THE RURAL TRANSPORTATION PROBLEM: A NEW SOUTH WALES CASE STUDY

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ABSTRACT: This paper presents the result of part of a research programme on the transport problems of rural areas, with special reference to the importance of cars in determining personal mobility. The study area is Hazelbrook, in the heart of the commuting belt of the Blue Mountains, which has high proportions of both young and old.

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INTRODUCTION

In urban areas the 'transportation problem' is one of too many people trying to travel by car on too little road space, and of too many commuters travelling on two few peak hour buses and trains. In contrast, the transportation problem of rural areas is one of too few people making use of public transportation facilities, thereby resulting in a service which is inadequate in meeting the needs of those who rely on public transport, or of a non-availability of public transport. The general aim of this study is to examine the extent to which a rural transportation problem exists in the N.S.W. community of Hazelbrook in the Blue Mountains. In so doing two broad questions need to be answered: first, what are the transport needs of the people of Hazelbrook?; and to what extent these needs are satisfied by the existing transport facilities in the Hazelbrook region. Hazelbrook is one of the two case study areas being investigated by the author as examples of the rural transportation problem, the other being the Rockley region south of Bathurst. In response to the organisers of the Transport Forum, the case of Hazelbrook is reported here, in particular the transport problems of the elderly and women with pre-school children. It can be readily appreciated that whilst the Rockley region displays somewhat similar transport problems to those of Hazelbrook, the extent of such problems varies considerably.

This paper is organised into five reasonably well self-contained sections. Initially the rural transportation problem is defined in very general terms. Secondly, a brief description of the study area is provided. The third section presents a description of transportation provision in the Hazelbrook area. The fourth considers transport need in Hazelbrook and relates transport provision in the area to the different groups within the population, to different trip needs, and to different levels of mobility and accessibility. The last section provides a summary and includes some tentative recommendations. Much of the background information concerning the population and transport characteristics of the Hazelbrook region was obtained from the Blue Mountains Strategy Plan (1975), and from personal contact with the relevant transport organisations. However, to gain more specific data concerning residents' characteristics and their travel habits, a detailed survey was undertaken of 61 randomly selected households in the Hazelbrook area in September, 1978. The questionnaire requested information such as:- general household transport and shopping characteristics; individual age, occupation and use of car characteristics; information concerning individual's employment and journey to work; education, shopping and medical trips, and trips to other activities; and opinions toward public transport provision and changes in such provision.

THE RURAL TRANSPORT PROBLEM

In broad terms the transportation problem of rural areas is one of the difficulty of preserving an adequate system of public transport in an economic climate of increasing operating costs and falling passenger demand over time. The combined effects of high supply costs and low demand is to result in services which are not financially viable and are hence reduced and possibly withdrawn. There are certain factors peculiar to rural areas which accentuate the traditional inbalances between supply and demand for public transport. Of the factors influencing supply, technical constraints due to indivisibilities in capital inputs and inflexibility in the use of labour inputs raise

transport costs. The inflexibility of labour is of particular relevance in rural areas, where on many routes labour can only be utilised for about 4 hours per day - in the morning and afternoon peaks. Outside these peaks demand may be so low that it is unprofitable to offer services so that labour input is idle. The cost profile of public transport shows a high proportion of labour costs in total cost (up to 70% for bus transport). Hence, in a period of high wage inflation (as has occurred in the past ten years or so in Australia) the costs of running public transport rise sharply. In analysing the demand for rural transport in Australia the most obvious characteristic is that the potential demand in low and fragmented and becoming more so with improved levels of household car ownership. Thus it is doubtful whether sufficient passengers could be generated on many routes for revenues to cover costs. Certainly there is little doubt that the ownership (or availability) of a car increases the mobility and accessibility of people in rural areas, and through reductions in journey times (and possibly costs) the greater flexibility, comfort and convenience that it allows the car is generally regarded as an overwhemingly superior means of travel in rural areas (Hibbs, 1972).

The continued effect of these general trends in supply and demand are such that at first it may be tempting to dismiss rural public transport as a product for which there is so little demand that it should not be produced at all. However, such a decision would have very serious and distributional implications on those people in rural areas who cannot afford a car, or are unable to use private transport. Such people are suffering a major disbenefit in terms of loss of mobility which can only be exacerbated if public transport is withdrawn or reduced in service. The focus of the rural transportation problem is one of ensuring that an adequate level of public transport is provided to guarantee a certain level of mobility and accessibility to the whole community - the emphasis should be on equity rather than profitability.

HAZELBROOK

Hazelbrook is a small settlement in the Blue Mountains located astride the Great Western Highway and Western Railway and approximately midway between the larger centres of Katoomba to the west and Springwood to the east. Although Hazelbrook is one of the smaller centres in the Blue Mountains its population has been increasing from 1277 in 1971 to approximately 1400 in 1976. This increase is in part due to a larger number of younger families settling in Hazelbrook where the household head commutes to Penrith or Sydney. Hazelbrook remains attractive to retired persons. For both these reasons the age structure of Hazelbrook shows above State average percentages of young children and elderly persons. Because of the terrain and the influence of the Highway the residential areas of Hazelbrook spread out in a predominantly linear fashion. The settlement is not compact although all shops are centralised to two developments, one on the southern side of the rail line, the other which is much more recent on the northward side of the Highway. The latter is much more highly patronised. Being one of the smaller Mountain centres its shops supply only 'day to day' goods and services, and limited employment opportunities and recreation/entertainment facilities. The functions offered in Hazelbrook include a doctor, a primary school, a post office, a chemist, two butchers, a newsagent,

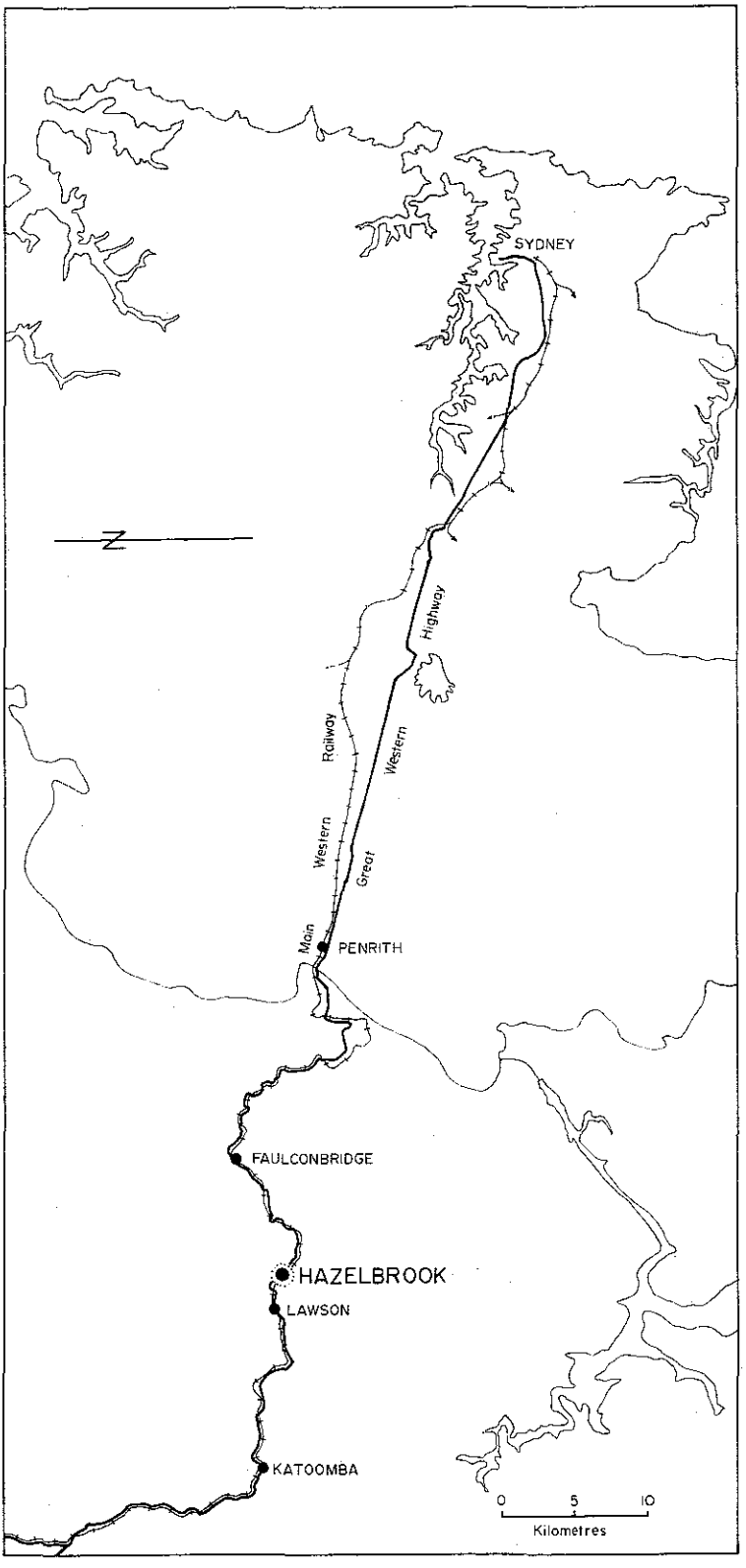

Fig 1 The location of the study area

real estate office, a ladies hairdresser, a haberdashery shop, a shoe shop, a bottle shop, a grocery store, a garage/service station, and a bowling club. A hardware store has recently closed down.

TRANSPORT PROVISION IN HAZELBROOK

Walking/Private Transport

In broad terms all three modes of transportation are available in Hazelbrook, walking, private and public transport. Walking has two obvious limiting factors: (1) the proximity of the journey destination to the person's place of residence and (2) the physical ability of that person to walk any distance. The physical environment of Hazelbrook would deter many people from walking if other alternatives exist, as would the long distance involved from some of the residential areas. Nevertheless many people have to walk, or rely on others for transport or are captive to public transport as approximately 18% of the households surveyed have no regular use of private motor transport. Although a high proportion of households in Hazelbrook possess cars it should be remembered that this is only a crude indicator of an individual's car availability. Clearly, if the household car is being used for one journey purpose by a person, then it is not available at that time for any other household member. Also, a constraint to the use of the car by any other member is the need for a driver's licence, or a licenced driver to accompany that person. When one considers both availability and a licence to drive the following interesting facts emerge. 34% of the population are too young to possess a licence and hence rely on others for transport, use public transport, walk or ride a bicycle. 61% of adults in Hazelbrook nearly always have a car available to them. 64% of the elderly (+65 years) have no drivers licence and 31% of adults have no direct access to a car. Car availability is highest in the 26-45 year age group, that is in that group where there are young families. In total, therefore, almost 60% of the sample are unlicenced to drive. Thus other modes of transport (i.e. public transport) may be depended upon at least sometimes, if not all of the time by up to 60% of the population. There is a significant difference between the car availability of all men compared with all women. Although only 15% of men do not possess a licence to drive the figure for women rises to 44%. Furthermore 75% of all men always have the availability of a car while only 49% of women have continual access to a car. Many husbands use their car for the journey to work leaving their wife to shop locally or use public transport.

Public Transport

Railways. The N.S.W. Railways train timetables for the Sydney-Hazelbrook-Lithgow line for the last 15 years were collected to ascertain the frequency of service at one point in time and secondly to note if the service has improved or declined over that 15 year period. In fact no clear trends emerge other than that there seems to have been a drop, then a rise in the frequency of service provided. The only recent improvement in the frequency of 'peak-hour' trains has been the addition of two morning trains to Sydney from Hazelbrook caused not by the introduction of any new services as such, but by previously 'through trains' now stopping. The number of trains bringing back commuters from Sydney remains at six - the number operating 10 years ago when the numbers of commuters from the Blue Mountains were much

fewer. The most noteable aspect of the weekday timetable is the very poor provision of services during the non-work journey hours which would seriously restrict the mobility of those dependent on the railway for access to various activities. Weekend services have changed only marginally over the study period - there are two more services from Sydney and two fewer to Sydney on Sundays.

Buses. There are two bus services of direct relevance to the people of Hazelbrook. First, there is a service operating from Woodford through Hazelbrook to Katoomba. Second, there is a service between Faulconbridge (to the east of Woodford) and Penrith. The two services are not connected and, thus, neither are the major employment and retailing centres for the Blue Mountains residents, Penrith and Katoomba. Thus the bus service does not duplicate the rail service by offering a through route. Competition from the railway and insufficient demand are the reasons given for this. Bus services are offered more frequently and at a higher cost than the railway. Services are generally hourly during the week with a reduced service at weekends. No evening services are offered. On the Faulconbridge-Penrith run dramatic changes have resulted in the last eight years with all Sunday, Saturday afternoon and Public Holiday services being cut completely. Two Saturday and two Sunday services have been withdrawn also from the Katoomba-Woodford run. In both instances the reasons given for the withdrawal of services are the decline in patronage associated with higher car ownership and penalty wage rates which act as a big constraint on the viability of weekend runs. Clearly, the journeys affected most by the decline of weekend bus services are entertainment and recreation trips: and the people most affected are those who find the train less convenient and do not have the alternative to private transportation.

The only other service change has been the introduction in 1971 of a school bus run which deviates north off the Highway near Hazelbrook. This has improved the accessibility of the service to many households in north Hazelbrook but correspondingly for those located south of the railway accessibility has been reduced. As all other bus services run along the Highway catching the bus necessitates getting to the Highway. This may be difficult for those who are not within walking distance of the bus stop and who face walking up steep gradients.

As would be expected the use of public transport declined as the number of cars per household increased. Thus 82% of households without cars had used public transport (rail/bus) in the month prior to our survey with 54% of one car households and 30% of two car households having made use of public transport. Most households with cars therefore rely on public transport for certain trips and this reliance probably explains why 72% of households had a bus or rail timetable in the home. However, residents were generally critical of the service provided by public transport. 51% of households considered the frequency of service by bus and rail as poor. 36% believed the services were unreliable and 38% regarded the times of trains as too restrictive. 26% complained of the limited destinations of the bus service and 28% thought that the fares charged were too high. A familiar criticism was that better services should be provided although few households were prepared to state they would use public transport to a much greater degree than at present other than for specific trips such as visiting friends in Katoomba Hospital.

Only 11% of households stated that public transport in the area was not as good as 5 years ago. Given the reduction of weekend services this figure may be considered surprisingly low. However, one explanation is the large number of households (in the sample) that are new to the region. Such households were probably unaware of the better services existing in the late sixties and early seventies in the area. None of the households who commented about the reduction of service stated that they were inconvenienced greatly by such a withdrawal of service. Certainly their mobility had been affected by service withdrawal but they had been able to make other arrangements to offset any difficulties had the need arose.

INDIVIDUAL MOBILITY, ACCESSIBILITY AND TRANSPORT IN HAZELBROOK

The number of travellers, the time, purpose, direction and mode of their travel together comprise the travel characteristics of the people in Hazelbrook. As suggested previously, it it necessary to try to disaggregate this total travel into the most important groups of people, their travel purposes, and the ease with which they are able to carry out these journeys. Hence, the focus here is more explicitly on individuals' mobility (their ease of movement) and accessibility (ease of getting to their destinations specifically). In any population there are several clearly defined groups whose travel characteristics vary. In respect of individuals for public transport the groups of most interest to this study are the young, the aged and housewives with young children. Similarly, there are several distinct journey purposes such as school, shopping, work and recreation trips which can be considered. The discussion below of these groups and trip purposes is obviously restricted for space reasons, and an emphasis has been given to the 'women with children' and 'aged' groups and to shopping and medical trips of these groups.

The Aged

For the Blue Mountains area as a whole, there is a very high proportion of the aged (defined as of pensionable age). 1976 Census figures show that for the City of the Blue Mountains approximately 13.3% of the population were aged 65 or over compared with 9% for New South Wales. In the Hazelbrook study elderly people comprised 18% of the surveyed population while 39% of the households interviewed contained elderly people. A relatively high proportion (27%) of the elderly live alone and 18% of all households consisted of elderly couples with no children living at home. About 50% of households which contained elderly people would be located within a 1 km. radius of Hazelbrook shops/station while 25% would be more than 2 kms away. The location of those pensioner households without cars would pose severe problems on the mobility patterns of the people involved. They are located well away from the shops and are faced with a strenuous uphill walk into Hazelbrook. Of the 22 households with elderly residents (having at least one retired person) nine had no access to a car or truck. Furthermore, it was found that 62% of elderly persons had no drivers licence while 38% always had a car to drive. Some measure of aged individuals' level of mobility can be gauged from these figures, for almost one half of the aged population rely either on friends for private transport, or on public transport. However, an analysis of medical and shopping trip responses of these people showed that very little use was made of public transport and that shopping behaviour

in particular was very much determined by car availability. Most pensioners who had cars did their shopping weekly in Lawson (as did the sample as a whole). Those without cars or access to car transport shopped more frequently and predominantly in Hazelbrook. Public transport was rarely used for shopping trips by the elderly other than for irregular comparison shopping in Katoomba. 59% of the elderly respondents stated they had sought medical attention in the past month. Many of them attended local doctors surgeries in Hazelbrook and Lawson. Of all the medical trips recorded only 2 were made by public transport. The remainder were made by car, either as a driver, but more often as a passenger, or by walking to the doctor in Hazelbrook. The existence of a doctor in Hazelbrook is an immeasurable benefit to the aged. Although many elderly residents expressed a difficulty in getting to the doctors, this inconvenience would be minimal compared with reaching an alternative doctor by public transport.

The questionnaire also asked for information concerning trips to social and leisure activities in the month prior to the survey, and whether transport, or lack of it, had anything to do with attendance or participation. The social/leisure activities investigated included visits to the library, to sports events as a participant or spectator, to a hotel or restaurant, to a club, theatre, or to visit friends. Perhaps the most surprising aspect of this part of the study is the very low participation rate of all elderly residents in Hazelbrook in the activities listed above. 46% of all elderly residents sampled had not visited a single social activity in the month under study. Participation is not clearly related to car ownership of the elderly since 21% of those elderly residents who had regular access to a car did not visit a single activity. Indeed, only 85% of elderly residents visited more than 3 activities in the month. This low level of participation can be explained in a number of ways. Those without cars find it difficult to get to the Library (in Lawson), and to the theatre and hospital in Katoomba to visit friends because of poor evening transport. The survey was undertaken in September and recorded information for the previous month which was a cold month in the Blue Mountains. Thirdly, elderly persons only like using their cars for essential journeys. They may find driving difficult and are loathe to use their cars more than necessary. Perhaps most important is the role of television which to a degree has obviated the need for outside activities. Undoubtedly, as the survey suggests, transport problems are a significant factor in non-participation. Our impressions were that many of the population surveyed had tended to accept the transport distance constraints to acitivity and had adjusted their life style accordingly. This statement also applies to numerous households where a car was available.

The most important findings of the aged sub-group are (1) the low accessibility level of pensioners to their own private transport, (2) their clear reluctance to use and also demand public transport, (3) an indicated air of inconvenience when having to rely on friends for transportation, and (4) the predominantly local nature of their movements. Generally, public transport presents even more problems to the aged than to the rest of the population. Besides the inconvenience of infrequent and unreliable service, other problems of the aged are likely to include the difficulty of getting on/off buses' high platforms, and the lack of shelters and pavements. All such factors are likely to diminish demand.

Women with children

One particular group of housewives for whom mobility involves more than their personal needs are those housewives who are mothers of pre-school age children. Not only do these women have to cope with their own needs but also those of their highly dependent children. The children require the use of playgrounds, clinics, pre-schools, play-groups, etc. In effect, because of the dependent relationship between child and mother, each makes additional journeys for the other's sake. However, the mobility of each is hampered by the difficulty involved in transporting the child (whether in a carry basket, stroller or as an independent but slow walker) and his gear. Of the 61 households in the Hazelbrook sample, 19 had children under 5 years of age (with a total of 28 children). Of the 19 mothers, 3 worked part-time the remainder being listed as full-time housewives.

The 19 housewives with pre-school children tended to be better provided with cars than the sample as a whole. 11 out of the 19 households possessed one car, 6 had two and one family had four cars. Therefore, only one family with pre-school children did not possess a car. Of the families with cars all wives have a licence to drive, with only two never having the family car to drive. 12 out of the 19 households enjoy complete access to a vehicle with four having a varying degree of access. Generally, access to cars in this group is very high, a reflection of the economic well-being of the sub-group, the acceptance by husbands of public transport as their mode of travel to work, and the realisation that car travel is more appropriate given the distribution of activities in the region and given the conditions that young children impose on travel and the time available for travel. Hazelbrook housewives with young children preferred to use the family car for travel for the following reasons: (1) the car allowed a more flexible routine for the household since trips were shorter in travel time, (2) it is easier to manage the child and its gear, (3) it provided better protection against the weather, (4) there is an absence of waiting time, and (5) improved safety and physical comfort. Conversely women suggested the following difficulties in bus and train travel: (1) child and gear are difficult to manage, (2) the reluctance of bus drivers to assist in boarding and alighting, and (3) routes and timetables were unsatisfactory.

Availability of a car allows much greater freedom in shopping location. Very few trips were made to Hazelbrook shops by this sub-group, the group preferring to shop in Katoomba, Springwood and particularly Lawson and Penrith. Of the 47 shopping trips made to different locations for shopping in the north under study only two were made by foot to Hazelbrook. 36 shopping trips were undertaken using a family car, two by taxi, and one by bus and five by train (mainly to Penrith). The survey also suggests that Hazelbrook Shopping Centre does not cater for this sub-group, a reflection perhaps of higher prices and a more restricted range of products than in other shopping locations in the Mountains. 14 medical trips were made by 13 mothers in the sub-group in the month of the survey. All but two of these trips were made to the local doctors in Hazelbrook or Lawson, with the remaining two trips to the hospital in Katoomba for specialist treatment. All medical trips were made by car or by walking, no trips by the sub-group were made by public transport. Again all but two of the women surveyed regarded

their trips as convenient and caused them no problems[1]. Five families accounting for eleven pre-schoolers sent their children to the pre-school in Lawson. One of these families, with two children and no regular access to a car found it difficult to get the children to pre-school. One mother who did not send her child to pre-school did so because of transportation difficulties.

In most of the above trips the mothers must take their pre-school child with them and only in very few cases are there older children who can be left in charge of their pre-school brother and/or sisters. Once it is necessary to take the child on a particular trip it is also necessary to take all the child-related paraphenalia. The use of the car then becomes particularly appropriate and more attractive, and trips by public transport are kept to an absolute minimum. Responses indicated that families had adjusted their use of the family car to meet the difficult transport conditions pertaining in the region. Many husbands who formerly used the household car now went by train to work. This freed the car for use by the wife with young children. Some of the families in the sub-group suggested they would re-arrange the domestic use of the car if public transport were better. Wives in the sub-group considered that overall mobility in the Hazelbrook area could be improved by more frequent buses and trains, better footpaths for walking to Hazelbrook, facilities for strollers on buses, buses deviating off the Highway, the provision of through-bus services and so on. On the evidence of this survey the provision of extra public transport for this sub-group is not warranted. Most of the families with young children do not suffer from a rural transport problem - rather they have adjusted their life style and domestic arrangements to overcome it.

CONCLUSIONS

The advantage of a car in Hazelbrook is evident from the fact that few problems were encountered by those that had access to one compared with problems cited for travel on foot, train or bus, or even when having to rely on friends. Individual mobility levels are governed by the availability of the car to each person. It is clear that in trying to gauge the extent to which people have difficulty in meeting their daily transport needs, acknowledgement of both personal mobility and the accessibility characteristics of an area is needed. For a substantial section of the Hazelbrook population (notably the aged and teenagers) a rural transport problem (as defined) does exist. The growth (and increasing emphasis) on motorised private transport has been associated with an increasing mobility of those with optional use of a car. While this has been achieved, the mobility of those without such use has effectively been reduced. In regard to some of the local problems identified in Hazelbrook some policy suggestions can be made. A pedestrian crossing across the Highway in the town centre should be provided and an off-peak shopping bus diverted to serve the more isolated residential areas of the community might be considered. In this regard perhaps some scope exists for using mini buses for overseas

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1. One woman had to arrange an appointment which allowed her husband to drive her to the surgery, another who had to walk to the surgery found it inconvenient to have to take the child with her for her own medical appointment.

studies suggest that a reduction of about 15% can be achieved on average costs. Thirdly, a thorough appraisal of the relationship between the demand for local leisure facilities and weekend and evening public should be undertaken. A continuation of the present trends of declining leisure provision and patronage and of cutbacks in transport services will have significant sociological ramifications on the less mobile sections of the community.

In comparison with Rockley and other more distinctly rural areas the accessibility problems of residents in Hazelbrook are quite minor and more segmented and perhaps it is wise to conclude with more general statements that total research has encouraged Rural areas in N.S.W. have changed greatly in the last twenty years. There has been a decline in village services and activities and a reduction in rail passenger services and bus services where they exist. There have also been significant shifts in the demographic composition of rural areas. Residents' tastes and expectations have changed with the general increase in prosperity in the period. Accessibility in the rural areas studied has never been good by urban standards but before widespread car transport there appeared to be satisfactory provision for most economic and social activities. As car ownership has increased, accessibility problems for the car-less have also increased because of the general effects that car transport has encouraged in rural areas. Substantial proportions of the population in Rockley and Hazelbrook do not enjoy easy access to a car. These include non-car owning households, non-driving housewives, the elderly, the infirm, teenagers and children. For these groups car-oriented rural Australia is not an easy medium in which to operate. True enough in our surveys most people have coped. Some of the decline in accessibility has been accommodated in adhoc ways, for example through a willingness by others to share cars on many occasions by making multi-purpose trips or undertaking fewer trips and outings generally. It might be stressed also that many people have adapted their living patterns in terms of the transport available. These solutions are not totally satisfactory. It is unacceptable to believe that people can, or will cope with accessibility based problems in rural Australia and therefore that policy makers can ignore the problem. The important point for policy makers may not be whether people are better or worse off than say twenty or even fifty years ago, but whether they are badly off in the light of presently accepted standards in the community at large. Given this criterion the study findings tend to suggest that a distinct proportion of rural residents are disadvantaged. The obvious implication is that a further recognition of the problem must be made by governments at all levels in Australia and that rural planning must be developed to a more sophisticated standard than at present.

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