular groups of persons with similar origins and destinations. This lack of flexibility has posed difficulties in sustaining the schemes over a long period.

One way of trying to reduce the public transport peak, without the inflexibility of conventional car pooling, is to allow motorists holding a special permit to stop at bus stops during the peak hours and to carry passengers for a fare.

This paper describes the results of a recent study carried out for the Director General of Transport South Australia to examine the feasibility and possible impact of such a scheme.

The feasibility was examined from various perspectives, public acceptability, administrative systems, and operating methods. In addition the economic costs and benefits were assessed.

We perceived that there exist two quite distinct ways of applying the essentially simple concept of private cars carrying fare paying passengers.

The first is to design the scheme to meet very specific transport planning objectives and thereafter to administer and operate the scheme to meet those objectives with a high degree of security and certainty.

The alternative approach is simply to remove the legal constraints which prevent motorists from picking up fare paying passengers, and to issue a permit for nominal cost with a minimum of rules and regulations.

We may refer to these two options respectively as the 'regulated' and the 'informal' schemes, although these are not extremes. Thus in the regulated scheme we recognised the need to try to minimise unnecessary regulations, whilst still meeting its objectives. In the informal

scheme we considered some regulations would be necessary for any chance of public acceptability.

The regulated option

The development of the regulated scheme involved progressive revision to meet, as closely as possible, a number of criteria. These criteria are that the scheme should:

- i) meet the objective of transferring part of peak public transport demand to private cars at a net resource saving and deficit reduction;
- ii) provide for the safety and security of the public (both drivers and passengers);
- iii) have minimal detrimental impact on other road users;
- iv) have simplicity of operation.

It was apparent that, to a considerable extent, the last criterion conflicts with the others. As rules and regulations are introduced to meet the various objectives, the essential simplicity of the scheme may be compromised.

However, using these criteria we identified prospective periods of operation, direction, and geographical areas.

Examination of the pattern of public transport resource usage suggested the scheme should be operated from about 0730 - 0900 and 1630 - 1800 on working weekdays. Outside these times public transport service rapidly falls off to frequencies geared to minimum service levels, so that few savings in public transport operating costs would be achieved if some passengers transferred to the new mode.

Further the peak public transport capacity requirement is set by the peak direction, in particular radial travel to and from the central area. A reduction of passenger numbers in the contra-peak flow direction would reduce the revenue of the public transport operator without any offsetting savings in costs. Therefore, to meet its first objective, the regulated scheme should be operated only inbound towards the central area in the morning period and outbound in the evening period.

Many bus routes converge as they approach the central area providing better service frequencies to passengers joining those parts of the route. In the outer areas even in peak hours, the service frequencies on some routes are minimal, so that again reduction in patronage may not lead to any operating cost savings. In addition, many of the outer routes are in very low residential density areas and rural areas which could compromise the perceived "security" of the scheme. We also noted the relatively high traffic speeds on some of the main roads outside the built up area proper, which in the absence of bus bays could create traffic hazards if cars were to stop and pick up passengers. For all these reasons we considered the regulated scheme should be limited to the inner and intermediate urban areas.

Finally, the regulated scheme would be intended to maintain a high degree of security and certainty and minimise impacts on other road users. These criteria could require:

- .. certainty on the part of the passenger of the service offered and what it will cost;
- .. certainty on the part of the driver of the service he has to offer and how much he should receive;
- .. insurance of passengers and drivers against loss or accident;
- .. protection of passengers against unsuitable drivers;
- .. protection of drivers against offensive or dangerous conduct of passengers;
- .. minimising impacts on other road users;
- .. special needs to protect children;
- .. suitability and safety of vehicles;
- .. complaints procedures;
- .. monitoring and policing.

Clearly, if responsibility for these areas is accepted by Government, it implies the need for an administering authority, an administration system, a registration system and identification methods for vehicle and drivers, and a schedule of operating regulations.

The informal option

In the informal scheme permits would be issued to motorists applying for them but no responsibility would be taken by Government on matters such as driver or vehicle suitability or insurance. People who chose to participate would do so at their own risk. Operating regulations would be minimal, probably specifying only the maximum (flat) fare to be charged together with a blanket ban on carrying unaccompanied children. (We considered this would be necessary if either option were favoured, and were confirmed in this by public discussions). A permit would be withdrawn from a holder in response to serious or repeated complaints by passengers or the Police.

PUBLIC PERCEPTIONS

Public perceptions would determine the level of public acceptability required for implementation and so we asked P.A. Australia Pty Ltd to conduct an attitudinal survey of potential participants in the scheme. These people were defined as present peak period commuters to the Central Area who currently travel by bus or private motor vehicle. The survey was conducted through a series of five group discussions involving members of the public. A sixth group consisted of a panel of experts selected for their knowledge of transport and related matters.

What the public thought

The concept of the scheme was outlined to participants (at that stage the options were not defined in detail). In most groups the initial reaction to the concept was favourable. Younger people tended to be more enthusiastic towards the scheme, and this acceptance appeared to diminish quickly with age. People over 40 were generally much less enthusiastic.

The main positive features of the scheme mentioned were:

- .. concept good as there is a lot of waste space in cars;
- .. could be a regular source of income;
- .. quicker than bus, especially from the outer areas;
- .. useful if you miss the bus;
- .. an opportunity to meet people.

The negative comments made about the scheme were:

- .. driver loses convenience of own car;
- .. imposes an obligation on driver;
- .. prefer the impersonality of public transport;
- .. greater security on public transport;
- .. public transport has a high degree of certainty.

Aspects of security were particularly mentioned by women.

Many participants expressed concerns over the practicality of the concept or mentioned the safeguards which should be observed. The concerns included:

- .. the conflict between the scheme and the general attitude of discouraging hitchhiking;
- .. problems of city pick up;

- .. regularity;
- .. traffic problems;
- .. insurance implications;
- .. ability and trustworthiness of drivers..

Many people believed that if the scheme were put into operation it would probably end up as a formalised car pool.

Many participants in the discussions viewed the scheme as a back-up to the present public transport system, rather than an alternative. Comments made about usage included:

- .. only if not well served by public transport;
- .. useful if I missed the bus..

The greatest acceptance of the concept was from people living in the outer suburbs who use public transport. They mentioned the length of travelling time as a criticism of the bus network and saw the availability of an alternative transport method as a means of reducing commuting time. As with the potential drivers, the people seen as most likely to participate in the scheme as passengers are males under 30.

The group participants were unanimous that unescorted children should not be permitted to be carried.

What the experts thought

A further discussion group was held with participants selected on the basis of their expertise in certain fields relevant to the operation and administration of the scheme. These participants included:

- an officer from the Police Force;
- an operator of a large taxi fleet;
- an officer from the Motor Registration Division;
- a behavioural psychologist;
- a transport consultant;
- an officer of the Adelaide City Council;
- an officer of the State Government Insurance Commission;
- an officer of the State Transport Authority.

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It was intended that these persons should present an independent point of view based on their expertise rather than a departmental view, although it must be recognised that in practice this distinction can be blurred. Some of their views are summarised below.

The reaction of the police officer was highly critical and unfavourable. Complications were foreseen in the areas of traffic problems, safety of vehicles, competence of drivers, insurance and criminal implications. He believed that the police would not want to enforce legislation surrounding the scheme.

The taxi operator's first reaction was negative. Such a scheme would face collective opposition from taxi drivers. He pointed out the stringent checks on operating and driving taxis and felt that the scheme could be seen as an insidious way of deregulating the taxi industry. He also said that taxis are at present underutilised and could be used as an alternative to the scheme. He saw car pooling as a more realistic alternative.

The Motor Registration Officer considered the scheme to be quite expensive to administer. He was sceptical about the number of people who would be passengers, and expected that drivers would most likely be from lower socio-economic groups.

The psychologist was very critical. He saw an inconsistency in discouraging hitchhiking on the one hand and suggesting the scheme on the other. He suggested the scheme was open to abuse. He raised the importance of the concept of "own space". People often don't want to have to talk to others and this might be difficult in a private car.

The first reaction of the transport consultant had been negative although he found the scheme interesting. He expressed concern about traffic implications although he thought the scheme could work well on bus routes which are off the main highways. Cheap parking could be provided for participating cars. He did not foresee the scheme being very large but agreed that drivers would need to be licenced for consistency with bus and taxi drivers.

The officer from the Adelaide City Council expressed great concern about the implications for traffic congestion in the CBD, although he noted that this was dependant upon the scale of the scheme.

The Government Insurance officer could foresee great administrative problems and expected an increase in the insurance risk. He saw the scheme as being too unwieldy.

The S.T.A. officer was almost completely opposed to the scheme and could foresee problems with bus drivers unions. He pointed out the dangers of drivers racing to bus stops and problems of loading at city curbsides especially in the evening peak. There would need to be a reasonable number of drivers to ensure a regular service. Passengers who preferred to continue using buses would object greatly to a reduction to their services.

It is clear that the concept was perceived much more favourably by the public than by the experts. Resistance could be expected from operators and labour representing competing modes. Administrators in registration, insurance, and policing foresaw problems for their organisations. In both types of discussion group (though not unanimously) there was a feeling that route taxis at cheaper rates would be a more satisfactory alternative, given the institutional framework already existing and the greater assurance of vehicle and driver safety, insurance, etc.

ADMINISTRATIVE FEASIBILITY

The regulated option might be viewed as a way of trying to meet many of the concerns expressed. In this section we consider the administrative feasibility of the regulated option. In the absence of any new legislation or amendments to existing legislation, the operation of the scheme would be governed by the Adelaide Metropolitan Taxi Cab Act (1956) and be subject to its provisions and regulations.

The Act provides for the control of taxi-cabs in Adelaide and defines a taxi-cab as any motor vehicle which is so constructed that not more than eight persons (including the driver) may be seated. Thus all private cars are, prima facie, taxi cabs. Consequently, if cars are used in a certain way, they are automatically subject to the Act.

Specifically, a summary offence is committed under the Act by any person who drives any unlicensed taxi-cab within the Metropolitan Area for hire or reward, or in which any passenger is carried for hire and reward.

Whether the scheme would be subject to the Act depends upon the legal meaning of "hire or reward". Since a fare would be paid it is difficult to see how it could be otherwise than held to involve "hire or reward". Thus the Taxi Cab Act would apply, and the scheme could simply not operate within the regulations made under the Act which are designed specifically for conventional taxi operations. As a prerequisite for implementation, either the Act would need to be amended in Parliament to exclude the scheme or the Metropolitan Taxi Cab Board could introduce the scheme itself as an additional licence under its administration.

However, we considered that the Motor Registration Division of the Department of Transport would probably be a more appropriate agency, having expertise and infrastructure to administer licences involving private cars. Private motorists are familiar with its offices and workings.

A section could be set up within the Division dealing with permits. This section would check the appropriate documentation of applicants and accept the application form and any fee payable. If approved, the permit (including its terms and conditions) and identification stickers naming both the driver and the car would be posted to the applicant by the Division.

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The permit and stickers would remain the property of the Department of Transport and could be withdrawn for failure to comply with the regulations, or for any other reason, at the Department's discretion.

If an application were not approved (for any reason) the letter of refusal would be sent, together with a refund of the fee.

The application form could require the following kinds of information:

- personal details;
- drivers licence details;
- details of vehicle;
- permit required (origin and destination);
- details of previous prosecutions for motoring offences;
- a signed declaration that:-
 - all information given was correct;
 - authorisation to the controlling body to request from the Police Commissioner a copy of his police record, if any (as in the case for Taxi Driver applicants);
 - the applicant was in good health and not subject to various medical conditions (to be specified in the application form);
 - the applicant had read, understood and agreed to comply with the regulations of the scheme; and
 - the applicant understood that the permit to participate remained the property of the Department and could be withdrawn at any time.

The applicant would also need to produce at the time of application his driving licence and registration certificate. These would be checked against the details given on the application form and returned to the applicant immediately. An application would only be accepted if these were in order.

In addition, the applicant would have to provide two signed passport-style photographs. Of these, one would be attached to the permit (if approved), and one would be retained on Motor Registration Division Records.

Certain answers might lead automatically to non-acceptance of the application, for example:

- .. drivers holding a full licence for less than two years;
- .. drivers under 18 or over 65;
- .. vehicles over 8 years old;
- .. previous convictions for drink or drug related motoring offences or other serious motoring offence;
- .. any of the specified health conditions (such as epilepsy, heart disease, etc.).

Applications would be processed, the Police would be provided with details of applicants, and names and addresses and vehicle registrations would be checked against appropriate records. As a result of these investigations applicants could be divided into three classes:

- (i) applicants for whom the application is refused outright;
- (ii) applicants from whom further information is required (for example, evidence of full-time employment at the address specified in the application form or a medical certificate); and
- (iii) successful applicants..

Class (iii) applicants would receive:

- a formal permit;
- two identical blue stickers to be attached to the vehicle to identify a permit holder (driver and vehicle);
- a yellow route card (or cards)..

The permit itself would identify the driver (with a 'sealed' photograph), the car registration number, the route and times over which the permit is valid and the Rules and Regulations for Participants..

The blue sticker would show the period of validity, the route number, the name of the driver and the registration number of the vehicle. Each applicant would receive two stickers, one for his front nearside window and one for his rear nearside window..

The yellow card, to be placed in the front windscreen on the passenger side at times when the car is operating under the permit, would show the route number, destination and the fare chargeable. Upon receiving his permit and stickers the applicant would be ready to operate.. But is the scheme operationally feasible?

OPERATIONAL FEASIBILITY

In this section we consider how the regulated scheme would actually operate. This is perhaps best described by outlining some necessary operating rules for the regulated option if it is to meet the criteria outlined earlier. The following might be what a permit holder would read in his copy of rules and regulations:

- The permit must be carried by the holder in the vehicle at all times during participation in the scheme. It must be shown on request.
- The two round blue discs are evidence of an authorised permit holder. These must be affixed on the nearside windows at front and rear of the vehicle which bears the registration number shown on the discs.
- The yellow route card (showing destination) must be and should only be used when actually participating in the scheme. It should be displayed at the bottom of the windscreen on the passenger side.
- The permit may only be used by the driver specified in the permit, driving the vehicle described in the permit.
- Fare paying passengers may only be picked up between the hours of 0730 and 0900, and between 1630 and 1800 on normal working weekdays. Fare paying passengers may be dropped off after 0900 and after 1800 provided that they were picked up during the periods specified above.
- The permit is valid only for the route(s) specified in the permit and between the points specified in the permit. The permit may specify the exact route to be followed in each direction, corresponding to an equivalent bus route between those points. A permit will be valid for only one trip in each period specified.
- No more than four persons in total may occupy a car whilst it is operating under the permit.
- Drivers may pick up passengers at any bus stop on the route and between the terminal points specified on the permit with the following exceptions:
 - bus stops specifically excluded in the permit;
 - bus stops at which a bus is already standing or has signalled by traffic indicator an intention to stop; and
 - bus stops at which another permit holder is already stopped or which, being in front of the permit holder, has already signalled with traffic indicators an intention to stop.

.. Drivers should endeavour to stop and pick up passengers not at the bus stop marker itself but either in the first available kerbside space beyond the bus stop zone, or if this is not possible at the forward end of the bus stop zone..

.. Drivers may set down passengers at any bus stop along the route or at any other place (subject to traffic regulations) if requested by a passenger.. If a bus is already parked at the stop the driver should stop to set down at the nearest safe kerbside space before the stop or, if this is not practical, beyond the stop. In either picking up or setting down passengers the driver should avoid any impedence to the free movement of buses..

.. A driver operating under the permit must in no circumstances pick up a child who is, or appears to be, of age 15 or under unless being accompanied by an adult..

.. A driver is not obliged to pick up any person:

- who appears to be under the influence of alcohol or drugs;
- carrying amounts of luggage which cannot be readily accommodated in the passenger compartment of the vehicle;
- smoking or eating or carrying alcohol liquor;
- carrying articles or implements hich could cause soiling or damage to the interior of the car or wearing clothes which could cause soiling or damage to the car;
- who refuses to tender the fixed fare prior to entry into the vehicle;
- who requires change; or
- who, in the opinion of the driver, might cause, or behave so as to cause, offence or inconvenience to existing passengers or to the driver, providing that the driver does not refuse to carry any passenger on the grounds of race, creed, colour, sex, or ethnic background..

.. Any complaint or complaints concerning drivers picking and choosing from a queue of passengers, other than on bona fide grounds, could cause the permit to be revoked..

.. Any passenger may smoke in the car at the discretion of the driver. However if the driver does not wish any passenger to smoke he/she is advised to display a sign to that effect..

.. The driver may waive a fare if he so wishes but if any fare is charged it must be neither more nor less than the prescribed fixed fare.. Fares are to be paid prior to commencement of journey..

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Upon approaching a stop where passengers are awaiting a driver may indicate by reasonable means (such as pointing toward his route card) that he is available to pick up passengers. Upon stopping he must wait until approached by passengers and may state destination and fare through the open window. He is not permitted to leave the vehicle to solicit passengers at the bus stop.

The permit (including the drivers permit) must be available to be shown to any person on request before entering the vehicle. The schedule of regulations must be shown to any passenger in the vehicle on request.

A list of operating requirements such as the above appears to be quite formidable. Nevertheless it is probably the minimum requirement to meet the criteria of security and certainty. In practice we suspect that permit holders would very soon sort it out. The list represents less than 5% of the conditions laid down for taxi operators and drivers.

City terminals

In peak hours some of the main "terminal" type bus stops in the Central Area of Adelaide are heavily used. Use by permit holders of the central city stops, especially those in Victoria Square and King William Street has the potential for traffic conflict between buses and participating cars, which in turn could lead to road congestion problems. However the cars could use terminals in the streets immediately adjacent to these locations. There would be more than adequate capacity in the adjacent streets by designating some metered zones for permit cars during morning and evening periods. These locations would represent the end points of particular route groups. The spaces would still be available for normal metered parking the rest of the day.

If, however, it were considered inappropriate to have specific car terminals, the scheme could simply specify the route to a certain point in the City (different for different routes) and merely exclude in the permit the use of certain bus stops. Thus passengers could be set down or picked up wherever convenient.

Because of the terminal problem and the more diverse destinations of potential passengers in the evening peak, we would expect the scheme to be more successful in attracting passengers in the morning. A reasonable level of discrepancy in passenger numbers between morning and evening periods would not matter greatly, as the morning has somewhat more bus utilisation. However, if the scheme was very unsuccessful in the evening this would reduce its benefit in terms of peak fleet savings.

ECONOMIC ASSESSMENT

We used a cost benefit analysis framework to assess the total annual net benefit of the scheme to the community. This was based on the regulated option which is (relatively) more certain in its economic impacts than the informal option. These impacts are:

- .. savings in bus operating costs;
- .. travel time savings to those who transfer to permit cars from public transport;
- .. travel time increases to permit drivers;
- .. higher car operating costs to permit drivers;
- .. waiting time penalty to remaining bus passengers as a result of lower bus frequencies;
- .. increased costs of traffic accidents due to higher vehicle occupancies;
- .. administration costs.

The assessment was carried out for various levels of supply and demand conditions. The results shown below assume an average of 2 passengers per participating car per peak period. The high demand situation assumes 2460 return trips per day, a 20% transfer of bus trips between the scheme area and the central area during the permit periods. The low demand situation represents a 5% transfer (615 trips). However it should be noted that if cross-suburban trips, rail trips and trips originating in the outer area are included, then the 'high' demand situation represents only about 5% - 8% reduction in total public transport patronage in the peak direction during the permit period, and the low demand situation represents 1% - 2%.

The assessment shows the potential economic merit of the scheme with a ratio of benefits to costs ranging from 4.5 in the low demand situation to 5.5 in the high demand case (Table 1).

The reasons for the strong economic case are perhaps obvious. Part of public transport peak demand is carried, at a higher speed with less waiting time, by cars which would travel anyway. At the same time the expensive peak bus service requirement is reduced. A favourable result must therefore be expected. There are costs involved but for the most part these are very small. The accident effect is in economic terms minimal (although decision makers may put a greater social weighting on this). There is an increased resource cost to the permit car driver in terms of a slightly longer journey time and a small increase in operating costs. More significant is the increased waiting time to the remaining bus users, but this is more than offset by the travel time savings of those who use the permit cars.

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TABLE 1: NET COST SAVINGS: METROPOLITAN AREA

	\$000's p.a. (1981 prices)	
	High Demand	Low Demand
<u>Benefits</u>		
Savings in bus operating costs	1716	428
Travel time savings to permit car passengers	372	64
Total Benefits	2088	492
<u>Costs</u>		
Travel time increases for permit car drivers ⁽¹⁾	44	12
Increased car operating costs to permit car drivers	36	12
Waiting time increases for remaining bus passengers	208	60
Increased accident costs	40	12
Administration costs	52	12
Total Costs	380	108
Net Benefit	1708	384

(1) Due to stopping and a greater journey distance on average.

It is sometimes argued that aggregation of small time savings in the way we have done is invalid; that there are thresholds below which people either do not perceive or value the benefit. For the current purpose we think such aggregation is justified. We are specifically interested in where the balance lies in the various (albeit modest) increases and reductions in travel time for different groups. Further an average 6 minute time saving per journey to work per permit car passenger (as occurs in the high demand case) may be small but a regular user would gain in both directions, over a large number of days in the year. We consider people would perceive this a real benefit, and combined with the comfort bonus would pay a premium for such a service, that is a fare higher than the bus fare. Nevertheless even if all travel time effects were to be omitted from the analysis and the assessment involved only a trade-off of the actual money costs (viz, bus and car operating costs and administration costs), then for the high demand case the benefit would be \$1,716,000 and the cost would be \$88,000. The net benefit would then be \$1,628,000. Thus the economic case is hardly affected by whether time is valued or not.

The net benefit per transfer passenger does not change greatly between the low and high demand cases. This would not hold for ever increasing transfer. As the amount of transfer increased so the level of public transport services in the scheme period would fall near to those in off-peak periods and the potential for saving peak buses would be reduced. We have not identified the optimum transfer in terms of maximum net benefit but on the basis of the analysis it is in fact at higher levels than used in our high demand case.

The economic case is dominated by the savings in bus operating costs. Since we used actual bus loading standards to derive these we are confident that such savings could be made if passenger demand were affected in the way described. But the reduction in demand would have to be fairly stable over each day and be sustained over a long period. The economic case would nevertheless remain favourable even with a much smaller adjustment of bus services than that assumed.

Deficit impact

The economic assessment dealt with overall savings in resources. In terms of the impact on bus operations only the cost savings were included, since these represent the resources saved. However one of the main objectives of the permit scheme is to reduce the public transport deficit and this requires consideration of revenue losses. In strict economic terms, the financial assessment does not add or detract anything from the economic assessment of the scheme to the community as a whole, as previously measured.

The annual savings in bus operating costs in the scheme area were estimated to be \$1,716,000 for the high demand situation.

The scheme area is almost wholly within Zone 1 of the STA zone fare system. The demand for the system would be principally for central area adult commuters, for whom the January 1981 fare level would be 50¢ (assuming that persons who transfer would not generally be those with periodical bus tickets).

The annual loss of revenue in the high demand situation would therefore be about \$616,000. Thus for each return passenger trip transferring from bus the savings in annual deficit would be nearly \$450 per round trip.

Over the scheme area as a whole the annual saving implied is about \$1.1 m. Deficit savings of \$450 p.a. on a per passenger basis are very substantial and would hold over the range of demand assessed and some way beyond. But the total reduction in deficit even at the level of \$1.1 m p.a., whilst a welcome saving, only amounts to 2% of the STA deficit.

This is partly because, as mentioned above, the high demand assessment was based on 20% transfer of central area bus trips in the scheme area. Thus, passengers not included in the 'regulated scheme' as assessed are:

- . outer area passengers;
- . feeder and cross-town route passengers;
- . rail passengers;
- . intermediate passengers.

Impact on taxi market

We found that the scheme would have little impact on the overall taxi market. From an analysis of weekly usage of a 10% sample of the Adelaide taxi fleet we derived the pattern of utilisation by origin, destination, and time period. Trips to the Central Area from other areas between 0730 and 0900, and from the Central Area to other areas between 1630 and 1800 constitute less than 2% of total trips on the average weekday and about 1.5% of all trips in a week. Given that taxis provide a much different type of service from that envisaged in the scheme the total impact on total taxi patronage, even in the high demand case, is likely to be under a half of one percent.

More positively we find from the taxi survey that the maximum numbers of taxis in service occurs between the two public transport peak periods, at around 800 taxis per average weekday out of a total of 850 taxis in Adelaide. During the suggested permit periods only about 700 are in service. This implies that there would be scope for increasing overall utilisation of taxis by encouraging them to participate in the scheme in the permit hours.

THE INFORMAL OPTION

So much for the administration operation and economics of a regulated scheme. But what of the more informal option? At a minimum, the Metropolitan Taxi Cab Act might be amended to allow cost sharing arrangements in genuine car pools (suitably defined). We suggest that in practice the existence of the Act does not deter people from sharing motoring costs if that is what they choose to do. In any event the Study was intended to seek ways of creating the widespread

opportunities for car sharing which do not arise through simple car pooling.

Between this minimum and the regulated scheme described in previous sections there is an option to introduce the concepts involved in the full scheme but in a less structured way, the informal option mentioned earlier. Such an option could consist of merely issuing a permit authorising the holder to pick up passengers for a fare during certain hours. The fare could still be a set amount. The permits could be issued at Motor Registration Division offices for a nominal fee. The permit would be registered in the name of the holder.

No responsibility would be taken by Government on matters such as driver or vehicle suitability or insurance. People who chose to drive or ride in a permit car would do so at their own risk, and the blue sticker could state this.

Operating regulations would be minimal, probably specifying only the maximum (flat) fare to be charged together with a blanket ban on carrying unaccompanied children. A permit would be withdrawn from a holder in response to serious or repeated complaints by passengers or the Police.

Such a scheme would be more flexible than the regulated scheme, would offer more opportunities for its use by passengers (not being confined to particular directions or routes). It would still help to achieve the aim of improving transport resource utilisation, although its precise effects are less predictable.

SUMMARY AND CONCLUSIONS

The study sought to establish the feasibility of an innovative scheme for improving peak transport capacity utilisation by allowing private motorists to offer a public transport service.

Economic analysis confirmed that a significant net community benefit could result from such a scheme in terms of travel benefits and resource utilisation. The reduction in the public transport deficit would be relatively small.

Two options exist. The first is a regulated scheme with very specific objectives and a well defined administrative and operational structure. The second is a more informal system, loosely structured, with a minimum of rules and regulations.

We considered regulatory systems which could be used to implement the regulated option. We identified a system which we believe could function from the administrative and operational viewpoint, and provide a reasonable guarantee of safety and security of the public. However it may be thought that the system necessary to ensure these ends is unwieldy.

However, group discussions with members of the public and transport administrators and others indicate that there would be much greater resistance to the more informal scheme due to lack of public safeguards.

In terms of security and safety of passengers it is likely that in the vast majority of cases passengers in the informal scheme would be just as well served. However, as in many spheres, regulations are made and enforced to guard against the exceptions. This is of course the crux of the choice between the full regulated scheme and the informal option. In many ways the latter is more attractive; it is more flexible, more spontaneous, less bureaucratic. It may in practice be just as secure. But there is no built-in mechanism for ensuring this to be the case, and as a result it may not be publically acceptable.

There is probably no argument within the community that unaccompanied children would need to be excluded in either scheme option. But the extent to which adults should be 'protected' by restricting their freedom to choose a particular course of action involving a finite risk is a philosophical question, incapable of technical resolution. Many people would consider it reasonable for people to be responsible for making a personal choice of whether or not to use a permit car. At the same time there would also be a body of opinion which would oppose this choice being offered on the grounds of the risk involved to the individual making the choice.

So this then is the dilemma faced by the concept of private cars offering a public transport service. Without the safeguards of the regulated option, the scheme may not be acceptable to influential sections of the community. With them it might be too bureaucratic and unwieldy.

But the potential transport and travel benefits are substantial if a satisfactory balance can be found. We concluded that there would be merit in carrying out a demonstration project to determine if there is an operating framework which could provide such a balance.

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