Forecasting Tourism Travel on Rural Roads

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Abstract:

The tourism sector is heavily reliant on the rural road system and it is not uncommon for the road and tourism authorities to receive submissions documenting perceived shortcomings of particular roads This paper considers tourism demand in NSW and the development and application of analytical procedures for estimating the likely impact of future development scenarios on road-based tourism in NSW A large number of demographic, socioeconomic and transport variables have influenced domestic and international tourism in NSW over recent decades. These include: population growth, household size and structure vehicle ownership and operating costs and macro-economic decisions, such as tariff reductions While future tourism demand is likely to be influenced by a range of variables, it is possible to specify several long term development scenarios which are likely to influence road-based tourism demand. These scenarios are defined by: population growth and distribution; road transport network development and private travel cost; and the attractiveness of tourism destinations. A spreadsheet-based analysis procedure has been developed and applied to estimate the impacts of each of the development scenarios. This has indicated that the long-term road-based tourism growth rate in NSW will be of the order of 2%, with the geographic distribution being influenced by the population distribution and tourist facility development
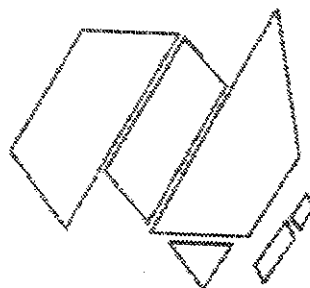
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1. INTRODUCTION

Since the early 1980's, there has been a growing recognition in Australia of the importance of tourism to the economy. Travel by domestic residents and international visitors within Australia is dominated by car and coach travel, and roads are therefore vital resources in tourism, a theme acknowledged in numerous submissions to the Industries Assistance Commission's (IAC) inquiry into travel and tourism (IAC 1989). This inquiry drew attention to the poor quality of the nation's roads and the deleterious effect this has on tourism development.

An important implication for road authorities is that it is necessary to consider some major roads as 'tourism roads', and to recognise that other, minor roads will also serve the important function of enabling tourist movement within and between regions. Also, tourism activity sets off a complicated chain of social and economic impacts which are not always easy to identify as direct consequences of tourism. However, the recognition that visitors to a region stimulate growth in incomes and jobs is a key reason why many local communities and State governments wish to promote tourism.

In New South Wales, a better appreciation of road-based tourism is being gained through several studies which have been undertaken by the Roads and Traffic Authority (RTA). Two primary RTA studies which have addressed tourism demand and road transport needs are the North Coast Corridor Study (RTA 1991b) and the study of tourism movement in NSW (R J Nairn and Partners and Hooper 1992). This paper is based on the latter study, and:

- briefly considers the demand for road-based tourism and development scenarios which will influence future tourism in NSW;
- describes procedures for estimating the likely impacts of development scenarios on road-based tourism; and
- indicates several findings from the application of these procedures.

2. DEMAND FOR ROAD TOURIST TRAVEL

The Domestic Tourism Monitor (DTM) (Bureau of Tourism Research 1991a) defines a tourist 'trip' as a person-movement which will involve one or more person 'visits', each involving a stay of at least one night and travel of at least 40 kilometres from the person's usual residence. People who return home on the same day (after travelling some minimum distance) are regarded as 'excursionists' or 'day trippers'. This paper is concerned with tourist visits and their implications for road-based, private vehicle trips.

The intrastate, interstate and international tourist markets have different growth trends and prospects. In general terms, the domestic travel market is large and mature whilst the inbound international market has quickly grown over recent years from a relatively small

base. The number of domestic tourist visits has remained 'stable' since 1984/5 (Figure 1), but over the same period there has been an increase of about 7 percent in the number of visitor nights (NSW-Tourism Commission 1992). There is a trend towards people travelling interstate and further away from their usual place of residence, with a consequence that the duration of trips is increasing

The domestic tourist market is the major source of visitors, and it comprises visits for three major tourist purposes, these being: holiday-pleasure (Holiday); visiting friends-relatives (VFR); and Other (eg, business, personal business, education). Trends in these markets and travel segments, and the geographic distribution of domestic tourism in NSW indicate that:

- domestic tourist visits peaked in 1985/86 and there has been a subsequent decline in the Holiday component;
- there is a dispersed distribution of destinations for domestic visits in NSW, but with a continuing strong focus on the North Coast - Tablelands and Illawarra regions; and
- there is a high, long-term growth in international tourism, with fluctuations in the period 1988-90 being caused by several factors including the World Expo (1988) and domestic air service disruptions (1989).
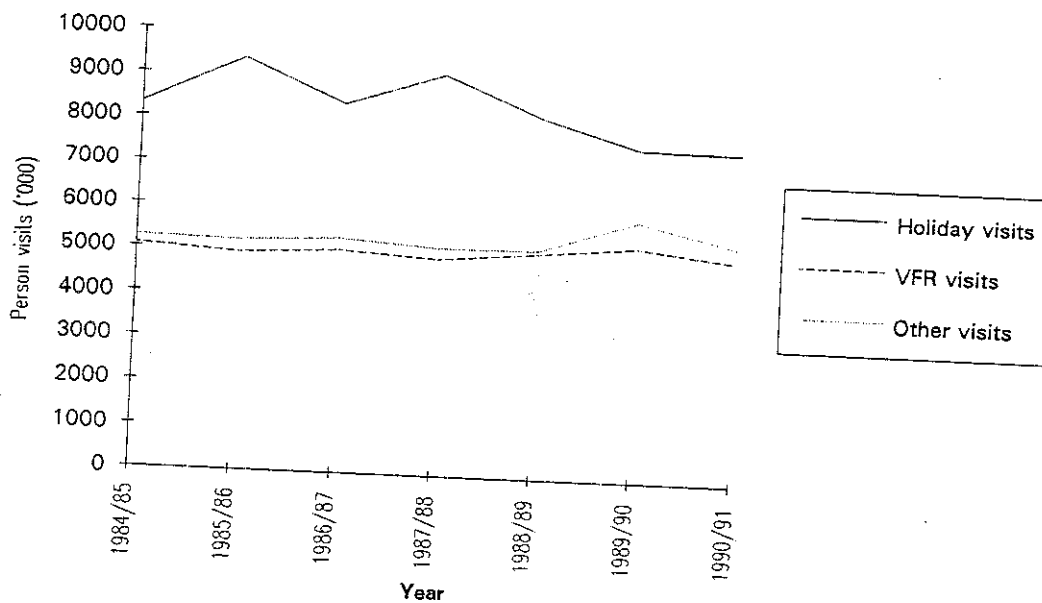

Figure 1   Tourist person-visits in NSW, from 1984 - 1991

Factors affecting domestic tourism

A number of significant trends have been evident in demographic, socioeconomic and transport factors in Australia since the 1950's While the available information does not permit a quantitative assessment of their impacts on tourism, it is possible to infer a number of broad impacts.

Demographic and socioeconomic factors affecting total domestic tourist travel patterns (see NSW Tourism Commission 1990 and Van der Lee 1990) include:

- the changing age structure of household - the age groups which are increasing more rapidly are the mid-30's to mid-40's and the over 55's ('baby boom' effects);
- the changing size and increasing incomes of households - the two-person household is now the dominant type and together with single households they make up 50 percent of total households, while families with 2 or more children now make up only 33 percent of the total; and
- half of all women are now in the workforce - reducing the flexibility to travel, as leave is often scheduled to coincide with school holidays

These trends have had two complementary impacts on the distribution and duration of domestic tourism Firstly, household income increases have encouraged the trend towards longer distance and duration tourist travel, which was noted above However, the trends in the factors have also induced a shift in travel preferences of some consumers towards shorter duration, more frequent journeys such as weekend get-aways or week-long activities (eg., nature walks, cycling, skiing, farm stays, etc)

There have also been a number of trends in household characteristics and car ownership which have relevance to mode use for tourist travel The primary factors and trends relating to private, passenger vehicle use include:

- car ownership levels rose rapidly in Australia - as incomes grew and as the 'baby boom' effect saw large numbers of the population moving into car driving age and car ownership;
- increases in the proportion of off-road vehicles in the passenger vehicle fleet;
- the ageing of the population - increasing the range of car-based tourism by the 'elderly';
- motoring costs, particularly fuel and registration, rising faster than average wages during the 1980's - with a trend towards an increased age of the on-road passenger vehicle fleet; and
- tariff protection reduction - reducing the price of new passenger vehicles, and partially off-setting the other motoring cost increases

While these household and passenger vehicle factors have not significantly increased the total demand for tourism, they have widened the range of use of road-based vehicles for tourist travel

Expected future modal roles

Given the above trends, the likely future role of alternative travel modes for domestic tourism are expected to be:

- private passenger vehicles will continue to carry a high proportion of tourist travel demand;
- train and coach travel will struggle to maintain their current market shares for long-distance travel;
- the airlines will continue to offer strong competition for particular markets in surface public transport, though discounting will be controlled;
- aircraft technology and the ability of the airlines to reap economies of aircraft size as their market grows will favour air travel in the longer term;
- the trend to travelling further while on holidays is likely to favour air travel over other modes for medium-long distance markets; and
- high-speed rail, if introduced, would take travel away from all modes in the Sydney-Canberra-Melbourne corridor, including the car

International visitors

In 1990 there were 2.2 million 'inbound' international visitors to Australia, ie., non-residents arriving in Australia for a visit but not intending to become residents Of these, 68 percent arrived in Sydney and one-third of the 66 million nights spent by these people in Australia were in New South Wales (Bureau of Tourism Research 1991b) Most of these nights were concentrated in Sydney.

In contrast to domestic tourism, the rate of growth of international visitors accelerated during the past decade For example, the number of international visitors doubled between 1973 and 1984, but then doubled again within 4 years (see Faulkner 1990) This has been due, in large part, to Australia's popularity in Japan, now the largest source market, but other countries have been generating strong demand Rising incomes in countries that generate tourism traffic, an increasing trend towards long haul destinations, the popularity of Australia in key source markets, and the strength of some foreign currencies relative to the Australian dollar all support a continuation of recent growth patterns Relevant observations on the international visitor market include:

- international visitors are particularly drawn to Sydney and this will generate increasing coach activity on day trips out of Sydney;
- within the inbound market, the strongest growth is likely to be from Japan and other Asian countries – these groups are more likely to be have a restricted time budget and will rely more heavily on air transport for travel between regions in Australia; but
- there will be an increase in the numbers of free, independent travellers who will use surface modes of transport, perhaps rental cars

Possible development scenarios

As indicated above, the number of tourist visits in NSW over the recent past (ie., since 1985) has been stable. Data on long-term tourist demand is not available but it is believed that the long-term growth has been in the range of 1 - 4 percent. This study is primarily concerned with the long-term future, and this past growth range is expected to set the bounds for the future long-term range

The possible range of aggregate tourism growth rates and the development factors which are expected to influence the future level and distribution of tourism travel demand were considered in a workshop which involved participants from the transport and tourism industries (RJNP et al 1992) It was concluded that the set of possible broad development scenarios can be defined by several variables which relate to three primary factors, these being: demographic characteristics; transport systems; and the tourist destination attractiveness. The 'values' for the variables can be considered to set likely lower and upper bounds for the primary factors and, thus, the future scenarios, and are described in Table I

These build upon the "Trend" and "Intervention" populations defined in the Future Directions study (RTA 1991a) The Trend scenario is consistent with the historical growth trend The total population for the Intervention scenario would be the same as that for the Trend, but the distribution would differ as a result of government intervention, aimed at reducing the development pressure on Sydney Employment is assumed to follow population, so that there is a 'local' supply of opportunities

The Intervention road network strategy involves upgrades of a number of routes In the context of this study, those routes which have significant implications for tourism are the continued duplication of the Hume Highway and the duplication of the Pacific Highway, from Newcastle to Tweed Heads

Table 1: Variables defining lower and upper bounds for development scenarios

Factor	Variable	Lower Bound	Upper Bound
Demographic	Population Household formation	Trend Current rate	Intervention Increased rate sufficient to generate a 10% increase in tourist visits
Transport System	Standard of rural road network Price of car travel	Rural road network for Trend scenario population Current cost of motoring	Rural road network for Intervention scenario with easier access/egress from Sydney[*] Car travel costs increased by 3 to 5 cents per kilometre
Tourist Development	Attractiveness of destinations	Current attractiveness	Increased attractiveness for Upper and Mid North Coast and Hunter regions

[*] The level of access/egress for Sydney was associated with the population growth towards the western areas of the city

3. PROCEDURES FOR ESTIMATING THE IMPACTS OF DEVELOPMENT SCENARIOS

The procedure which has been developed for estimating the impacts of possible development scenarios on tourism involved two primary steps: estimation of the person-visit travel patterns and passenger vehicle trips for a specified base year; and estimating the change from the base year estimates which would result from a particular development scenario. This procedure is detailed in RJNP et al (1992), and the primary features are summarised below

Base year estimates

There are a number of existing, reported estimates of tourist travel within NSW and to/from adjacent regions which might be used to estimate current tourism movements (see, for example, RTA 1991a and BIR 1992) A primary issue in using these various sources is that the data on which the estimates have been based have varying definitions of items such as a 'visit' or a 'trip' It was appropriate for the strategic level study conducted by RJNP et al (1992) to use estimates of tourist visits from the Domestic Tourist Monitor (DTM) and the associated International Visitor Survey (IVS), and complement these with estimates of travel parameters from other sources and suitable travel demand models, as necessary

A base year of 1990/91 was taken, coinciding with the latest DTM data (BIR 1992) Careful consideration was given to the specification of the time horizon and travel system for use in the study and, as indicated in RJNP et al (1992), this lead to the set of regions defined in Figure 2 It was possible with the available resources to obtain detailed tourism

data for regions in NSW, the ACT and SE Queensland Thus, as shown, there are 16 regions in NSW, region 17 is the ACT and region 18 relates to the SE section of Queensland, including Brisbane. Region 19 covers all other areas, except Victoria which is covered by region 20 A further region, 21, is used for International visits

The analysis procedure enables consideration of a number of tourist travel segments Each segment is defined by: tourism purpose - Holiday, Visiting Friends and Relatives (VFR) and Other, which includes all other tourism purposes; travel modes - Car, Train, Plane, Bus and Other, including all other modes; and duration of stay - 1-2 nights; > 2 nights Day trips are not considered in the study

The study called for estimates of the number of tourist vehicles on a road section, given estimates of the tourist visits within and between regions A vehicle trip will be approximately the same as that used for person movements in the NCRS study (RTA 1991b), which involves a vehicle movement for person travel for a primary purpose If the trip involves one or more stops, then the trip-end is the location furthest from the origin at which the primary purpose is undertaken A vehicle-trip is likely to involve more than 1 person-visits, and the relationship is defined in RJNP et al (1992) Person-visits for domestic tourism as defined in the DTM relate to the outbound movement, from the person's home to the location for the visit For this study it was assumed that there will be a return movement along the same corridor that was used for the outbound movement.

Procedures to enable estimation of 1990/91 tourist travel for the regions defined in Figure 2 have been incorporated into the Tourism Impact Module (TIM), which is described in RJNP et al (1992) The primary components of the procedures are:

- estimates of the origin, purpose, mode, duration and seasonal variation for total person-visits into a region are transferred from the NSW-TC tourism report (NSW-TC 1992);

- estimates of the origins for the 'Other-locations' category of visits in the DTM and intra-regional visits are obtained using a direct demand model which was developed in the NCRS Study (RTA 1991b);

- estimates of the interstate person-visits are obtained from several other sources, the primary two being Tourist Commissions in Queensland and Victoria and the NCRS (RTA 1991b);

- average weekly person-visit matrices and seasonal indices are estimated for selected segments, defined by purpose-mode-duration levels; and

- the 'attractiveness' of each region can be estimated from the observed choices and the direct demand model developed for the NCRS (RTA 1991b).
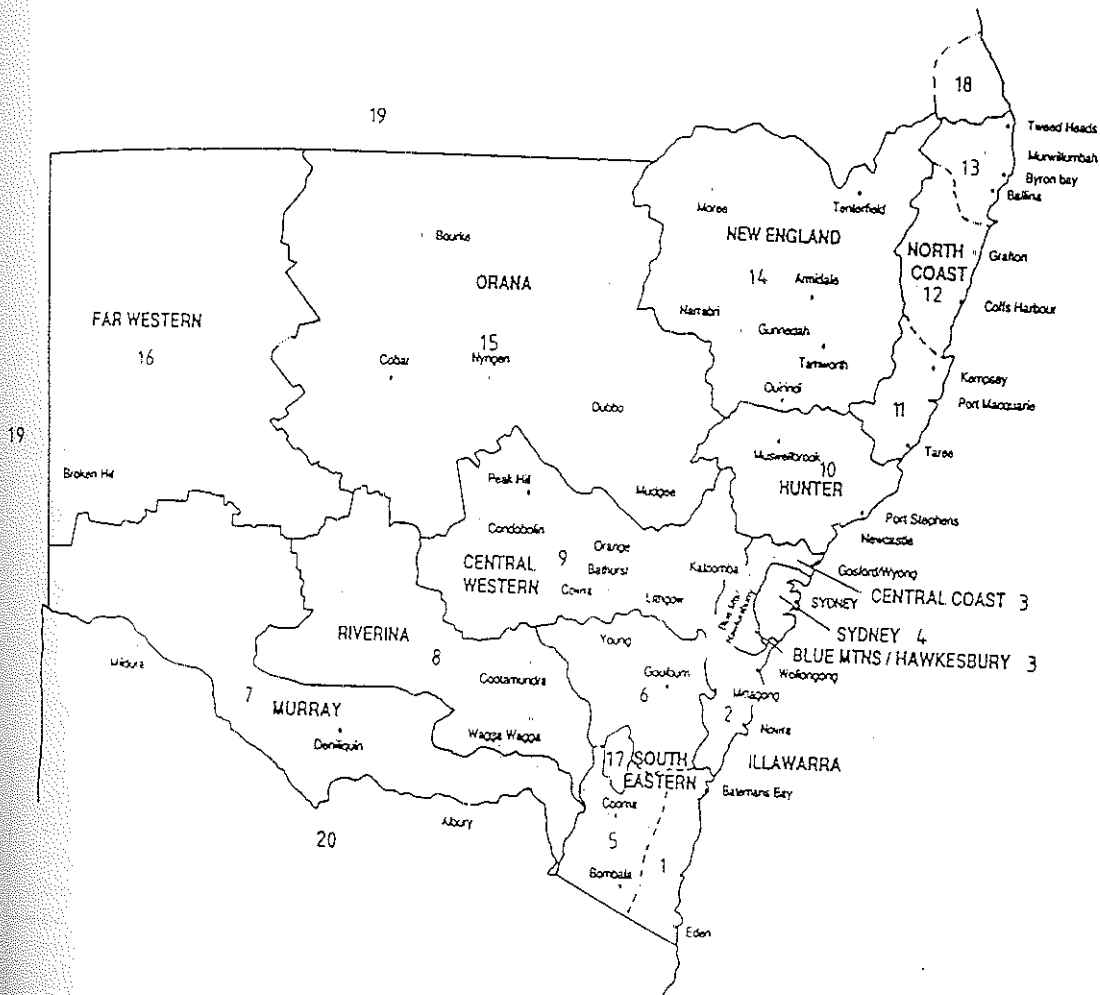
Figure 2   Tourism regions defined for use in this strategic study

Scenario impact estimates

The impacts of a possible development scenario can be estimated from the 1990/91 person-trip estimates using a form of 'impact analysis'. That is, the likely percentage change in person-visits resulting from the proposed scenario is estimated and this is applied to the respective estimated 1990/91 matrices to estimate the expected future tourist trip matrix.

This impact estimation process requires estimates of relevant demand elasticities, and these are briefly described in the following two sections.

Price and income elasticities

The long-term demand for tourism travel in New South Wales is likely to be influenced by several variables such as transport costs, costs of accommodation and disposable income. One requirement of this study is to predict the demand for trips by each mode, particularly for car, when the cost of travel changes and when other determinants of demand change. It can be assumed that a consumer divides an available budget into two parts: travel and "other", and that the travel budget is allocated amongst the various modes of transport and to accommodation. Thus, there is a system of demand relationships for: car trips; air travel; coach travel; rail travel; accommodation; and other goods and services.

In theory it can be expected that each one of these demands would depend upon the price of that good or service and on all other prices as well as on income. So, for example, the demand for car trips could be expressed as:

Demand for Trips = function (car travel car costs; air fare; rail fare;   (1)
coach fare; accommodation costs; all other prices;
and income)

Fujii et al (1985), Andrikopoulos and Brox (1990) and Pyo et al (1991) have estimated travel demand systems for North America, but estimation of such a system of demand relationships is a task that extended beyond the scope of the present study. An alternative approach was to rely on elasticities derived from other studies. That is, a matrix of relevant elasticities can be developed which would fully characterise the demand system on the basis of information derived from other sources. The matrix implied in the example described above would have seven columns, the six prices and income, and it would contain five rows (the demand for 'other goods and services' is not of direct interest). Therefore, 35 reliable values of elasticities are required, and an extensive review of the published literature in tourism and transport was conducted. The following, general comments can be made about the literature.

- Whilst there is a plethora of travel demand studies, few produce results which have any direct applicability in a matrix of travel demand elasticities across all trip purposes and trip lengths within New South Wales.

- Very little specific analysis has been carried out on the demand for (person) car trips specifically in a non-urban context so that the key elasticity of interest, the elasticity of demand for car travel with respect to the cost of motoring, cannot be determined precisely

- In contrast, there are numerous studies of the demand for airline travel, some even being conducted for air travel in New South Wales, but there is wide variability in the results depending upon the particular route or situation

- Elasticities of demand tend to be higher when travel is paid for by the person undertaking the travel and when the purpose is to take a holiday.

- Analytical techniques vary considerably from one study to the next, but choice of a particular functional form can affect the results

- Most studies produce specific forms of elasticities which were of interest to the researchers at the time, but care has to be taken to inspect the types of variables used and to consider whether the situation being investigated is strictly comparable with New South Wales

Inevitably, construction of the matrix of elasticities requires careful interpretation of the published literature In this situation, it is important to maintain some external check on the validity of the information used, and the steps taken to achieve this are described in Taplin (1980) Hooper (1993) documents an extensive review of travel demand elasticities

The elasticities used in this study are summarised in Table 2 Although it is necessary to make numerous assumptions in compiling a table of this kind, there is sound empirical support for the key elasticities and the remaining estimates are internally consistent and can be justified on theoretical grounds As such, the matrix of elasticities is a tool which can be used for policy analysis in the absence of a specific system of travel demand models

Table 2   Estimated Price and Income Elasticities

Elasticity of tourist demand for	with respect to						
	Cost of car travel	Cost of rail travel	Cost of coach travel	Cost of air travel	Cost of accomm -odation	Other prices	Income
Car trips	-1.08	0.02	0.02	0.20	-0.20	-0.20	1.2
Rail trips	0.02	-0.80	0.30	0.30	-0.10	-0.10	0.40
Coach trips	0.02	0.30	-1.30	0.40	-0.10	-0.01	0.70
Air trips	0.20	0.05	0.05	-1.50	-0.20	-0.40	1.80
Accommodation	0	0	0	0	-1.00	-0.20	1.20

Demographic and attractiveness elasticities

The level of tourist demand to a particular region will also be influenced by demographic variables (eg , population) and the 'attractiveness' of tourist destinations in the region. The impact of changes in these variables can be estimated through population and attractiveness elasticities, which were estimated in the following manner

An analysis of tourist visits to the set of 17 regions in NSW and ACT indicated that for VFR and Other tourist purposes there is a log-linear relationship between visit attractions and the regional population The relationship for VFR is shown in Figure 3, and this implies that there is an underlying causal function of the form,

$$V_j = K * P_j^a \qquad (2)$$

where V_j is the number of average weekly visits for VFR to the region,
     P_j is the regional population, and
     a   is a parameter, which has estimated values of 0 6 for VFR and 0.7 for Other purposes.

Visits for Holiday/Pleasure purposes are not closely related to the regional population but were found to be log-linearly related to the regional 'attractiveness', which was estimated from a direct demand model and 1990/91 data on tourist visits The function has the form,

$$V_j = K * A_j^b \qquad (3)$$

where A_j is the estimated relative attractiveness for average weekly Holiday/Pleasure visits
     b   is a parameter, which has estimated value of 1 5 for Holiday/Pleasure VFR purposes

It is reasonable to assume that the number of visits produced from a region for each of the three main tourist purposes will be related to the regional population Given the above findings for trip attractions, it is also reasonable to assume that for each main purpose the number of average weekly visits produced from a region can be estimated from the above attraction equation for VFR and Other.

These attraction and production functions are of a form such that the estimated parameters are also estimates of the elasticities of tourist visits with respect to population and attractiveness These elasticity estimates are summarised in Table 3 Given estimates of the number of average weekly visits produced from and attracted to a region in the current year and under a future scenario, an estimate of the number of visits between regions under the scenario can be obtained by 'updating' the respective visit matrix A well established maximum likelihood procedure is used in the TIM module
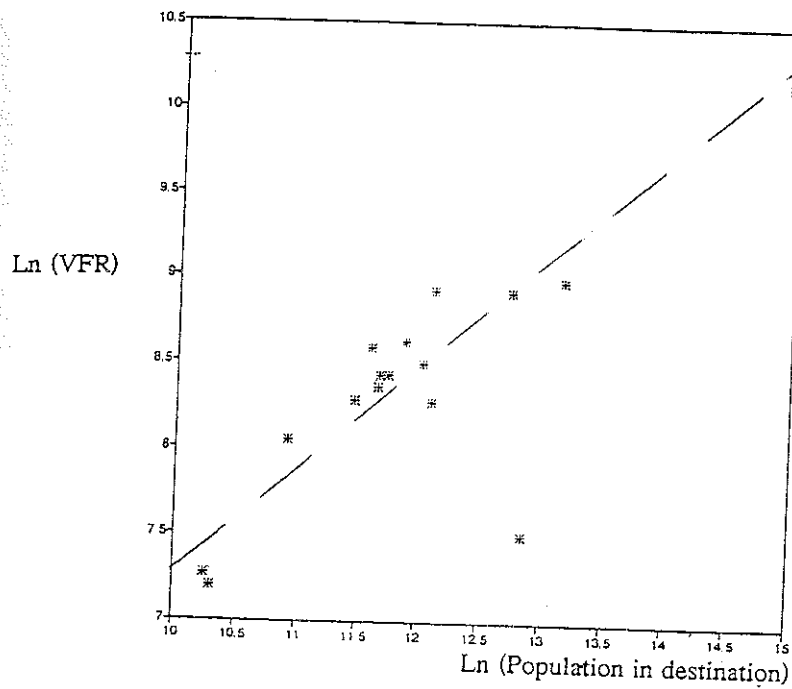
Figure 3 **Relationship between visits for VFR to a region and the regional population**

Table 3   **Estimated Population and Attractiveness Elasticities**

Elasticity of tourist visits	With respect to	
	Regional population	Holiday attractiveness
Produced from a region	0 6	
Attracted to a region		
Holiday/Pleasure		1 5
VFR	0.6	
Other	0.7	

The procedures for estimation of the current person-visit matrices and seasonal indices and the elasticities to estimate the impacts of a selected future scenario have been incorporated into the spread-sheet based, IIM model (RJNP et al 1992)

4. ESTIMATED IMPACTS OF SELECTED SCENARIOS

Three broad scenarios were tested using the above impact estimation procedure, these relating to: demographic changes; travel system changes; and tourist facility development The estimated impacts of each scenario are detailed in RJNP et al (1992), and those for the demographic changes and tourist facility development can be summarised as follows

Demographic change scenario

Growth in the total number of person-visits for the three primary tourism purposes under the Trend and Intervention population-employment scenarios over the 20-year period are shown in Table 4 The geographic distribution of the changes for holiday travel under the Trend scenario is shown in Figure 4

It was found (RJNP et al 1992) that while the changes in the distribution of population, from the Trend to Intervention Scenarios, have a slight influence on the increases in holiday visits to particular destinations, these increases primarily reflect the assumption under this scenario that the relative attractiveness of the destinations will remain unchanged This is reflected in a strong coastal orientation for visits generated from Sydney or Canberra. In contrast, growth in the total number of VFR and Other visits is influenced by the population distribution and will tend to be higher away from Sydney under the Intervention Scenario than under the Trend Scenario

For all three purposes, the strong growth in tourist traffic between the Sydney and Illawarra regions experienced in 1990-91 is expected to continue, particularly under the Trend scenario which will generate an additional 4 500 average weekday person visits from Sydney to Illawarra for holiday-pleasure purposes.

The implied average yearly tourism growth rate is 1 8%, which is significantly lower than the growth rates in vehicle volumes commonly reported on major rural roads in NSW (see, for example, RTA 1991) This lower rate is consistent with the indication that there was no significant growth in tourist visits over the period from 1985 to 1991 (NSW-TC 1992), while population grew at about 2% (RTA 1991) One likely reason for the discrepancy is that there are significantly different growth rates in the components of travel on rural roads, and it is conceivable that the growth rates in shorter distance travel (ie, 'day-trips') are significantly higher than those for longer distance travel This could have implications for the evaluation and provision of rural road network developments

Table 4   Growth rates in visits (%)

Scenario Trend	VFR	Other	Holiday
Total Growth Annual Rate*	30 0 1.5	44 0 2.2	29.0 1.5
Intervention			
Total Growth Annual Rate[a]	37 0 1.9	52 0 2.6	32 0 1.5

* These averages are based on the assumption that growth is linear
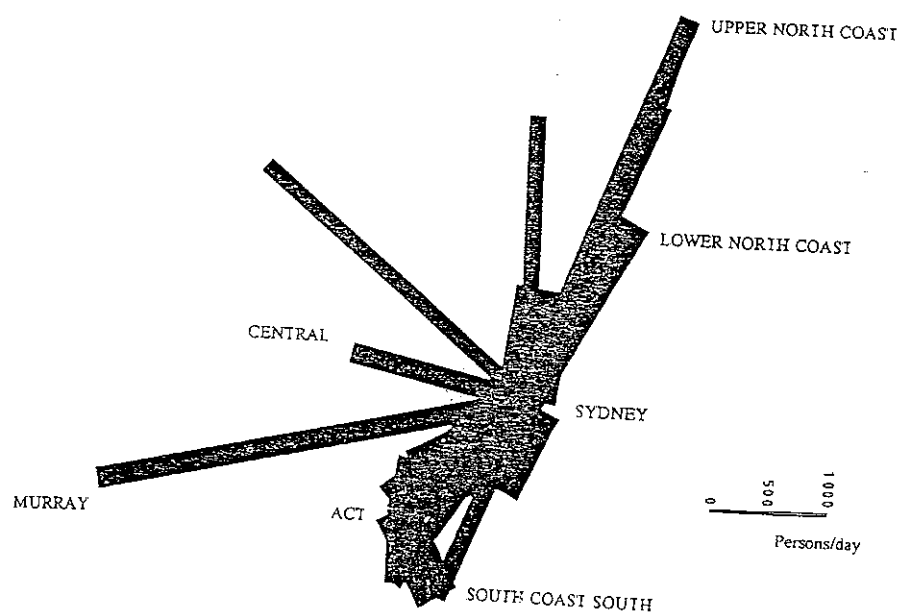

Figure 4   Increases in Average Daily Intra-State Holiday Visits under the Trend Scenario

Assignment of the estimated person-trip matrices to the NSW regional road network (RJNP et al 1992) indicated (Table 5) that the most significant increases in average daily tourist traffic will occur in the:

- Hume Corridor, between Sydney-Goulburn, with 80% increases in both holiday/pleasure and VFR travel; and

- North Coast Corridor, north of Newcastle, with 90% increase in holiday/pleasure travel.

Inspection of the estimated visit matrices indicates that the significant growth in the Hume Corridor is primarily due to increases in Sydney-Canberra visits If there are no significant demand constraints, then the peak daily traffic volumes in the six major tourist corridors can be expected to increase significantly, and will almost double in the North Coast and Hume corridors In 1990-91 the primary inter-state tourism movements are along the Hume and North Coast corridors, and that the inter-state visits are of the same order as the intra-state visits In the absence of any contrary evidence, one can assume that these relationships will continue over the next 20 years Then, the changes in visit volumes for inter-state tourism in the Hume and North Coast corridors will be of the same order as those for intra-state tourism.

Table 5   Estimated average daily traffic volumes for Holiday
and VFR purposes in selected corridors in NSW, for 1990/91
and Trend conditions

Corridor	Holiday			VFR	
	1990	Trend Increase	Car Cost Decrease	1990	Trend Increase
North Coast	800	730 (91%)	160 (20%)	440	210 (48%)
South Coast	1060	430 (41%)	260 (24%)	420	160 (38%)
Canberra-Coast	420	150 (36%)	40 (10%)	60	31 (52%)
	930	260 (28%)	80 (9%)	360	49 (14%)
Hume Corridor	1290	1030 (80%)	300 (24%)	880	740 (84%)
Canberra-Snow	450	280 (62%)	120 (26%)	330	70 (21%)

Tourist Development Scenario

For the primary tourist development scenario, several of the coastal regions in NSW will have increased relative attractiveness, particularly for Holiday travel. While international

tourism is expected to increase, domestic tourism will continue to be a significant component. This scenario can therefore be tested by increasing the attractiveness of the Upper North Coast, Middle North Coast and Central Coast regions (Figure 2) for domestic tourism by 10% from the levels estimated in 1990/91

The impacts on average weekly person visits, under a Trend demographic scenario, are seen by comparing the estimated differences in person-visits with the current attractiveness and with the revised attractiveness. The primary observations are that:

- there is increased 'self-containment' in regions 11, 12 and 13 (Figure 2), with more intra-regional visits;

- there are slight increases in visits to these three regions; and

- there are slight reductions in visits from these three regions

These changes in person visits are likely to have two levels of impact on traffic volumes. Firstly, there is likely to be only marginal changes in the volumes for inter-regional travel. However, the increased self containment in each region is likely to cause increased volumes on roads in the region. Precise estimates of these volumes was beyond the scope of this study

5. CONCLUSIONS

Investigation of the likely changes in tourism under possible future scenarios have indicated that demographic trends are likely to cause a 30% increase in both intra-state and interstate tourism for Holiday and VFR purposes and a 50% increase in tourism for Other purposes The consequent, significant increases in average daily tourist traffic will occur in the:

- Hume Corridor, between Sydney-Goulburn, with 80% increases in both holiday/pleasure and VFR travel;

- North Coast Corridor, north of Newcastle, with 90% increase in holiday/pleasure travel Highway; and

- South Coast Corridor, between Sydney and Illawarra, with 50% increase in holiday/pleasure travel

The implied average yearly growth rate in road based tourism is about 1 8% which is consistent with reported trends in tourism, but lower than the reported growth rates for total vehicle volumes on rural roads. This implies that road-based tourism is growing at a lower rate than other rural travel segments. If there are no significant demand constraints, then the peak daily traffic volumes in the six major tourist corridors can be expected to increase significantly, and in the North Coast and Hume corridors the peak volumes will almost double.

If the attractiveness of the Upper North Coast, Middle North Coast and Central Coast regions (Figure 2) for domestic tourism are increased by 10% from the levels estimated in 1990/91, then this would lead to:

- increased 'self-containment' in these three regions, with more intra-regional visits;

- a slight increases in visits to these three regions; and

- a slight reductions in visits from these three regions

These changes in person visits are likely to cause only marginal changes in the volumes for inter-regional travel, but increased volumes on roads within the region. The primary implication of these findings for rural road development on major inter-regional linkages is continued development of the major roads which provide for inter-regional linkages will be required in the following six corridors: North Coast; South Coast; Hume Highway; Canberra - Coast; and Canberra - Snowy. In each of these corridors, Holiday travel accounts for a high proportion of the peak daily traffic volume. Therefore, an important consideration in assessment of the development programs will be the policy on provision for Holiday travel. For intra-regional networks, it is highly likely that there will be increased demand for flexible movement by road within regions and between adjacent regions. This is particularly so for the North Coast and Tablelands regions, which are fostering a 'Coast-Country' package for Holiday tours, and the Outback regions, which are fostering 'ecotourism' to encourage visits to a range of natural and educational attractions in a wide region of NSW and, possibly, Queensland

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