National Travel Survey 1977/78: Objectives and Strategies

Occasional Paper

This Paper describes the National Travel Survey in terms of it's objectives and strategies. It discusses the concepts of interregional travel patterns and the need for consistent and statistically valid data, the parameters influencing travel particularly the social, economic and personal choices, seasonal variances, sampling details and the operation of the survey. Much of the information has never been systematically collected before, and none of it has been collected to the comprehensive degree applying in the NTS. As a result, it is expected that the results will give new insights into the requirements for future transport systems, policies and philosophies.

Subject
Series
Date
A to Z
Search
Results
Print
Exit
GO BACK

BUREAU OF TRANSPORT ECONOMICS

NATIONAL TRAVEL SURVEY 1977-78
OBJECTIVES AND STRATEGIES

J.W. MOLL

AUSTRALIAN GOVERNMENT PUBLISHING SERVICE
CANBERRA 1978

Printed by L.R. McKinnon & Co. Pty. Ltd., Moorabbin, Victoria

FOREWORD

One of the major deficiencies of transport planning in Australia is the lack of a comprehensive data base on non-urban personal travel. Much of the BTE's work involves research in this part of the transport sector and the lack of suitable quantitative information has caused problems for some time. In order to alleviate this situation, the BTE decided to carry out a survey of long-distance travel in Australia. The general aims of this survey are to determine current travel levels, to obtain some indication of origin/destination flows and to collect information relating travel behaviour to various household and individual parameters. The National Travel Survey (or NTS), as this project is called, aims at obtaining comprehensive data over a period of twelve months, so that seasonal effects can be gauged. It represents a transport data collection which is unique in Australia with respect to its duration and coverage.

The National Travel Survey was planned mainly within the Transport Resources Investigation Branch of the BTE. However, a number of other branches of the BTE, and outside organisations such as the Australian Tourist Commission and the Survey Analysis Unit of the Australian National University, contributed valuable assistance during the planning stages of the NTS.

In line with the general BTE policy of publishing its research work, a series of BTE publications dealing with the NTS will be produced. This Information Paper presents a general overview of the NTS in non-technical terms. It describes the general background leading to the project, the objectives of the NTS, the sampling procedure, the general mode of operation and the types of results expected from the survey. The primary aim of

this paper is to meet the requests of the many organisations interested in transport and tourism which have indicated an interest in the NTS.

(W. P. EGAN)
Assistant Director
Transport Resources Investigation

Bureau of Transport Economics
Canberra
February 1978

CONTENTS

TABLES

SUMMARY

The Bureau of Transport Economics (BTE) is engaged in carrying out a general survey of long distance travel in Australia. This survey is known as the National Travel Survey (NTS). Knowledge of the NTS has become widespread, particularly among organisations with interests in transport and tourism. As a result there has been a consistent demand from such organisations for detailed information on the scope and conduct of the NTS, and on the results to be expected from it. The aim of this Occasional Paper is to satisfy this demand by presenting a non-technical but comprehensive overview of the NTS.

The NTS is being conducted over a period of twelve months, extending from July 1977 to June 1978. It takes the form of a voluntary postal survey in which questionnaires are mailed to approximately 8000 households throughout Australia at the start of each month. These households are selected randomly from a set of geographic regions devised especially for the NTS.

This paper describes the general background to the survey and the reasons for its conduct. Aspects such as sampling procedures, the definition of a geographic zoning system for sample distribution and the development of numerical coding schemes for recording various survey results are presented. The development of the questionnaire format is discussed in terms of an important trade-off which had to be considered. On the one hand this trade-off required that the details sought from potential respondents to the NTS should involve a minimum of information which respondents might reasonably regard as private. On the other hand, in order for the NTS to be effective, the details sought had to be sufficient to allow statistical sampling corrections to be applied. It is believed that the questionnaire used in the NTS has achieved an appropriate balance between these two conflicting considerations.

The paper describes the operational details of the day-to-day conduct of the NTS. Considerable use is made of Automated Data Processing (ADP) techniques in order to minimise the manual effort required for the management of the survey.

Finally, the two main products of the NTS are discussed. The first of these is a comprehensive machine-readable data base which will contain all of the information recorded in the survey. This information base will be available to organisations with appropriate interests in personal transport planning and research, and which are interested in carrying out specialised analyses of the survey information. However, it should be noted that no information relating to the identity of individual households will be included in the data base. Apart from a formal BTE report to be produced at the conclusion of the project, the other main output from the NTS will take the form of a series of BTE publications containing preliminary statistical analyses of the data. These publications will each present a summary of a quarterly period of the survey, and will be produced, as appropriate, during the period of its conduct. The basic form of these preliminary statistics is also described in this paper.

ACKNOWLEDGEMENTS

As indicated in the following paper a number of individuals have contributed valuable suggestions on the form of the survey questionnaire, and helpful advice on the general conduct of the survey. Acknowledgement is made of the assistance received from the following:

. Mr K. Brewer, Director, Survey Analysis Unit, Australian National University;

. Prof. P. Stopher, Transportation Research Centre, Northwestern University, Chicago, U.S.;

. Dr M. Wigan and Staff, Australian Road Research Board.

In compiling the list of addresses from which the survey sample was selected, valuable assistance was received from the Valuer-General, Valuer-General's Office, Department of Lands, South Australia.

Finally the assistance received from the User Contact and Dissemination Branch, Australian Bureau of Statistics in the development of the geographic zoning scheme is acknowledged.

CHAPTER 1 - INTRODUCTION

Initial planning for a National Travel Survey (NTS) commenced within the Bureau of Transport Economics (BTE) some years ago, when a need for detailed information on domestic personal travel was recognised. At that stage, it was envisaged that the survey would help to identify the relative importance of a wide range of socio-economic and other variables in determining travel habits. It was also expected that the NTS would provide data of a route/traffic-volume type. Over time, it became apparent that the initial range of objectives for the NTS was too broad. This was especially true when it was considered that, in order to obtain statistically reliable results through a sufficiently large sample, the survey would need to be conducted by mail. A mail survey is substantially limited with regard to the amount and range of information which can be obtained from it. Any attempt to obtain a very wide range of information through a mail survey is likely to depress the total response through the complexity and detail of the survey questionnaire which would be required. Accordingly, the original concept of an all-encompassing travel survey changed to one comprising a range of more-or-less closely related research programs. The NTS component of this research package has emerged with a specific identity as an extensive benchmark study of non-urban passenger travel characteristics and patterns in Australia.

It is worthwhile discussing this concept of a benchmark study further, because it provides the rationale for carrying out the survey in its present form and with its limitations on available resources. At the present time, the information available to transport analysts and planners on Australian domestic travel behaviour is extremely patchy. Various types of surveys[1]

(1) Including, for example, traffic counts, roadside surveys, airline passenger surveys, tourism surveys etc.

have been conducted in the past, usually to provide route-specific or mode-specific information, or to provide details of recreational travel (Australian Travel Research Conference 1974). These surveys have been and continue to be valuable in their own right because the information they provide for specific purposes and projects has also been used for more general transport analysis. However, the extrapolations which usually have to be made in order to apply the data from the various specific surveys to general transport planning are often of questionable validity. Furthermore, because of the dearth of information available, the initiation of many of these surveys often occurs in a 'vacuum' in which there are no existing guidelines on the best form for the surveys or even on the real necessity for them.

The general aim of the National Travel Survey is to provide information on non-urban travel in Australia. This information is intended to cover the whole continent, all modes of travel, and all seasons of the year. In fulfilling this aim, it is intended that the information obtained through the NTS will provide a benchmark or reference point for the planning and effective conduct of more restricted transport surveys in the future. Quite clearly, the intended scope and duration of the survey require that a careful trade-off be made between the accuracy of the resulting information and the resources (financial and otherwise) to be devoted to the survey. It is obviously impossible with limited total resources to achieve the same precision from an Australia-wide survey as can be obtained from a more restricted survey. Instead, it is intended that the information from the NTS will provide the transport planner with a comprehensive framework for the development of future transport systems. It will also provide him with an appropriate basis for deciding the areas in which more precise or more detailed information is required.

CHAPTER 2 - OBJECTIVES

The general philosophy and overall aims of the NTS have been discussed at some length in Chapter 1. This Chapter is concerned with a discussion of the more specific objectives of the survey.

The strict limitation on the resources which can be devoted to a project of this kind has already been mentioned[1]. It is also worth repeating that this survey is the first of its kind carried out on such a scale in Australia. Therefore, the actual way in which the NTS is to be carried out must relate closely to the particular objectives ascribed to the survey. It is essential that these objectives should be clearly defined as far as possible. Based on the general aims discussed above, particular objectives of the NTS can be identified as follows:

- To estimate overall generation levels for non-urban passenger travel;
- To provide a realistic level of information on travel between regions, with appropriate emphasis on those regions (or corridors joining them) which are regarded as being of 'major importance'[2];
- To identify and investigate a limited number of personal and household characteristics which might influence various travel parameters;
- To provide data on seasonal variation in travel characteristics and patterns;
- To serve as a basic framework for further research into non-urban passenger travel;

---

(1) Financial and staffing restrictions have been taken into account in arriving at an appropriate total survey sample. These considerations have dictated that the monthly sample size be limited to approximately 8,000 households throughout Australia. Further details on survey sampling and the general conduct of the NTS will be given later in this paper.

(2) The concept of 'importance' of corridors is discussed further in Chapter 3.

- To serve as a vehicle for other surveys[1] or investigations which might be integrated with the NTS for reasons of convenience or economy.

Each of these objectives imposes constraints on the NTS; such constraints are exhibited both in the form of the survey and in the necessary trade-offs between financial and operational aspects of the project. In view of this, these objectives will be discussed individually in a little more detail.

GENERATION LEVELS

At present, travel generation rates are estimated from a variety of different statistical and operational sources. The inadequacies of these sources have already been discussed. While it is possible to draw broad conclusions from the available information, there is effectively no way in which more detailed and extensive estimates of travel generation levels can be derived from current sources.

The NTS should provide fundamental data on current passenger travel generation levels. In particular, estimates of these levels should be available for all modes of travel and the seasonal distribution of travel generation rates should also become apparent. Given the other types of information to be collected in the NTS[2], it should be possible to relate travel generation levels to the social, demographic and economic parameters of different communities. This type of information has direct policy and planning implications, as well as serving a specific purpose for future research activities within the BTE and similar organisations.

---

(1) For example, 'attitudinal' surveys.
(2) Such as information on household composition, household income and vehicle ownership.

INTERREGIONAL TRAVEL PATTERNS

In many respects, the requirement for acceptable travel pattern[1] data influences the form of the NTS more than any other objective. It is certainly the prime determinant of the sample size in terms of the number of trips to be sampled in the various areas throughout Australia. Furthermore, these patterns are difficult to measure accurately with a limited overall sample size.

Nevertheless, the need for consistent and statistically valid information on travel between population centres or regions is intrinsic to almost all aspects of non-urban passenger transport planning. In the past there has not been a great deal of such information available at all, and there has certainly been an almost complete lack of consistent and statistically valid data. The NTS should go some way towards correcting this situation, although the strict limitations on the resources available to the project will prevent this objective being met as fully as might be desired.

Ideally, it would be desirable to collect information on travel between each smallest practical geographic or population unit and all other such units. However, as the size of these units is reduced, the sample size which can be allocated to each unit from a fixed total survey sample is also reduced. In turn, the statistical reliability of geographically disaggregated information is increasingly compromised. Hence, the aim in the NTS has been to strike a suitable balance between acceptable information and resource constraints. The end result of these considerations was a conscious decision that the NTS would be aimed at obtaining statistically acceptable interregional[2] travel patterns,

---

(1) 'Travel pattern' is used interchangeably in this paper with the phrase 'trip distribution'. Both are used to mean the distribution of destinations (on a regional basis) for trips originating in a particular region.

(2) The regional structure defined for the NTS will be explained further in Chapter 3 in which the sampling approach used for the NTS is discussed. At this stage, it need only be mentioned that there are 64 NTS regions, and that the NTS regions are based on aggregates of Local Government Areas (LGAs).

although individual trip details would be coded on a basis somewhat finer than this[1]. This leaves open the option of using the data to derive finer travel pattern information, albeit at the cost of reduced accuracy of any estimates obtained by this process. In particular, coding of individual trip details on a placename basis should be useful for authorities such as tourist agencies, which might wish (for example) to examine all trips involving a particular place.

PARAMETERS INFLUENCING TRAVEL

It is universally accepted that a number of social, economic and personal characteristics influence individual travel patterns and habits. However, there is a general lack of information on the quantitative relationships between travel and such factors as age, sex, income and other characteristics. This lack of information has no doubt been brought about by lack of suitable data on which to estimate such relationships. Indeed, even the relative importance of some of these characteristics in estimating travel generation levels has not been established for non-urban travel in Australia.

Although the NTS would be an excellent vehicle for determining and analysing such relationships, the actual objectives of the project in this area must be limited[2]. The deliberate limitation of this objective results in the NTS being used to obtain some data on personal and household characteristics, without being too

---

(1) This coding will be in terms of a geographic zoning and coding system developed by the BTE. This system involves a comprehensive list of about 8,000 places in Australia, together with associated numerical coding information.

(2) These limitations have been imposed deliberately. The main problem in asking for detailed personal and household information lies in the fact that such questions are being increasingly regarded as constituting an 'invasion of privacy'. There appears to be considerable (and probably justified) community resistance to surveys (or at least postal surveys) which request this type of information in too much detail. The NTS has therefore been tailored to minimise likely resistance to such questions, consistent with its general objectives of examining broad relationships.

detailed. This information would primarily be used for checking sample validity and for correcting bias in other information collected during the NTS. However, it will also form a useful basis for assessing the influence of personal and household characteristics on long-distance travel behaviour. The characteristics relating to individual household members being sought in the survey are

- Sex;
- Age;
- Marital Status;
- Major Activity (e.g. student, employed full-time, home-duties, etc.);
- Actual occupation of householders in full-time or part-time employment;
- Possession of driving licence.

In addition to these characteristics relating to individual household members, the NTS also seeks the following information which relates to the household as a whole:

- Numbers and types of vehicles available for use by members of the household;
- Total income of the household.

It is considered that this information, although less detailed than might be ideal in an unconstrained situation, nevertheless constitutes a valuable basis for performing useful econometric analysis.

SEASONAL VARIATIONS

The question of seasonal variations in both travel levels and travel distribution is highly important for planning transport facilities and conducting transport operations. The ideal situation would be to have a survey sufficiently refined so that extreme peaks in travel demand (e.g. Easter Thursday, Christmas

Eve, etc.) could be identified and measured quantitatively. However, this is not a practical proposition in the present context, and in any case this type of information is more appropriately obtained by direct measurement of passenger movements.

Nevertheless, collection of consistent information on seasonal variations in travel generation and distribution is an important objective of the NTS. There are two main reasons for pursuing this objective. These are:

- Direct measurement of passenger movements will not provide information on non-travellers[1];
- Direct measurement of passenger movements can be extremely costly, and prohibitively so if carried out on anything like the scale envisaged for the NTS.

The level to which the NTS can be geared to provide data on seasonal variations in travel behaviour is determined by the total sample size available for the survey and the geographical and time distribution of this sample. It is also related to the accuracy with which people can be expected to recall trips which they have made recently. After considering these issues it was decided that the basic objective of the NTS in this area should be to provide information on interregional travel patterns on a monthly basis. This would mean that the NTS would attempt to yield interregional travel patterns with 'acceptable'[2] statistical validity and coverage for each month of a year. However, it should also be noted that the seasonal variations obtained in the NTS will only

---

(1) In order to analyse and subsequently comprehend travel behaviour, knowledge of the characteristics of people who do not travel is as important as knowledge of the characteristics of travellers.

(2) It is implicit in estimating travel patterns that the whole concept of acceptability is rather imprecise. For example, a given sample size for Melbourne might yield a high probability of staying within a 20% relative error (RE) for estimates of the number of trips from Melbourne to Sydney. Yet the same sample might result in an 80% RE for estimates of the number of trips from Melbourne to Perth. The choice of sample size is dependent on the user's particular interests, together with the overall resource constraint on the survey.

be reasonably accurate for travel between pairs of regions with fairly substantial flows. The accuracy of an estimate of the difference between two sets of travel patterns is inherently lower than that of the estimates of each pattern individually. This consideration, coupled with a fair degree of doubt about travellers' abilities to accurately recall full details of any but the most recent trips, has led to reasonably low expectations of obtaining extensive and valid information on seasonal variations in travel patterns. On the other hand, the parallel objective of assessing seasonal variations in such parameters as generation levels and the characteristics of trip makers should be fulfilled with much greater accuracy.

FUTURE RESEARCH FRAMEWORK

The objective of providing a coherent framework for future research is another of the more important aims of the NTS. The concept of the NTS as a benchmark or reference point for other work has already been discussed in Chapter 1. In attempting to set up this benchmark, the BTE (along with many other organisations) has found that the general lack of a framework for non-urban passenger travel is almost as serious as the lack of the data itself. This factor exhibits itself in such organisational details as regional definitions, coding conventions for modes of travel, personal characteristics, reasons for travel and so on.

In an attempt to overcome these problems and in order to permit the results of the NTS to be related to other data sources, both past and future, the zoning and coding systems adopted for the NTS have been chosen to be as compatible as possible with established systems[1]. However, because of the unique nature of the NTS, certain features of this project have no precedent in Australia. Coding and classification systems relating to these features were devised by balancing the degree of detail to be sought from

---

(1) For example, classifications based on Australian Bureau of Statistics (ABS) standards have been used where possible.

respondents against the natural reluctance of the community to supply a large amount of detail. It is to be hoped that the coding systems (some of which are unique) developed for the NTS can at least form a basis for future data-gathering exercises where no appropriate system of classification has already been established.

INTEGRATION WITH OTHER SURVEYS

Although the NTS is a self-contained project, it is clear that it is also sufficiently large for it to be used as a vehicle for other related surveys. For example, the NTS sample could form the basis for other survey samples. More specifically, the response from the NTS could be used to identify specialised samples of trip-making households which could then be subject to some type of follow-up interview survey designed to examine (for example) the attitudes of trip-makers. The possibility of pursuing this concept is currently being discussed within the BTE.

In a broader sense, the NTS has been discussed with other departments and agencies (both State and Commonwealth) interested in transport and tourism throughout Australia. Some of these organisations are engaged in planning survey activities of their own. In such cases, they have often expressed interest in the NTS, not only because of the information it will ultimately provide, but also from the point of view of compatibility of coding conventions and sampling schemes.

Finally, it is intended that the NTS will provide a suitable basis for the general planning of more specialised transport surveys in the future. This intention was foreshadowed previously in this paper. Towards this end, the techniques developed for the NTS should be applicable fairly generally, although they will obviously require appropriate modifications tailored to particular circumstances.

CHAPTER 3 - SAMPLING PHILOSOPHY

Since this particular travel survey is to be carried out nationally, geographic distribution of the total survey is an important consideration which must be examined carefully. The severe limitation on the total available sample makes it imperative that it be distributed so that appropriate statistical accuracy is obtained for those areas in Australia, which are most important in a transport sense. At the same time some information is required from all areas of Australia, even if this has to have comparatively low levels of statistical accuracy[1]. In order to achieve a sensible method of sample size allocation on a geographical basis, a regional framework reflecting the overall personal travel situation in Australia is required.

Essentially, this problem consists of determining regional sample sizes by allocating the given total sample size to various regions so that the statistical accuracy of the regional results is commensurate with the importance of those results. In the case of transport statistics and, more particularly, personal travel statistics, the importance of the results is often related to the numbers of trips made between particular origins and destinations. Thus the sample should be allocated in accordance with these expected relative trip levels.

Aplin and Flaherty (1976), deal with this question in detail, and show that enormous sample sizes would be required to measure the total origin-destination travel distribution in Australia to a reasonable degree of accuracy. Fortunately, measurement of the complete pattern to a uniform accuracy is not required for the reasons just stated. Further, since presently available statistics

---

(1) It should be noted that a number of different items of quantitative information are being obtained in the survey, and the statistical accuracies with which each of these items can be estimated will therefore vary. When the concept of statistical accuracy is discussed throughout this paper it connotes statistical accuracy in a general sense unless qualified by reference to particular quantitative parameters.

on non-urban travel cannot be considered in any sense comprehensive, the provision of further quantitative data is considered to be worthwhile, even if that information is subject to considerable statistical tolerance. This philosophy has been adopted in planning the NTS and, in particular, in planning the sample distribution.

REGIONAL DEFINITIONS

One of the major objectives of the NTS is to provide information on patterns of travel between regions. Therefore, the definition of regions used as the framework for the survey is central to its design and operation. Clearly, it is a great advantage to use regional definitions which have been accepted for other purposes and which have gained some degree of unanimity of agreement on boundary positions.

Formulation of geographic regions which were to be the basic sample regions for the survey was discussed by Aplin *et al.* (1976). These regions (which will be referred to as NTS regions) are broadly based on the Australian Government Regions (AGR's) developed by the former Department of Urban and Regional Development (DURD) after consultation with interested authorities at the Federal, State and Local levels. Although these regions were close to final definition, and there were strong indications that they would be accepted widely for various purposes (including administration of Federal aid programs) their characteristics did leave something to be desired from the viewpoint of the NTS[1]. In particular, changes to the AGR boundaries were required where an AGR did not appear to represent an adequately homogeneous population in terms of its general long-distance travel patterns. The following examples illustrate some of the reasons for the unsuitability of the basic AGR's as sampling regions for the NTS:

---

(1) The NTS requires a regional structure which represents a suitable transport framework on which a survey sample can be based.

- Each of the State capital cities (except Brisbane and Hobart) consisted of several regions, whereas they would be more appropriately considered as one region in the NTS;
- Some of the AGR's (particularly those in Western Australia) were not closely comparable to the remainder in terms of apparent trip generation and attraction parameters;
- Some AGR's had unusual geographic shapes which would have inhibited their use in the NTS;
- Brisbane was aggregated with a large surrounding area to form one region (this was also the case with Hobart but the Tasmanian situation was regarded as rather less serious);
- The ACT and Northern Territory were not included in the AGR system.

Considerable re-design of the AGR boundaries in such areas was required in order to achieve a regional structure regarded as being suitable for the NTS. This resulted in a reduction of the original 76 AGR's to 64 NTS regions (including regions generated for the ACT and NT). Of the 64 NTS regions, 43 were unchanged from the original AGR boundaries. All aggregation was performed on the basis of amalgamating complete AGR's to form a new NTS region. Where AGR's were divided to form new NTS regions (as in Brisbane) this was done along Local Government Area (LGA) boundaries.

Maps of the NTS regions are provided in Appendix I. It should be noted that there are some minor differences between these maps and those given by Aplin *et al.* (1976). This has occurred through changes to LGA boundaries documented prior to the 1976 Census. However, the numbers shown designating the regions are unchanged from those presented by Aplin *et al.* (1976). The modified regions have been used for planning and distributing the NTS sample, and will be used for deriving its basic results. However, the response will be coded at a finer level of detail[1], so that aggregation of the results to other regional systems should be comparatively straightforward.

---

(1) Trip origins and destinations are recorded with a numeric 5-digit code, unique to each place name.

SAMPLING DETAILS

The primary aim of the NTS is to obtain reliable statistical information on non-urban travel behaviour patterns in conjunction with related household and personal socio-economic characteristics. The basic sampling unit chosen for the survey is the household, and only trips made by members[1] of each sampled household are to be recorded in the survey. There are a number of reasons for choosing the household as the sampling unit. These reasons include the following:

- Households tend to be relatively homogeneous units as far as their long-distance travel behaviour is concerned. For example, household members tend to travel together on such trips;
- Households can be considered to be independent units as far as their travel characteristics are concerned. Also, the number of households in a region is a relatively stable and known demographic quantity. These considerations facilitate expansion of results from a sample population;
- One questionnaire addressed to a household will allow all the person-trips generated by that household in a given period to be sampled. This is economical from the point of view of minimising postal expenditure on the survey;
- By restricting the surveyed trips to household members only, possible double-counting of persons travelling together when expanding to population levels is avoided.

With the household as the sampling unit, the problem of choosing the particular households to be included in the survey sample arises. Clearly, any survey involves a trade-off between resources committed to the survey and the accuracy of the statistics obtained from that survey. In particular, as already discussed, the

(1) That is, individuals who accompany members of a sampled household on a trip but who are not members of the household are not to be included in the record of the household's travel behaviour.

finance available for the NTS determines the maximum number of questionnaires[1] which can be distributed. Therefore, given the ceiling on the total number of households which can be sampled, a method is required for determining the distribution of those households.

The distribution of the sample should reflect the statistical accuracy required from the NTS in different regions. In turn, the accuracies desired for the regional statistics should themselves be related to the 'importance'[2] of the transport corridors traversing the regions. Assessment of a corridor's importance is to some extent arbitrary, but two main approaches have been used for the purposes of the NTS. These approaches involve:

- An objective assessment based on an estimated annual traffic volume;
- An approach to interested parties in the BTE, the Department of Transport and other agencies, inviting their assessment of those transport corridors they would regard as important now or which they would regard as becoming important in the future.

Whereas the former approach is designed to rank areas in order of importance according to their present generated traffic, the latter approach also allows for potential development areas to be given special consideration in the NTS.

Aplin *et al.* (1976) described the calibration of a gravity model designed to assist in the NTS sample development. This gravity model was based on data obtained in the Survey of Australian Travel sponsored by the Australian Travel Research Conference in 1973/74. The data were not completely suitable for this

---

(1) Including reminder questionnaires sent to those households which do not respond to the original questionnaire.
(2) 'Importance' is measured primarily by the present traffic volumes sustained by the corridors and by the corridor traffic expected in the future.

purpose[1] and the regional trip distributions derived from the resulting gravity model are subject to varying degrees of error. Nevertheless, it is believed that overall the gravity model and results derived from it do constitute a sufficiently accurate picture of domestic non-urban travel patterns in Australia for the derivation of the NTS sample.

Within a given total size constraint, the sample should be distributed to correspond with the relative trip generation levels of the various regions as derived in Aplin *et al.* (1976). The actual method used to achieve this is completely empirical. The quite stringent limitation imposed on the total sample size has also required adoption of a number of arbitrary criteria so that the total sample can be distributed efficiently.

A pilot survey (Piko 1977) was carried out in April 1977 using questionnaire forms close to the style eventually adopted for the NTS itself[2]. This pilot questionnaire was distributed in three of the NTS regions representing the main geo-demographic types of regions in Australia[3]. The results from this pilot survey were used to plan the distribution of the total sample for the main NTS. Apart from travel, personal characteristics and household information, specific items of information obtained from the pilot survey and required for sample planning were:

- The response rate to be expected from the main NTS and the distribution of responses over time;
- The average number of person-trips generated per household per month.

---

(1) ATRC survey data were never intended for this application, but contained the only reasonably comprehensive information on inter-regional travel which was readily available.

(2) The questionnaire form will be described in Chapter 4.

(3) The regions surveyed and the numbers of questionnaires distributed were as follows:

- ACT (NTS Region 101) - 100 households
- Southern Tablelands, NSW (NTS Region 209) - 100 households
- Melbourne (NTS Region 311) - 500 households

With respect to the distribution of response over time, it was found from the pilot survey that approximately 85% of the eventual response from the initial mail-out was achieved within fourteen days. There are two additional factors, however, which did not apply in the pilot survey but which will apply in the NTS proper. These factors may influence the time distribution of the response although they will be countervailing in their effect. These distinctions between the pilot survey and the main NTS are:

- No time period for return of the pilot questionnaires was suggested in the covering letter. In the main survey, replies are requested within seven days of a household receiving the form;
- The NTS regions sampled were all situated on the east of the continent. Hence, mail deliveries would have been comparatively rapid both for the questionnaire mail-out and for the questionnaire return. The main NTS will of course extend much further afield with consequent increases in mail delivery times.

The first of these factors should increase the rate at which the replies will be received. To balance this however, the replies from NTS regions located in WA and NT will almost certainly lag behind those received from the eastern states. Nevertheless, it is believed that the time distribution of response achieved in the pilot study is a valuable indicator for determining when reminders should be sent to non-respondents to the initial questionnaire.

In addition to providing an estimate of the response time distribution, the pilot survey also provided an estimate of the total response which could be expected from the NTS. As discussed in more detail by Piko (1977), the effective response rate achieved from each of the three NTS regions differed somewhat. The highest response rate was obtained from the ACT and the lowest from the Southern Tablelands. All three regions combined produced an

effective response rate[1] of approximately 49%. Based on this, a figure of 50% overall response rate was used in planning the NTS sample.

Finally, the pilot survey provided an estimate of the average number of person-trips which would be sampled through each questionnaire. It was found that this estimate was 1.2 person-trips per household per month[2] for the pilot survey as a whole. Again the average trip-making propensity of households differed somewhat among the three NTS regions sampled, but this overall estimate was regarded as being appropriate for the purposes of final sample generation.

Table 3.1 summarises the monthly sample distribution planned for the NTS(Moll and Russell 1978) taking into account all of the considerations discussed above. As noted in Table 3.1, some difficulties are being experienced with regard to an 'adequate' household sample from which to choose in some regions. The sample size for these regions is below that which would have been desirable from a statistical point of view. An effort will be made during the course of the NTS to increase the sample size in at least some of these regions. On the other hand, the sample sizes for the other regions have been marginally increased so that the total available sample size can be fully committed. The sample distribution shown in Table 3.1 is that which will be used in the first months of the NTS. During the course of the NTS, the response obtained from the individual regions will be monitored and adjustments to the regional sample size may be required if

---

(1) In the pilot test, some households were deliberately not sent reminders which they would have received in normal circumstances. This procedure was adopted to obtain some statistical data on the value of the reminder process. The response figure quoted (49%) was an effective figure calculated on the basis of what might have been expected to happen if all of the appropriate reminders had been sent out.

(2) The average trip propensity applies strictly to the month of March 1977. This quantity would be expected to fluctuate from month to month and more especially from season to season.

some regional response quotas shown in Table 3.1 are not being achieved. Hence, although the sample distribution shown in Table 3.1 should not be regarded as completely inflexible, at this stage it is expected that only minor alterations to the sample distribution will be made. Thus Table 3.1 should reflect the essential sampling structure adopted for the NTS.

TABLE 3.1 - MONTHLY SAMPLE SIZES FOR EACH NTS REGION

Region Number	Major Centre	Households Sampled	Expected Response Households	Expected Response Trips
ACT				
101	Canberra	102	51	61
NSW				
201	Lismore	154	77	92
202	Armidale	102	51	61
203	Dubbo	72	36	43
204	Broken Hill	72	36	43
205	Deniliquin	102	51	61
206	Albury	154	77	92
297	Wagga	126	63	76
208	Bathurst	102	51	61
209	Goulburn	154	77	92
210	Cooma	72	36	43
211	Newcastle	154	77	92
212	Gosford	154	77	92
213	Wollongong	154	77	92
214	Sydney	628	314	377
215	Grafton	154	77	92
216	Taree	154	77	92
		2508	1254	1501
VIC				
301	Geelong	154	77	92
302	Warrnambool	32	16	19
303	Ballarat	154	77	92
304	Horsham	154	77	92
305	Mildura	72	36	43
306	Bendigo	72	36	43
307	Shepparton	154	77	92
308	Wangaratta	154	77	92
309	Sale	72	36	43
310	Moe	154	77	92
311	Melbourne	800	400	480
		1972	986	1180
QLD				
401	Brisbane	422	211	253
402	Gold Coast	154	77	92
403	Nambour	102	51	61
404	Bundaberg	102	51	61
405	Rockhampton	72	36	43
406	Mackay	154	77	92
407	Townsville	154	77	92
408	Cairns	72	36	43
409	Mt Isa	72	36	43
410 (b)	Longreach	66	33	39
411	Roma	72	36	43
412	Toowoomba	102	51	61
		1544	772	923

TABLE 3.1 - MONTHLY SAMPLE SIZES FOR EACH NTS REGION (CONTINUED)

Region Number	Major Centre	Households Sampled	Expected Response Households	Expected Response Trips
SA				
501	Adelaide	266	133	160
502	Pt Lincoln	72	36	43
503	Kadina	72	36	43
504	Whyalla	72	36	43
505	Gawler	72	36	43
506	Victor Harbor	154	77	92
507	Murray Bridge	154	77	92
508	Mt Gambier	154	77	92
509(a)	Woomera	44	22	26
		1016(c)	508(c)	608(c)
WA				
601	Albany	22	11	13
602	Bunbury	14	7	8
603	Kalgoorlie	56	28	33
604	Northam	72	36	43
605	Port Hedland	72	36	43
606(b)	Derby	28	14	16
607	Geraldton	72	36	43
608	Perth	154	77	92
609(b)	Carnarvon	44	22	26
		534	267	317
TAS				
701	Hobart	72	36	43
702	Burnie	72	36	43
703	Launceston	72	36	43
704(b)	Queenstown	39	19	22
		255	127	151
NT				
801	Darwin	72	36	43
802(b)	Alice Springs	55	27	32
		127	63	75
	NATIONAL TOTALS	8058(c)	4028(c)	4816(c)

(a) The number of useable addresses in Region 509 is limited to 44. These will be sampled in one month. Efforts will be made to increase the address base for this region during the course of the NTS so that further sampling of Region 509 can take place.

(b) Insufficient number of household addresses available in this region to allow full sample.

(c) Totals do not include components relating to Region 509.

CHAPTER 4 - SURVEY OPERATION

The discussion so far has indicated among other things that:

- The type of information required from the NTS dictates that the major part of the survey should be carried out on a fully national basis;
- The sample sizes adopted should be sufficient to identify at least the major travel patterns and their seasonal behaviour.

These requirements, together with limitations on resources available to the study, dictated that it would be necessary to mount a postal survey over a twelve-month period. The method of operation is that household addresses are selected randomly[1] [2] each month. The number of addresses chosen each month for each NTS region corresponds as closely as possible to the distribution shown in Table 3.1. The questionnaires are sent to 'The Householder' at each address - names of individuals are not used.

DEFINITION OF A TRIP

In arriving at a definition of the type of travel to be included in the NTS, a balance had to be struck between competing elements, as in many other aspects of this project. At the outset, it was agreed that the NTS should be restricted to considering non-urban travel only. The main reason for this was that urban travel has been the subject of a number of specialised surveys in particular cities, and as a result has had considerable analytical attention devoted to it. However, the problem of defining a trip in unequivocal terms remained. After wide consideration within the BTE,

---

(1) From the Federal electoral rolls for all parts of Australia except SA. The SA sample was chosen from the property file kept by the SA Valuer-General.

(2) At this stage institutions (i.e. colleges, aged peoples' homes, etc.) are being culled from the sample, since the survey questionnaire is not designed for use by institutions. However, details of institutions which appear in the random samples are being identified and preserved so that special arrangements can be made to survey these at a later time.

and taking account of advice offered by outside bodies, it was decided that the essential elements of the type of travel with which the NTS should be concerned were as follows:

- Travel wholly within Australia (i.e. overseas travel is excluded);
- Travel which starts and finishes at home and in which at least one destination (or place visited) was 100 km (60 miles) or more from home;
- No maximum or minimum travel time should be stipulated (for example, being away from home overnight is not a necessary condition for the type of travel to be surveyed).

Of these elements, the one which required the most arbitrary judgement was that specifying the travel distance criterion. For example, a short minimum distance criterion could well encompass some intra-urban travel. A further disadvantage of specifying a short minimum distance between home and the furthest place travelled is that a respondent's recall of short trips after a period of up to four weeks is limited. Hence, the response would be comparatively unreliable at best. On the other hand, specifying a large value for the corresponding distance would eliminate a significant amount of non-urban, non-commuter type travel, and this is the type of travel for which the NTS is specifically intended. As a result of considerations such as these, it was decided that choosing a value of 100 km (60 miles) for the cutoff distance would strike an appropriate balance between general objectives, recall accuracy and the utility of the trip information obtained.

QUESTIONNAIRE DESIGN

A copy of the questionnaire used for the NTS is presented in Appendix II. The questionnaires take the form of specially-printed continuous stationery of standard size (381mm x 279mm or 15" x 11"). The questionnaires are addressed directly from the

sample tapes by using a high-speed line-printer. Before mail-out, the continuous stationery is burst along all perforations to separate individual forms and remove sprocket holes. At the same time as the forms are addressed, the sampling/addressing program is also used to insert coding information which is used to identify respondents and their regional locations. Referring to the individually-coded details on the form, the following points give the significance of the various codings:

- Code 'A' refers to the AGR number of the addresses;
- Code 'N' refers to the NTS region number;
- Code 'L' refers to the LGA number;
- Code 'C' refers to the sequence number assigned to a particular address for a given month.

If a reminder form is sent out, the coded details are the same as those described above for the original form except that the fact that the form is a reminder is recorded by the letter 'R' being appended to the sequence number (Code 'C' above).

Section I of the form requests details of the individuals who comprise a 'household'. The details requested have already been mentioned briefly, and the layout of Section I is tailored to allow these details to be recorded quite simply.

Section II of the form requests details of trips which ended during a particular month[1]. The month under survey is recorded prominently on the form in a number of places[2]. The nature of the trips for which details are requested from householders is described in the 'Directions'. Essentially the trips to be surveyed are to satisfy those criteria listed in the previous

---

(1) The month in question is that immediately preceding mail-out (which always occurs at the start of a month). There are twelve separate sets of forms, one for each month of the year 1977/78.

(2) The enclosed example is of a form used to record details of trips ending in September 1977. Similarly, the forms for the following months will specify October 1977, November 1977 and so on.

section of this chapter. In addition, several other qualifications on the surveyed trips and on particular details of those trips are given in the 'Directions' to Section II of the questionnaire (Appendix II).

It can also be seen from Appendix II that, for each trip, the following details are requested:

- The main destination[1] of the trip, as well as the place visited which was furthest from home;
- The duration of the stay at the main destination;
- The types of accommodation (if any) used at the main destination;
- The reason(s) for undertaking the trip;
- The mode(s) of transport used on the trip;
- An identification of the household members who went on the trip;
- The duration of the trip (in terms of nights away from home) and the actual date on which the trip ended[2];
- The source of payment of any fares incurred on significant legs of the trip.

---

(1) There is a fairly important distinction between the 'main destination' and the 'furthest point visited'. For example, a group of Sydney residents could visit (say) Brisbane for a conference, and might then proceed to Gympie for a tour related to the Conference. Brisbane would be regarded as the main destination, but the furthest point visited would be Gympie.

(2) There are two reasons for requesting the actual date on which the trip ended. The first is related to the fact that, as it stands, the form provides statistical information on trips ending during a particular month. Availability of the actual date means that statistics on trips beginning during a particular month could be developed if necessary (although there would be gaps at the beginning and end of the survey). The second reason is to reinforce to the respondent the fact that the only trips to be recorded are those which ended during a particular month. This is done by preprinting the month and year after the space in which the respondent should enter the day of the month on which the trip ended. If the respondent has actually recorded details of a trip ending in a different month, it should become obvious at this point, and the respondent can amend the form accordingly.

It is believed that this information is relatively simple for the householder to remember and record, and at the same time it provides a sound basis for determining overall travel patterns, trip generation levels and modal splits, as well as providing the basic data required for econometric analysis and modelling of non-urban travel.

Section III of the questionnaire requests details concerning the number and types of vehicles available for use by members of a household. It also includes a question on the total income of the household. Data on both parameters are vital to any econometric modelling exercise carried out on the survey results.

Finally, Section IV of the questionnaire invites and provides space for general comments on travel in Australia, or for describing more accurately the travel characteristics of the household. This request for comments is regarded as an important component of the survey, not only from the viewpoint of the additional information obtained in this way, but also because it tends to increase the response rate. Freedom to express personal attitudes to travel in general could encourage responses from households which would otherwise not respond to the specific travel questions asked. This is particularly the case for households which have not made any trips which fall into the definitions used for the NTS.

SURVEY MANAGEMENT

On the first day[1] of a month the questionnaires are mailed to the addresses comprising the sample for the particular survey period (that is, the month immediately preceding). Enclosed with the form in a window-faced envelope are:

(1) Or as near as possible to the first day of the month - this can be modified by the incidence of public holidays or weekends, in which cases alternative arrangements are made. The schedule can also be affected by industrial disputes and other unforeseen happenings.

- A covering letter introducing the NTS to the householder;
- A reply-paid envelope to be used for returning the completed form.

A sample of the covering letter is provided in Appendix III.

As replies are received, preliminary details of each are recorded in an on-line survey control system developed by the BTE. Encoding of placenames, occupations and comments takes place at this stage. This encoding is designed to allow for permanent recording of raw NTS results in a numerical form[1] which is convenient for later analysis.

After approximately fourteen days[2] the survey control system is used to identify non-responding households. These households are sent another form, together with a different covering letter and a reply-paid envelope. A sample of the covering letter used for the reminder phase is also presented in Appendix III. It reminds householders of the NTS, and of the fact that the household was included in the sample for the month. The letter points out that no reply has been received from the household, and again requests the co-operation of the householder in completing and returning the questionnaire.

---

(1) Encoding of placenames is through a number unique to each placename. Occupation codes are based on the major occupation groups and sub-occupation groups used by the ABS. Comments are also coded numerically. Other coding details follow traditional survey practice.

(2) This was the period determined from the pilot survey as being appropriate for sending out reminders. Obviously, there is a trade-off involved in selecting this period. If reminders are sent out too early, they will be received by significant numbers of households which would have responded in any case. This is obviously uneconomic, and also causes unnecessary annoyance to the public. On the other hand, if reminders are sent out too late, householders will have difficulty in recalling details of trips, with a consequent drop in statistical accuracy. Another important requirement is to reduce as far as possible the delay between the cutoff date for 'original' returns and the date of despatch of reminders. The on-line control system developed for the NTS is highly effective in this regard.

SUPPLEMENTARY INTERVIEWS

As well as the postal survey which represents the major component of the NTS, a supplementary home interview survey is also involved. This supplementary survey is designed to satisfy two requirements:

- To monitor the accuracy with which the returned forms are being completed;
- To obtain personal, household and travel details of households which did not reply to the mail questionnaire, even subsequent to receiving the reminder letter.

It is anticipated that the monitoring function of the supplementary interview survey will become subsidiary to its other function of providing information on non-respondents. It is intended that in the first month or two of the survey, approximately half of the total home interview survey sample will be drawn from respondents to the mail survey, and the remaining half will be drawn from non-respondents. The sample of respondents will include both respondents who indicated that they had made trips and those who did not record any trips as having been made during the particular survey month in question. Assuming that the general accuracy of the mail response is verified through the home interview exercise, the sample of respondents selected for interview will subsequently be reduced to something like ten percent of the total interview sample.

It is therefore anticipated that the majority of the household interviews will eventually be limited to non-respondents to the postal questionnaires. The intention here is to ascertain the reasons for the non-response, and to use the information obtained to correct for any bias which might be present in the NTS proper as a result of non-response. As an illustration, one possible reason for non-response from a household is that no trips (as defined previously) were made by members of the household(1).

(1) In order to minimise the occurrence of this situation heavy emphasis has been given in the covering letters and the questionnaire to the need to reply even if no trips were made.

If this is a general characteristic of non-respondents, travel generation rates estimated from the mail survey alone would be too high, and would require some form of correction based on results from the interviewing process.

Household interviews are enormously expensive to conduct, especially in rural areas. Therefore, the number of household interviews which could be accommodated within an acceptable budget is limited to 250 per month. This number will be distributed on a more-or-less Australia-wide basis. The overall ratio of interviews in urban areas compared to those in rural areas will be approximately 2:1. Clearly, with this number of interviews, not all NTS regions can be economically represented in the interview sample each month[1]. In fact, some regions will only be subject to interviews once each quarter. Again, with this interview sample, statistically sound travel distribution patterns cannot be derived, but preliminary analysis has indicated the interview sample should be sufficient to ascertain and at least partially correct biases in various parameters measured through the mail survey. This will not in general be possible on an individual regional basis (except possibly for urban regions which are sampled regularly each month). However, aggregation of these regional results should permit at least some regional element to be maintained and reflected in the final bias estimates and correction factors.

Essentially, the interview process aims at eliciting the same information as requested in the mail survey, and in fact the consultant group which has been commissioned to carry out the interviews considers that the mail questionnaire provides a sound basis for devising the interview style. Non-respondents

---

(1) This representation of NTS regions in the interview sample is also restricted somewhat by the location of available interviewers. In particular, no interviews will be carried out in the Northern Territory. Some other remote NTS regions also will not be represented in the interview process.

to the mail survey are reminded of the BTE survey and asked if they remember receiving the form. They are also asked if they had particular reasons for not replying to the mail survey, and the nature of those reasons. If the interviewee is co-operative, the interviewer will run through the various questions originally asked in the mail questionnaire[1] in order to obtain the information requested in that questionnaire. Of course, a considerable degree of tact is required on the part of the interviewer and no attempt is made to force an unwilling householder to respond to the interview.

The primary interviewing approach to respondents to the mail survey is similar to that adopted for non-respondents. The intention is that the information requested should be completely unprompted so that a reliable comparison between the original mail reply and the interview can be made. The interviewer is supplied with a copy of the trip record[2] provided by the respondent in the postal return[3]. Before terminating the interview, the interviewer compares the travel details in the postal return with the corresponding details ascertained through the interview. An attempt is then made to resolve any discrepancies with the respondent. The interview procedure used with respondents who had not recorded any trips in their postal return is very similar, except that the interviewer has no copy of the respondent's return. However, the interviewer will know that the respondent's original response had indicated that no trips were made.

---

(1) This is done using a questionning structure tailored to a particular interviewing style.

(2) A copy of Section II of the questionnaire form as completed by the respondent is given to the interviewer.

(3) It is important to note that no copy of the personal or household details (Section I and Sections III, IV of the questionnaire) is provided to the interviewer. These details are again ascertained at the interview but no check of them can be made at that time. This situation has been designed to preserve the confidentiality of the mailed replies.

In addition to the basic questions just discussed, one additional question on the interview questionnaire has been reserved for the gathering of information on the perceived attitudes of householders to travel. The particular question asked is subject to modification during the course of the household interview program. It is primarily experimental, aimed at investigating the nature of attitudinal types of surveys. Reliable information on perceived attitudes to travel is notoriously difficult to obtain[1], and probably cannot be obtained from a mail survey. Hence no attitudinal questions were included in the postal questionnaire. However, the educational value in attempting such a question in the interview survey is regarded as being important in its own right.

(1) Not least because of the difficulty in framing the questions appropriately; in particular it is most important that respondents should not be led or prompted in their replies.

CHAPTER 5 - PROCESSING AND STATISTICAL ANALYSIS OF NTS RESULTS

The primary aim of the NTS is to provide a data-base of non-urban travel information related to socio-economic and household data. Essentially, all of this will be on a regional basis. The information obtained from the survey forms will be coded and stored on magnetic tape for subsequent analysis of various kinds. Although all of the primary survey information will be recorded, actual address details will not be included in these records. Consequently, there will be no way of relating survey data back to individual households. Preservation of confidentiality in this way will allow the resulting data-base to be made available to a wide range of potential users, in line with the BTE's usual policy for such projects.

In recording the survey information, a number of encoding steps is required. The basic philosophy to be adopted is that all recorded information should be numerical for ease of processing and to reduce key-punching costs. Much of the information contained in the NTS questionnaire is basically numerical, or at least is readily coded from ticked boxes. This information can be transferred directly from the completed questionnaire to magnetic tape in a single key-to-tape operation. However, specialised numerical coding schemes are required for the following parameters which are included among the NTS data:

- Occupation;
- Geographic details;
- General comments provided by respondents in Section IV of the questionnaire.

These parameters require manual encoding prior to the key-to-tape operation. 'Occupation' will be encoded using a structure developed and used by the ABS for the Census and other surveys. In general, NTS respondents would provide only a limited

description of the occupations of household members[1]. Hence, the complete occupational structure developed by the ABS is far too detailed for use in coding NTS responses. Instead, the encoding process will be based on the major ABS occupational groups and sub-groups. Furthermore, the three-digit alphanumeric occupational codes used by the ABS will be replaced by three-digit numerical codes for the NTS to facilitate later processing[2]. Placenames given as destinations of trips, and also those representing home addresses (at the suburb or town level) of respondents will be encoded according to a coding scheme devised within the BTE. The BTE has prepared a national directory of placenames (*Aplin and Hirsch 1978*). This directory lists placenames and gives the following coding details for each:

- Postcode;
- Statistical division;
- Local Government Area number[3];
- National Travel Survey Region number.

The directory also exists in machine-readable form, and this form follows the above pattern, but also includes actual LGA names, populations and geographic co-ordinates (based on approximate

---

(1) In ABS surveys, the respondent is specifically requested to supply a complete description in answering questions concerning occupations. In the NTS it was felt that too much emphasis on particular details (such as this) which are not intimately connected to actual travel should be avoided. Hence, no request for complete details was made on the questionnaire.

(2) From its own experience, and from discussions with other researchers, the BTE has learned that alphanumeric coding systems are convenient from the point of view of survey designers, but they can be particularly vexing for analysts. This is especially the case for analysts who might be capable of sophisticated scientific computing, but whose data-manipulation techniques or facilities are limited. Accordingly, the NTS philosophy is that all basic NTS records should be in purely numeric coded form.

(3) The ABS has recently revised and updated the numbering system used for LGAs throughout Australia. This revised numbering scheme (which was developed for the 1976 Census) is incorporated in the directory.

population centroids). Although this directory was specifically developed for the NTS, it clearly has fairly extensive application. Accordingly, it is intended that the directory will be published by the BTE and made generally available.

In order to retain a maximum of origin-destination information, the placenames recorded on the NTS forms will be encoded with a placename code (from the directory) which is unique to each placename. Hence, when the survey results are recorded in machine-readable form, the placenames will be replaced by individual placename codes. It is not expected that statistically reliable results would generally be obtained for travel patterns expressed in terms of actual placenames. However, the information will be available in a sufficiently refined form for travel on specific links to be examined should this be required. Furthermore, the information can be aggregated[1] to provide travel patterns in terms of LGAs, NTS regions, or other regional classifications, and these patterns will have increased statistical validity through the larger sample size represented by the aggregation.

Finally, it is intended that the comments volunteered by respondents in Section IV of the questionnaire form should also be recorded in machine-readable form. Since these comments are completely unprompted, they are regarded as a valuable indication of attitudes and opinions among the population in regard to Australian domestic travel conditions. It is clearly not feasible or desirable from the point of view of cost of key-punching and ease of subsequent analysis to record these comments verbatim. An examination of comments made in the pilot survey and in other similar exercises has indicated that such comments encompass a wide range of concerns and vary greatly in the particular detail expressed. Nevertheless, it has been found that a numerical coding scheme can be devised to represent at least the essence of the vast majority of the comments.

---

(1) Using the BTE placename directory mentioned above.

This coding scheme comprises a four-digit number which indicates the import of a comment. The first digit of this code indicates the general area of comment, within the following range:

- Comments on transport in general;
- Comments on road infrastructure;
- Comments on road traffic;
- Comments on bus/coach travel;
- Comments on rail travel;
- Comments on air travel;
- Comments on sea travel;
- Comments on relative features of different methods of travel.

The second digit of the four-digit comment code depends on the value of the first digit. It determines the particular emphasis of the comment. For example, if the comment is on 'transport in general' the second digit indicates the particular aspect commented on - cost, comfort, availability etc. If the comment refers to accommodation, the second digit is again used to particularise the comment - customer relations, motel costs, camping area standards etc. For miscellaneous comments, the second digit classifies the comment into topics such as:

- Need for staggered school holidays;
- Nationalisation of railways;
- Scenery;
- Pollution;
- Availability of tourist information, and so on.

The third digit of the code expresses the thrust of the comment, that is, whether the comment is generally favourable or unfavourable.

The fourth digit indicates essentially whether the comment refers to particular geographical locations. Where applicable, it is used to indicate the State referred to in a comment. It is also used in the case of comments on relativities between modes to

point up the particular aspect commented upon (e.g. cost, comfort, reliability, etc.).

It is believed that this coding scheme preserves a great deal of the information expressed by the comments in a convenient and readily-analysed form. Detailed statistical analysis on the comments would not be warranted and is not intended. However, an indication of the frequency with which particular or general comments arise can be obtained from this scheme.

STATISTICAL REPORTS

As well as producing a data-bank in machine-readable form for detailed analysis, it is intended that interim statistical summaries of the NTS results will be produced at regular intervals during the course of the NTS. Included in these statistical summaries will be information concerning:

- Household sample and response details (including indications of the proportions of complete and incomplete responses);
- Trip characteristics, such as those describing distribution of travel duration, trip generation rates, modal splits, accommodation used, trip lengths, regional distribution of main destinations, and other basic transport features;
- Trip propensities related to household size and household income groups;
- Household characteristics, such as statistics of vehicle numbers by type.

These statistics will be derived on a regional, state and national basis. In addition, monthly and quarterly statistics will be produced, the aim being to release these summaries at approximately quarterly intervals. Each quarterly summary will incorporate the NTS results obtained during the preceding quarter.

A sample of the tables provided in these quarterly summaries is provided in Appendix IV. The sample tables are included purely for illustration purposes, and hence do not contain meaningful entries.

CHAPTER 6 - CONCLUDING REMARKS

The National Travel Survey is regarded as an essential base for future planning of Australia's non-urban passenger transport systems. Much of the information has never been systematically collected before, and none of it has been collected to the comprehensive degree applying in the NTS. As a result, the BTE expects that the results will give new insights into the requirements for future transport systems, policies and philosophies. It should also allow further insight into questions such as the incidence of benefits from particular transport improvements or changes. Equally, it will provide an integrated framework for future research in this area.

The NTS is an extensive study, and accordingly it will be a significant user of the BTE's limited resources. Considerable thought has been applied to finding methods by which the procedures involved can be made more efficient. Equally, a degree of compromise has been required in setting the objectives of the study. However, it is important to remember that the NTS is intended to represent a benchmark for future surveys and studies in the area of non-urban passenger transport. If the NTS can provide this function alone it will have gone a considerable way towards improving the quality of passenger transport studies in Australia.

LIST OF REFERENCES

Aplin, W.N. and Flaherty, H.M. (1976). Sampling Processes for the National Travel Survey. BTE Occasional Paper 5, Canberra.

Aplin, W.N. and Hirsch, N.A. (1978). National Travel Survey 1977-78. Geographic Zoning and Coding System. BTE Occasional Paper, Canberra. (In preparation).

Australian Travel Research Conference (1974). Survey of Australian Travel 1973/74, Canberra.

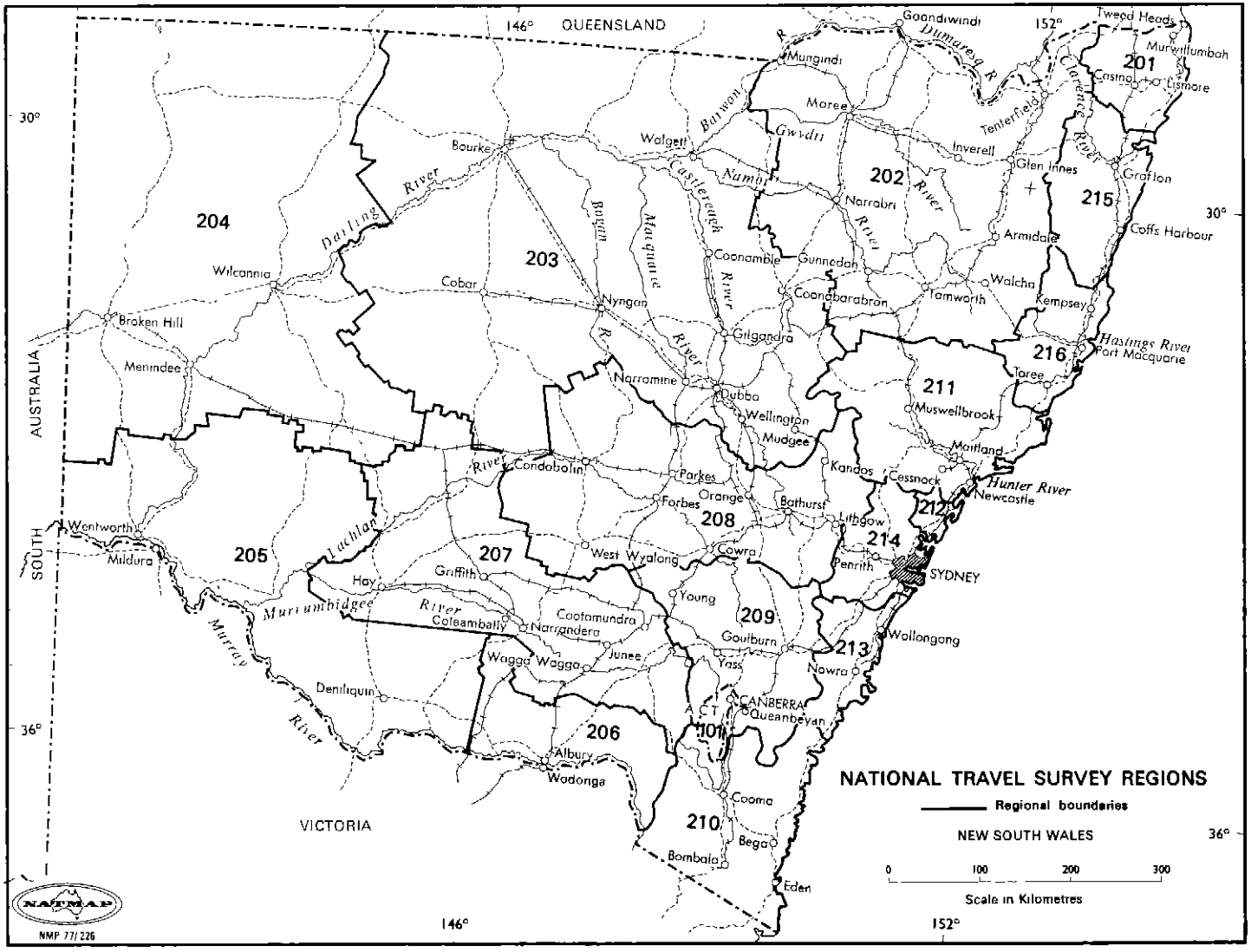
Piko, G.P. (1977). National Travel Survey 1977-78. Summary of Results for the Second Pilot Survey (conducted for March 1977). BTE Staff Paper, July, Canberra. (Unpublished).

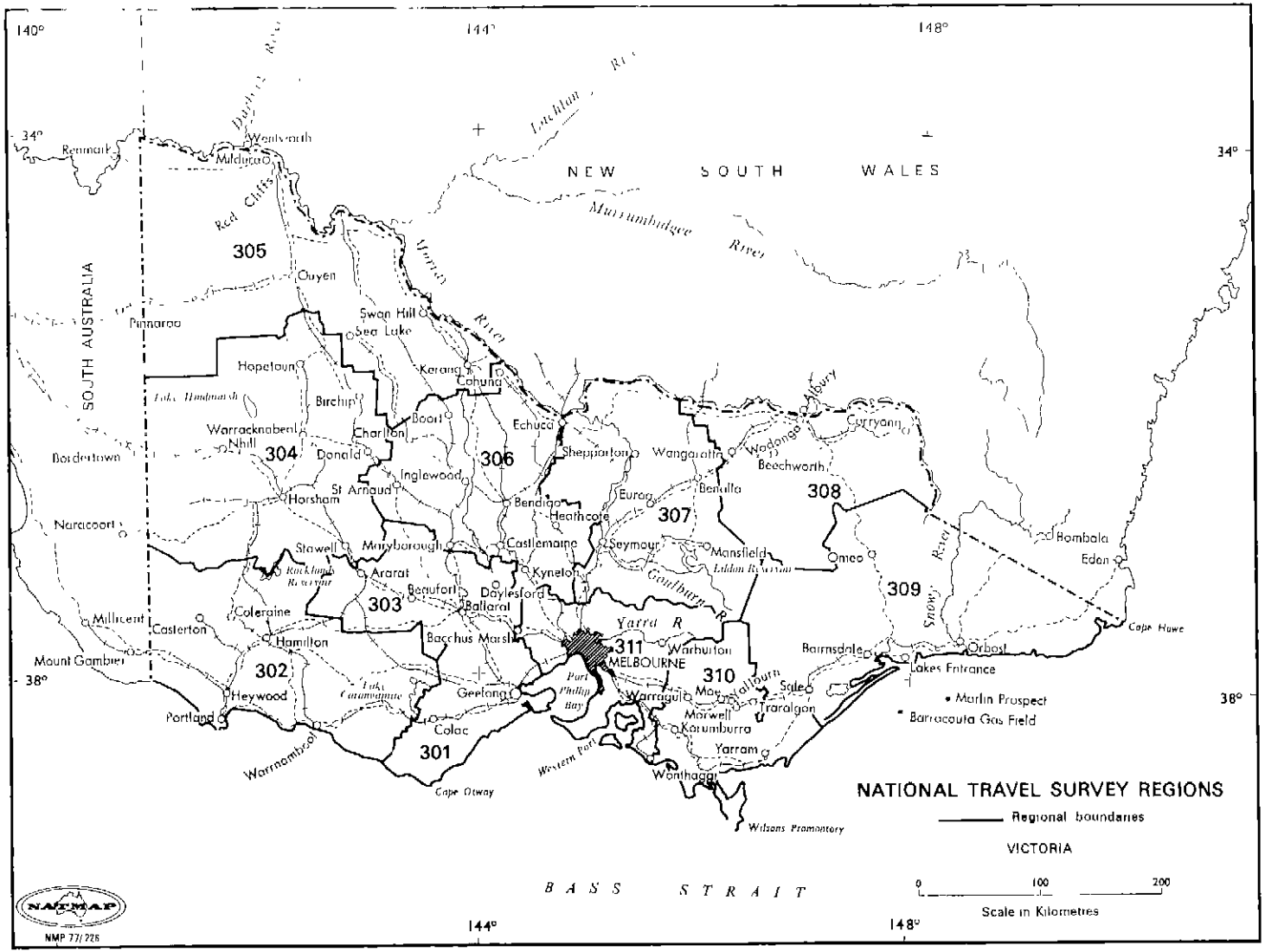
Moll, J.W. and Russell, D.A. (1978). National Travel Survey 1977-78. Determination of Regional Sample Sizes. BTE Occasional Paper, Canberra. (In preparation).

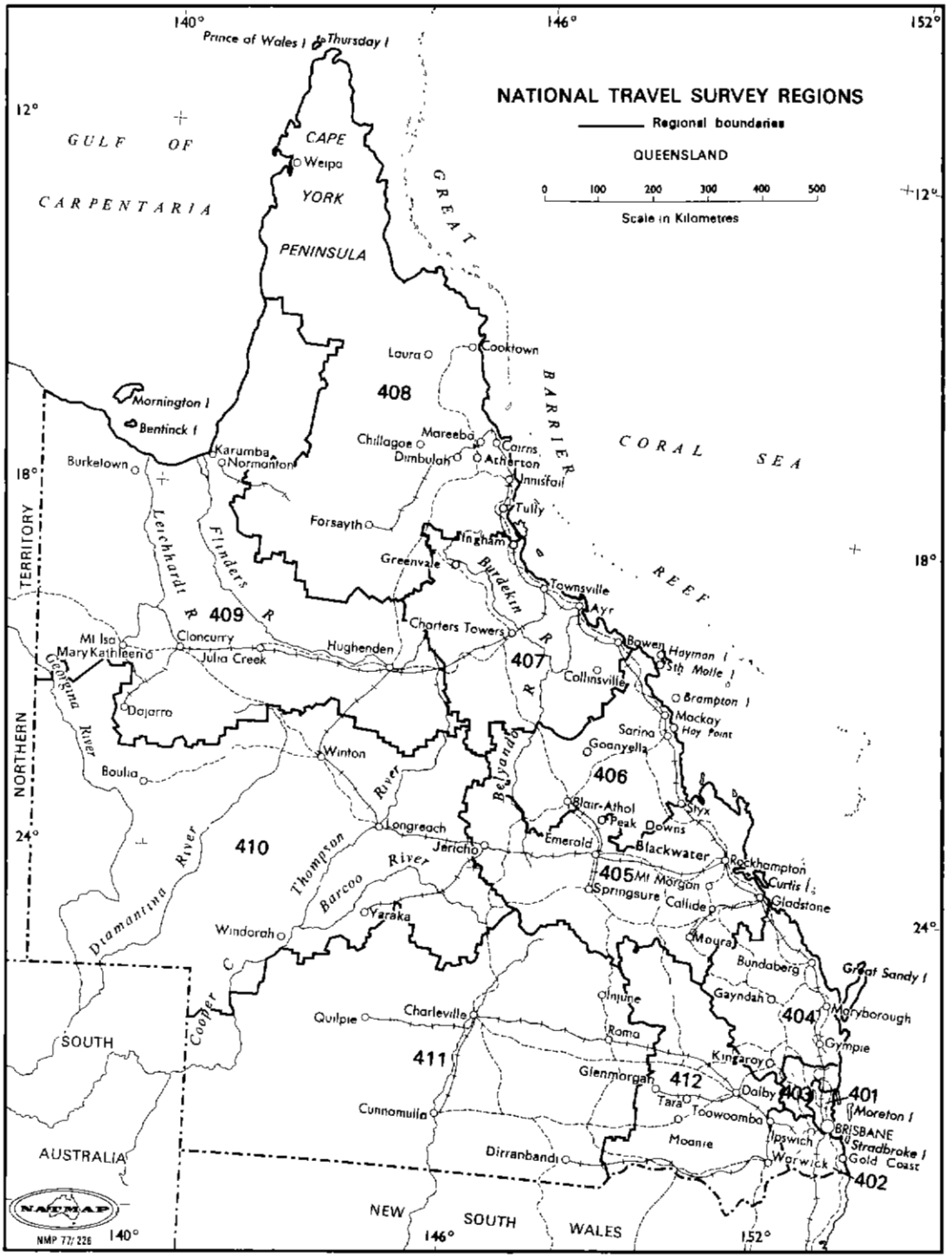
APPENDIX I

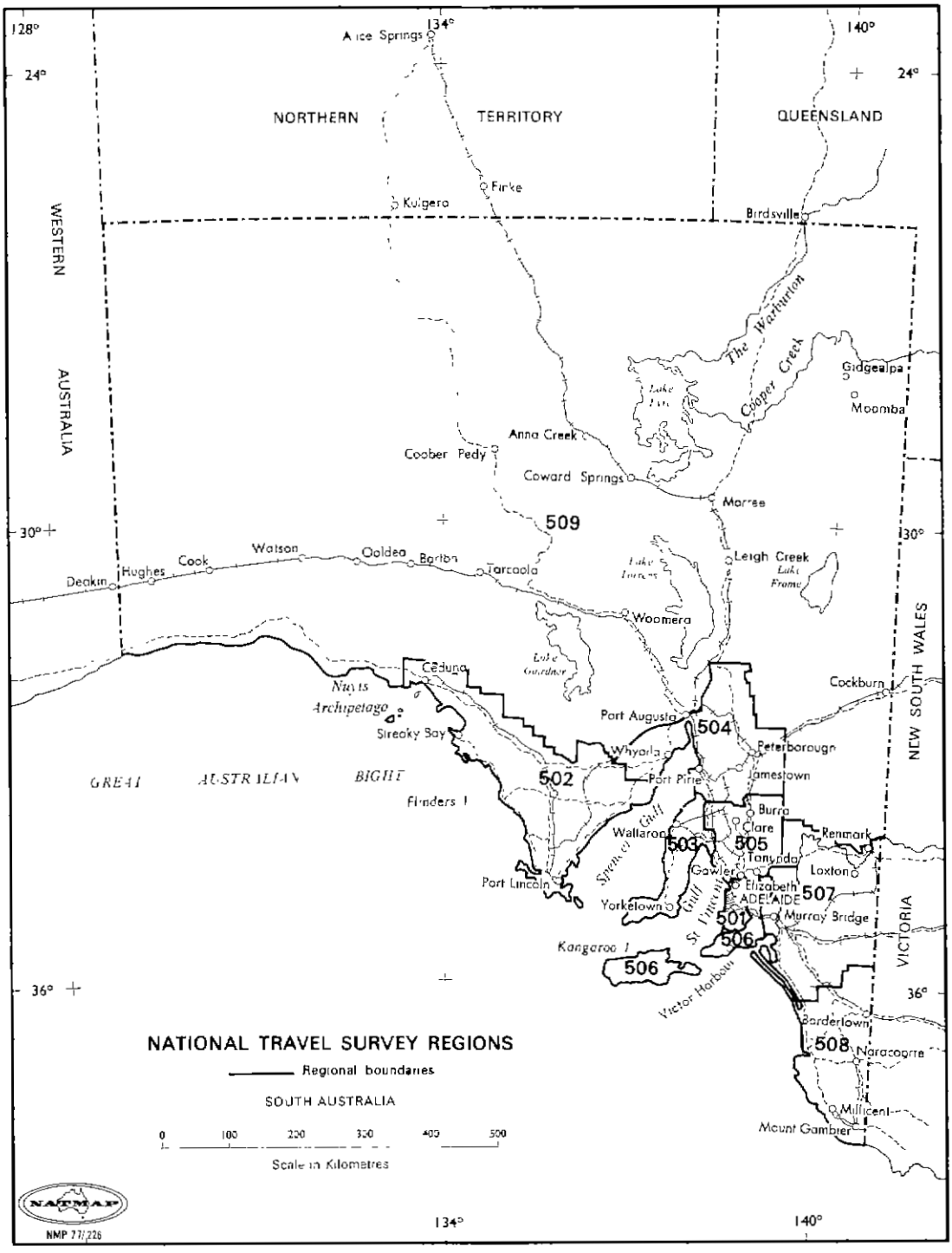
MAPS OF NTS REGIONS THROUGHOUT AUSTRALIA

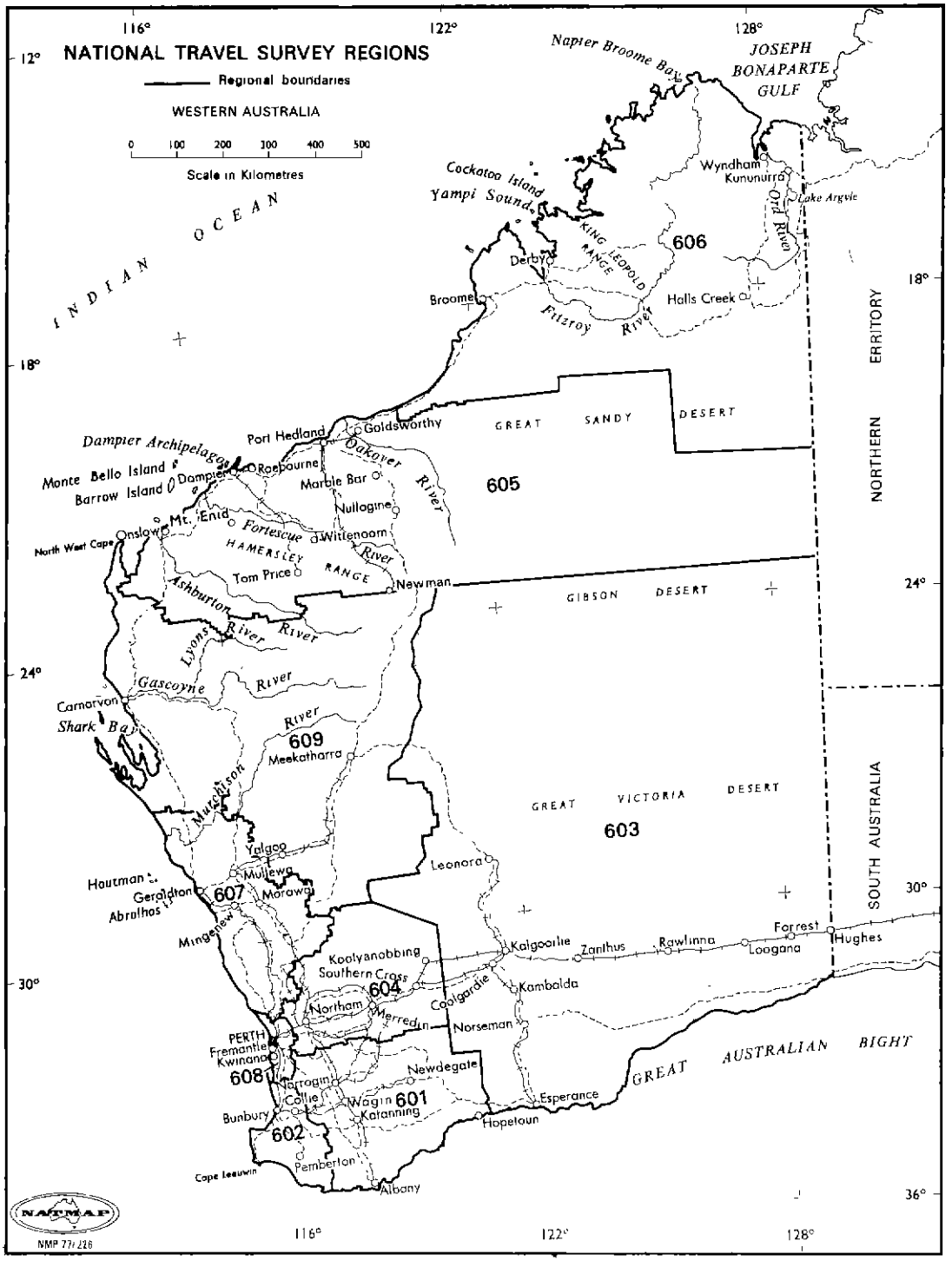
The maps included in this Appendix illustrate the regional scheme developed for use in the NTS for each State, the Australian Capital Territory and the Northern Territory. Other off-shore territories under Australian control (such as Norfolk Island, Antarctica etc,) are not included in this zoning system. The boundaries of the NTS regions follow Local Government Area (LGA) boundaries, and each region is identified by a unique three-digit number, with the first digit representing a State code.

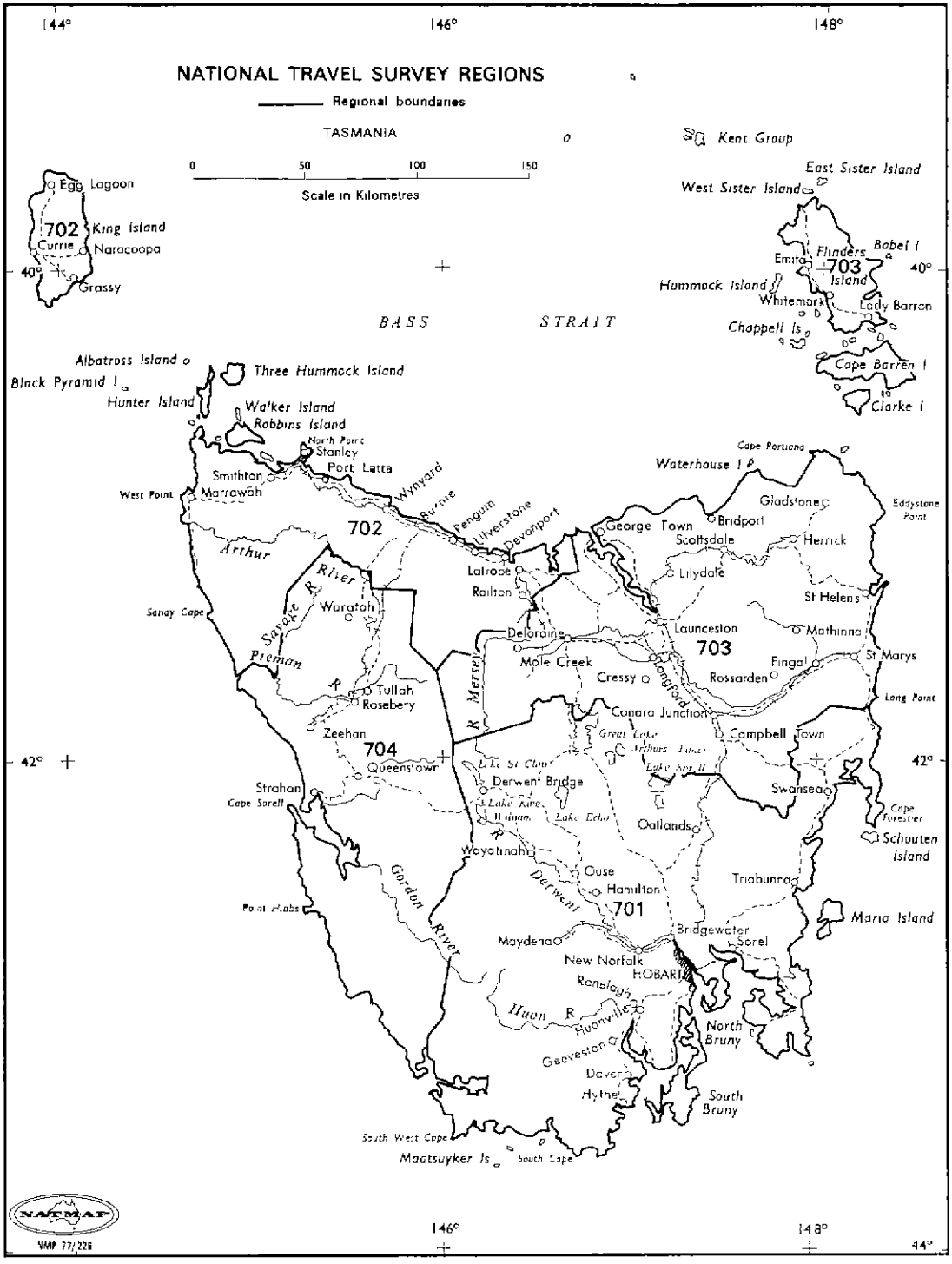

NATIONAL TRAVEL SURVEY REGIONS
Regional boundaries
NEW SOUTH WALES
Scale in Kilometres
0
100
200
300
QUEENSLAND
VICTORIA
AUSTRALIA
SOUTH
ACT
SYDNEY
CANBERRA
Queanbeyan
Goondiwindi
Tweed Heads
Murwillumbah
Mungindi
Moree
Casino
Lismore
Tenterfield
Inverell
Glen Innes
Grafton
Coffs Harbour
Armidale
Walcha
Kempsey
Hastings River
Port Macquarie
Taree
Tamworth
Narrabri
Gunnedah
Coonabarabran
Coonamble
Walgett
Bourke
Wilcannia
Cobar
Nyngan
Broken Hill
Menindee
Gilgandra
Dubbo
Narromine
Wellington
Mudgee
Muswellbrook
Maitland
Cessnock
Kandos
Hunter River
Newcastle
Condobolin
Parkes
Forbes
Orange
Bathurst
Lithgow
Penrith
Wentworth
Mildura
West Wyalong
Cowra
Griffith
Hay
Young
Coleambally
Cootamundra
Narrandera
Goulburn
Wollongong
Wagga Wagga
Junee
Yass
Nowra
Deniliquin
Albury
Wodonga
Cooma
Bega
Bombala
Eden
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
101
30°
36°
146°
152°
Darling River
Barwon River
Gwydir River
Namoi River
Castlereagh River
Macquarie River
Bogan River
Lachlan River
Murrumbidgee River
Murray River
Clarence River
Dumaresq R.
NMP 77/226

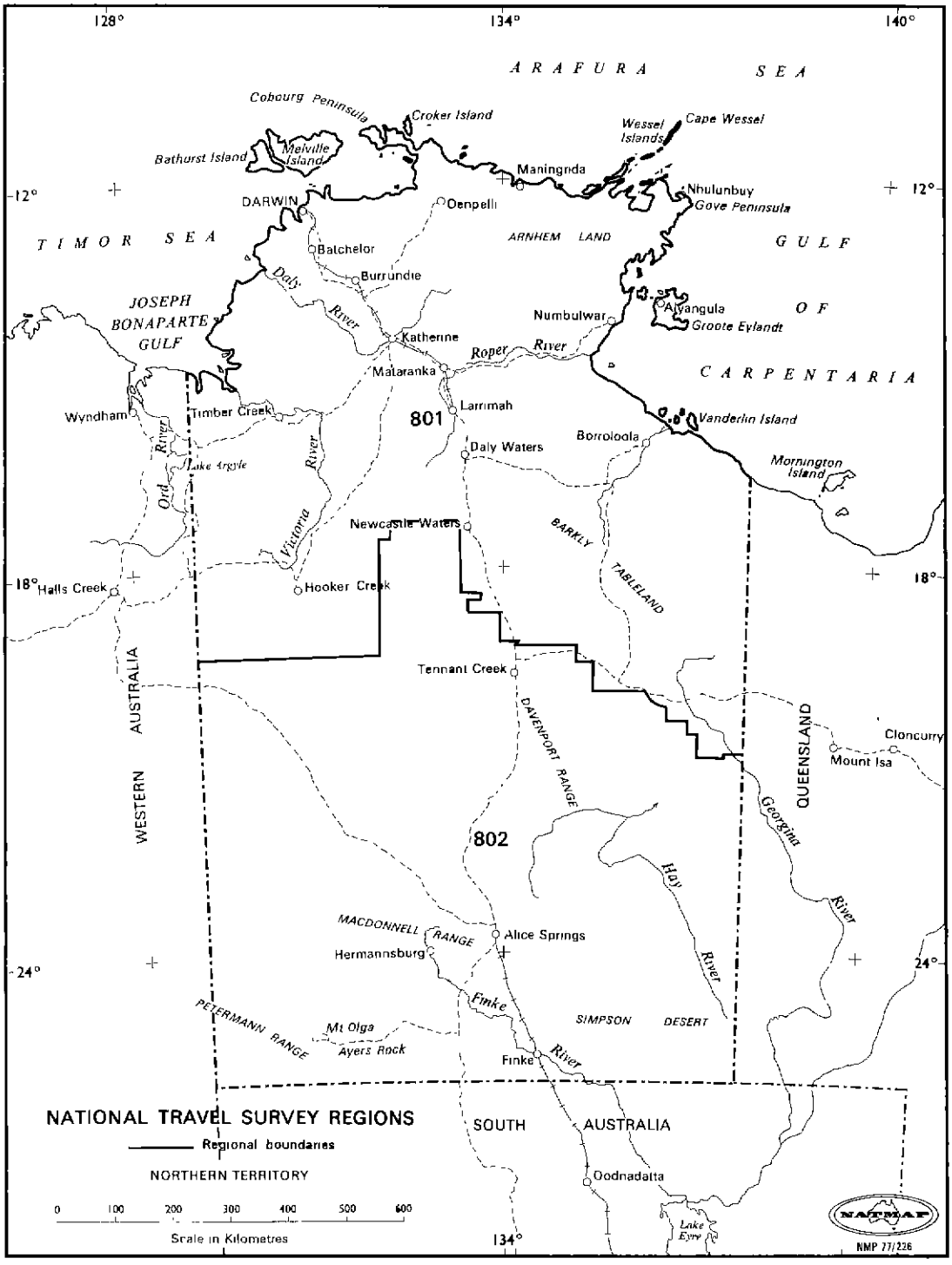

140°
144°
148°
34°
38°
NEW SOUTH WALES
SOUTH AUSTRALIA
BASS STRAIT
Murrumbidgee River
Murray River
Darling River
Lachlan River
Red Cliffs
Renmark
Wentworth
Mildura
Ouyen
Pinnaroo
Swan Hill
Sea Lake
Hopetoun
Kerang
Cohuna
Lake Hindmarsh
Birchip
Boort
Echuca
Warracknabeal
Nhill
Charlton
Bordertown
Donald
Shepparton
Wangaratta
Wodonga
Albury
Corryong
Beechworth
Inglewood
St Arnaud
Horsham
Bendigo
Heathcote
Euroa
Benalla
Naracoorte
Stawell
Maryborough
Castlemaine
Seymour
Mansfield
Omeo
Bombala
Eden
Rocklands Reservoir
Ararat
Kyneton
Goulburn R
Snowy River
Beaufort
Daylesford
Ballarat
Millicent
Coleraine
Casterton
Hamilton
Bacchus Marsh
Yarra R
Warburton
Barnsdale
Orbost
Cape Howe
Mount Gambier
Heywood
Lake Corangamite
Geelong
Port Phillip Bay
Lakes Entrance
Portland
Colac
Warrnambool
Cape Otway
Western Port
Warragul
Morwell
Traralgon
Sale
Maffra
Latrobe
Yarram
Wonthaggi
Wilsons Promontory
Marlin Prospect
Barracouta Gas Field
305
304
306
307
308
309
303
302
301
311
MELBOURNE
310
NATIONAL TRAVEL SURVEY REGIONS
Regional boundaries
VICTORIA
0
100
200
Scale in Kilometres
NAPMAP
NMP 77/226


NATIONAL TRAVEL SURVEY REGIONS
Regional boundaries
QUEENSLAND
0 100 200 300 400 500
Scale in Kilometres
140°
146°
152°
12°
18°
24°
GULF OF CARPENTARIA
CAPE YORK PENINSULA
GREAT BARRIER REEF
CORAL SEA
Prince of Wales I
Thursday I
Weipa
Laura
Cooktown
Mornington I
Bentinck I
Karumba
Normanton
Burketown
Chillagoe
Mareeba
Dimbulah
Cairns
Atherton
Innisfail
Tully
Forsayth
Ingham
Greenvale
Townsville
Ayr
Charters Towers
Hughenden
Cloncurry
Mt Isa
Mary Kathleen
Julia Creek
Dajarra
Winton
Boulia
Longreach
Jericho
Emerald
Blackwater
Rockhampton
Curtis I
Gladstone
Mt Morgan
Springsure
Collinsville
Bowen
Hayman I
Sth Molle I
Brampton I
Mackay
Hay Point
Sarina
Goonyella
Blair-Athol
Peak Downs
Styx
Yaraka
Windorah
Moura
Bundaberg
Great Sandy I
Gayndah
Maryborough
Gympie
Injune
Roma
Kingaroy
Charleville
Quilpie
Glenmorgan
Tara
Dalby
Toowoomba
Moreton I
BRISBANE
Stradbroke I
Gold Coast
Ipswich
Warwick
Cunnamulla
Dirranbandi
Moonie
409
408
407
406
405
404
403
402
401
410
411
412
NORTHERN TERRITORY
SOUTH AUSTRALIA
NEW SOUTH WALES
Leichhardt R
Flinders R
Georgina River
Diamantina River
Thompson River
Barcoo River
Cooper
Belyando R
Burdekin R
NATMAP
NMP 77/ 226


128°
134°
140°
24°
36°
NORTHERN TERRITORY
QUEENSLAND
WESTERN AUSTRALIA
NEW SOUTH WALES
VICTORIA
Alice Springs
Kulgera
Finke
Birdsville
The Warburton
Cooper Creek
Lake Eyre
Gidgealpa
Moomba
Anna Creek
Coober Pedy
Coward Springs
Marree
509
Leigh Creek
Lake Frome
Lake Torrens
Woomera
Deakin
Hughes
Cook
Watson
Ooldea
Barton
Tarcoola
Ceduna
Lake Gairdner
Nuyts Archipelago
Streaky Bay
Cockburn
Port Augusta
504
Whyalla
Peterborough
Jamestown
Port Pirie
GREAT AUSTRALIAN BIGHT
502
Flinders I
Burra
Clare
Wallaroo
503
505
Renmark
Tanunda
Gawler
Loxton
Spencer Gulf
Port Lincoln
Elizabeth
ADELAIDE
507
Yorketown
St Vincent Gulf
501
Murray Bridge
506
Kangaroo I
506
Victor Harbour
Barderlown
508
Naracoorte
Millicent
Mount Gambier
NATIONAL TRAVEL SURVEY REGIONS
Regional boundaries
SOUTH AUSTRALIA
0 100 200 300 400 500
Scale in Kilometres
NATMAP
NMP 77/226


NATIONAL TRAVEL SURVEY REGIONS
Regional boundaries
WESTERN AUSTRALIA
0 100 200 300 400 500
Scale in Kilometres
116°
122°
128°
12°
18°
24°
30°
36°
INDIAN OCEAN
Napier Broome Bay
JOSEPH BONAPARTE GULF
Cockatoo Island
Yampi Sound
Wyndham
Kununurra
Lake Argyle
Ord River
KING LEOPOLD RANGE
606
Derby
Broome
Fitzroy River
Halls Creek
NORTHERN TERRITORY
GREAT SANDY DESERT
605
Dampier Archipelago
Port Hedland
Goldsworthy
Dakoover River
Rosbourne
Marble Bar
Nullagine
Monte Bello Island
Barrow Island
Dampier
Mt. Enid
Fortescue
Wittenoom
HAMERSLEY RANGE
Onslow
North West Cape
Tom Price
Newman
Ashburton River
Lyons River
GIBSON DESERT
Gascoyne River
Carnarvon
Shark Bay
609
Meekatharra
Murchison River
GREAT VICTORIA DESERT
603
Yalgoo
Leonora
Mullewa
Hautman
Geraldton
607
Morawa
Abrolhos
Mingenew
Kalgoorlie
Zanthus
Rawlinna
Forrest
Loongana
Hughes
SOUTH AUSTRALIA
Koolyanobbing
Southern Cross
604
Coolgardie
Kambalda
Northam
Merredin
Norseman
PERTH
Fremantle
Kwinana
608
Narrogin
Newdegate
Collie
Wagin
601
Katanning
Esperance
GREAT AUSTRALIAN BIGHT
Bunbury
602
Hopetoun
Pemberton
Cape Leeuwin
Albany
NATMAP
NMP 77/228


NATIONAL TRAVEL SURVEY REGIONS
Regional boundaries
TASMANIA
Scale in Kilometres
0
50
100
150
144°
146°
148°
40°
42°
44°
Egg Lagoon
702
King Island
Currie
Naracoopa
Grassy
Kent Group
East Sister Island
West Sister Island
703
Flinders Island
Babel I
Emita
Hummock Island
Whitemark
Lady Barron
Chappell Is
Cape Barren I
Clarke I
BASS STRAIT
Albatross Island
Black Pyramid I
Three Hummock Island
Hunter Island
Walker Island
Robbins Island
North Point
Stanley
Port Latta
Smithton
Marrawah
West Point
Wynyard
Burnie
Penguin
Ulverstone
Devonport
Cape Portland
Waterhouse I P
Gladstone
Eddystone Point
George Town
Bridport
Scottsdale
Herrick
Arthur River
Latrobe
Railton
Lilydale
St Helens
Sandy Cape
Savage R
Waratah
Launceston
Mathinna
Deloraine
Mole Creek
Cressy
Longford
Rossarden
Fingal
St Marys
Forth R
Tullah
Rosebery
Merrel R
Conara Junction
Long Point
Zeehan
704
Queenstown
Great Lake
Arthurs Lake
Lake Sorell
Campbell Town
Lake St Clair
Derwent Bridge
Swansea
Strahan
Cape Sorell
Lake Kire
Lake Echo
Oatlands
Cape Forestier
Schouten Island
Woyatinah
Ouse
Hamilton
701
Triabunna
Gordon River
Derwent
Port Davey
Maydena
Bridgewater
Sorell
Maria Island
New Norfolk
HOBART
Risdon
Huon R
Huonville
North Bruny
Geeveston
Dover
Hythe
South Bruny
South West Cape
Macquarie Is
South Cape
NATMAP
VMP 77/226


128°
134°
140°
ARAFURA SEA
Cobourg Peninsula
Croker Island
Wessel Islands
Cape Wessel
Bathurst Island
Melville Island
Maningrida
Nhulunbuy
Gove Peninsula
12°
DARWIN
Oenpelli
TIMOR SEA
Batchelor
ARNHEM LAND
GULF OF CARPENTARIA
Daly River
Burrundie
JOSEPH BONAPARTE GULF
Numbulwar
Alyangula
Groote Eylandt
Katherine
Roper River
Mataranka
Wyndham
Timber Creek
801
Larrimah
Vanderlin Island
Borroloola
Daly Waters
Mornington Island
Lake Argyle
Ord River
Victoria River
Newcastle Waters
BARKLY TABLELAND
18°
Halls Creek
Hooker Creek
AUSTRALIA
Tennant Creek
DAVENPORT RANGE
QUEENSLAND
Cloncurry
Mount Isa
WESTERN
802
Georgina River
Hay River
MACDONNELL RANGE
Alice Springs
Hermannsburg
24°
Finke
SIMPSON DESERT
PETERMANN RANGE
Mt Olga
Ayers Rock
Finke River
NATIONAL TRAVEL SURVEY REGIONS
Regional boundaries
NORTHERN TERRITORY
SOUTH AUSTRALIA
Oodnadatta
0 100 200 300 400 500 600
Scale in Kilometres
Lake Eyre
NMP 77/226

APPENDIX II

SPECIMEN NTS QUESTIONNAIRE FORM

The questionnaire mailed to households is illustrated in this Appendix. The illustration is not full scale. In practice, questionnaires are printed on continuous stationery, suitable for addressing through a high-speed line-printer. The actual size of each form corresponds to that of conventional computer stationery (15in x 11in or 381mm x 279mm). The particular questionnaire included here is that relating to September 1977. Questionnaires for other months are identical except for those areas where the actual month is specified.

Section III

HOUSEHOLD DETAILS

DIRECTIONS—these details relate to the household as a whole

- When answering the motor vehicles question, **include** company cars and other vehicles which are not owned by members of the household, but which are regularly available to at least one of them
- When answering the income question give only the **combined** income for the whole household
  - include income from all sources (wages overtime, child endowment pensions etc)
  - **do not deduct** tax superannuation etc

A. How many motor vehicles are available for use by members of this household?

Refer to the notes at the top of this Section. If no vehicles in a particular class are available write '0' for that class

_____ Cars (including station wagons) _____ Motorcycles

_____ Utilities and light trucks _____ Other vehicles

B What is the combined income of members of the household?

Refer to the notes at the top of this Section and tick **one box only**

Both weekly and equivalent yearly incomes are shown to assist you in choosing the correct box

- ☐ Less than $38 per week / Less than $2000 per year
- ☐ Over $39 to $77 per week / Over $2000 to $4000 per year
- ☐ Over $77 to $115 per week / Over $4000 to $6000 per year
- ☐ Over $116 to $154 per week / Over $6000 to $8000 per year
- ☐ Over $154 to $192 per week / Over $8000 to $10000 per year
- ☐ Over $192 to $288 per week / Over $10000 to $15000 per year
- ☐ Over $288 to $385 per week / Over $15000 to $20000 per year
- ☐ Over $385 to $481 per week / Over $20000 to $25000 per year
- ☐ Over $481 to $577 per week / Over $25000 to $30000 per year
- ☐ Over $577 per week / Over $30000 per year

Section IV

COMMENTS

INSTRUCTIONS

- Please write down any additional information you consider useful for adequately describing recent long-distance travel by members of the household. In particular indicate if the type of travel you recorded in Section II is unusual in any way (e.g. travel on a working holiday)
- Please write any general comments you have on travel in Australia
- If space is insufficient enclose a separate sheet of paper.

THANK YOU FOR YOUR CO-OPERATION

A76/1240

Cat No 77 2412 7

BUREAU OF TRANSPORT ECONOMICS

NATIONAL TRAVEL SURVEY 1977/78

CONFIDENTIAL
REPLY WILL ONLY BE SEEN BY AUTHORISED BTE REPRESENTATIVES

Section I

PERSONAL DETAILS

DIRECTIONS

- The members of this household are regarded as those persons usually living and eating together here as a domestic unit. A person living alone is also a household
- Please complete the following details for **each person** who is a member of this household **include** children
- Answer the 'Occupation' question only for those people employed full or part time

PERSON	SEX	MARITAL STATUS	MAJOR ACTIVITY *Tick one box for each person*	OCCUPATION *See notes above*	AGE	DRIVING LICENCE
1	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
2	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
3	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
4	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
5	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
6	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
7	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
8	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No
9	☐ Male ☐ Female	☐ Never married ☐ Now married ☐ Widowed ☐ Other	☐ Employed Full-time ☐ Student ☐ Employed Part-time ☐ Home-duties ☐ Looking for work ☐ Other ☐ Retired Pensioner	_____	_____ Years	☐ Yes ☐ No

THE HOUSEHOLDER,
FLAT 1
2 SMITH ST
JONESTOWN 2372.

A	202
N	202
L	2157
C	0000R

Office Use Only

SEPTEMBER 1977

PLEASE RETURN THIS FORM WITHIN SEVEN DAYS

Section II

DETAILS OF TRIPS ENDING IN SEPTEMBER 1977 ONLY

DIRECTIONS—please read carefully before filling in trip details

- A trip is defined as a journey **wholly within Australia** by one or more members of this household. A trip starts and finishes at home.
- Do **not** include trips made as a crew-member on a bus, train, aircraft or ship. However trips made as the driver of a commercial motor vehicle (except a bus) **should** be included.
- Do **not** include trips involving travel to or from work.
- Include **only** trips which involved travel to at least one place 100km (60 miles) or more from home.
- Include only trips which ended (at home) during SEPTEMBER 1977 **regardless of when they started**.
- Complete a trip column for each trip (by one or more members of this household) which follows the rules given above. In some cases several members of this household may have travelled together for part of the trip but some of them may have separated from the party (for example, to visit another city). In such cases, regard each group as having made a **separate** trip. This should only be done in the case of a substantial separation (**not** for instance if one group only visits a local beach etc.)
- When recording details of transport methods and payment of fares do **not** include the following:
  - —Local transport such as city trains, buses or taxis
  - —Transport to and from airports, railway stations and so on
  - —River crossings by car ferries

IF NO ONE IN THIS HOUSEHOLD MADE ANY TRIPS SATISFYING THESE CONDITIONS PLEASE TICK THIS BOX AND GO TO SECTION III ☐

	TRIP 1	TRIP 2	TRIP 3	TRIP 4	TRIP 5
A **What was the destination of the trip?** If more than one place was visited record the name of the place regarded as the **main** destination	City/Town .... State	City/Town .... State	City/Town .... State	City/Town .... State	City/Town .... State ....
B **How many nights were spent there?**	.... Nights — If no nights were spent there write 0 and go to item D	.... Nights — If no nights were spent there write 0 and go to item D	.... Nights — If no nights were spent there write 0 and go to item D	.... Nights — If no nights were spent there write 0 and go to item D	.... Nights — If no nights were spent there write 0 and go to item D
C **What types of accommodation were used during the time spent there?** Tick one box for **each** type of accommodation used	☐ Hotel or motel ☐ Friends or relatives home ☐ Caravan, campervan or tent ☐ Other	☐ Hotel or motel ☐ Friends or relatives home ☐ Caravan, campervan or tent ☐ Other	☐ Hotel or motel ☐ Friends or relatives home ☐ Caravan, campervan or tent ☐ Other	☐ Hotel or motel ☐ Friends or relatives home ☐ Caravan, campervan or tent ☐ Other	☐ Hotel or motel ☐ Friends or relatives home ☐ Caravan, campervan or tent ☐ Other
D **What were the reasons for making the trip as a whole?** Tick one box for each reason. If you have ticked **more** than one box, **circle** the box you ticked which gives the **main** reason for going to the place you wrote in item A above	☐ Deliver freight or goods ☐ Other business ☐ Visit friends or relatives ☐ Sightseeing or recreation ☐ Holiday ☐ Personal or family affairs ☐ Other	☐ Deliver freight or goods ☐ Other business ☐ Visit friends or relatives ☐ Sightseeing or recreation ☐ Holiday ☐ Personal or family affairs ☐ Other	☐ Deliver freight or goods ☐ Other business ☐ Visit friends or relatives ☐ Sightseeing or recreation ☐ Holiday ☐ Personal or family affairs ☐ Other	☐ Deliver freight or goods ☐ Other business ☐ Visit friends or relatives ☐ Sightseeing or recreation ☐ Holiday ☐ Personal or family affairs ☐ Other	☐ Deliver freight or goods ☐ Other business ☐ Visit friends or relatives ☐ Sightseeing or recreation ☐ Holiday ☐ Personal or family affairs ☐ Other
E **During the trip, which place visited was furthest from home?**	City/Town .... State	City/Town .... State	City/Town .... State	City/Town .... State	City/Town .... State ....
F **What were the main methods of transport used during the trip?** Please refer to the notes at the top of this section and tick one box for each method of transport used. If you have ticked **more** than one box, **circle** the box you ticked which gives the method of transport used to travel the greatest distance	☐ Aeroplane ☐ Motorcycle ☐ Bus/Coach ☐ Ship/Boat ☐ Car ☐ Train ☐ Truck ☐ Other	☐ Aeroplane ☐ Motorcycle ☐ Bus/Coach ☐ Ship/Boat ☐ Car ☐ Train ☐ Truck ☐ Other	☐ Aeroplane ☐ Motorcycle ☐ Bus/Coach ☐ Ship/Boat ☐ Car ☐ Train ☐ Truck ☐ Other	☐ Aeroplane ☐ Motorcycle ☐ Bus/Coach ☐ Ship/Boat ☐ Car ☐ Train ☐ Truck ☐ Other	☐ Aeroplane ☐ Motorcycle ☐ Bus/Coach ☐ Ship/Boat ☐ Car ☐ Train ☐ Truck ☐ Other
G **Which members of this household went on this trip?** Please tick numbers corresponding to those used to identify individual household members in Section I	1 4 7 2 5 8 3 6 9	1 4 7 2 5 8 3 6 9	1 4 7 2 5 8 3 6 9	1 4 7 2 5 8 3 6 9	1 4 7 2 5 8 3 6 9
H. **When did the trip end, and how many nights were spent away from home?**	.... Nights .... /9/77 Date ended	.... Nights .... /9/77 Date ended	.... Nights .... /9/77 Date ended	.... Nights .... /9/77 Date ended	.... Nights .... /9/77 Date ended
I **Who paid for any fares related to the trip?** Please refer to the notes at the top of this section and tick the appropriate box or boxes	☐ No fares involved ☐ Household member(s) ☐ Employer's or own business ☐ Other	☐ No fares involved ☐ Household member(s) ☐ Employer's or own business ☐ Other	☐ No fares involved ☐ Household member(s) ☐ Employer's or own business ☐ Other	☐ No fares involved ☐ Household member(s) ☐ Employer's or own business ☐ Other	☐ No fares involved ☐ Household member(s) ☐ Employer's or own business ☐ Other
J. **How many OTHER trips identical to this one (except for the date) ended during the month?** You need not fill in a trip column for these other identical trips	.... If no other identical trips were made write 0	.... If no other identical trips were made write 0	.... If no other identical trips were made write 0	.... If no other identical trips were made write 0	.... If no other identical trips were made write 0

Please use the space provided in Section IV to record any further important or unusual details of these trips

PLEASE TURN OVER

APPENDIX III

SPECIMEN NTS COVERING LETTER AND NTS REMINDER LETTER

This Appendix contains examples of the covering letters which accompany each mailed questionnaire. The first example illustrates the covering letter sent with the initial questionnaire which is mailed at the start of a month. The second example shows the covering letter which accompanies the reminder questionnaire. This questionnaire is sent approximately fourteen days later to households from which no reply has been received.

BUREAU OF TRANSPORT ECONOMICS

NATIONAL TRAVEL SURVEY 1977/78

Dear Householder,

The Bureau of Transport Economics (BTE) is a research organisation attached to the Commonwealth Department of Transport. A large part of the BTE's work involves planning for an efficient national transport system. To assist in this a National Travel Survey, the first of its kind in Australia, is being conducted over a period of twelve months. The results of this survey will be used to plan improved highways, rail links, airports and so on

The aim of the National Travel Survey is to obtain details of people's trips within Australia to places 100 km (60 miles) or more from home. The enclosed questionnaire has a series of questions about any such trips which ended during the last month. We are also asking for a limited amount of background information about the household as a whole, and about individual members of the household. You will note that the questionnaire is marked CONFIDENTIAL. This means that replies will only be seen by BTE representatives working on this particular survey. The replies will be destroyed after processing.

Your household was chosen at random to participate in this survey. In the interests of economy, we have only sent out a limited number of questionnaires. It is therefore very important that you should complete your questionnaire carefully and return it within SEVEN DAYS, using the reply-paid envelope. It is essential that you return the form EVEN IF NO PERSON IN THE HOUSEHOLD MADE A TRIP OF THE TYPE DESCRIBED. In this case, complete the remainder of the form and indicate in the appropriate section that no trips were made Please read the instructions on the questionnaire carefully. If you have any queries about the questionnaire or about the National Travel Survey itself, please write to.

Bureau of Transport Economics,
P.O. Box 495,
CANBERRA CITY A.C.T. 2601

May I again emphasise the importance we attach to this survey, and thank you in advance for your participation

Yours faithfully,

(G. K R. Reid)
Acting Director

SPECIMEN NTS COVERING LETTER
SENT WITH INITIAL QUESTIONNAIRE

BUREAU OF TRANSPORT ECONOMICS

NATIONAL TRAVEL SURVEY 1977/78

Dear Householder,

The Bureau of Transport Economics is currently conducting a survey (known as the National Travel Survey) to find out details of people's travel within Australia. Your household was included in a sample for this survey, and you should have received a questionnaire within the last two weeks.

The success of this survey depends very much on the number of replies we receive. You may not yet have had an opportunity to complete your questionnaire and return it. It is possible that you have mislaid your questionnaire, or that it was not delivered in the first place. Therefore, we have enclosed a new copy for your convenience. Please complete and return the form within SEVEN DAYS. As with the original questionnaire, this copy is marked CONFIDENTIAL. This means that replies will only be seen by BTE representatives working on this particular survey. The replies will be destroyed after processing.

Please remember that it is important that you return the questionnaire EVEN IF NO ONE IN THE HOUSEHOLD HAS MADE A TRIP OF THE TYPE DESCRIBED. In this case, complete the remainder of the form and indicate in the appropriate section that no trips were made.

If you have already returned your original questionnaire, please accept my thanks and ignore this reminder. If you have any queries about the questionnaire or about the National Travel Survey itself, please write to:

Bureau of Transport Economics,
P.O. Box 495,
CANBERRA CITY. A.C.T. 2601

May I again emphasise the importance we attach to this survey, and thank you in advance for your participation.

Yours faithfully,

(G. K. R. Reid)
Acting Director

SPECIMEN NTS COVERING LETTER
SENT WITH REMINDER QUESTIONNAIRE

APPENDIX IV

SAMPLE OUTPUT TABLES FOR QUARTERLY STATISTICS

In order to disseminate information collected from the NTS as rapidly as possible, the BTE intends to publish quarterly statistical summaries throughout the course of the survey. These will contain analyses of the results obtained during particular quarterly periods. It must be emphasised that these summaries will be preliminary in nature, and will not incorporate any statistical corrections (for bias and so on) based on the results of the supplementary household interview survey. Such corrections will form part of the final report on the NTS, which will be produced at the conclusion of the project.

The intention in this Appendix is to outline the form of the proposed interim statistical summaries so that individuals and organisations potentially interested in them can determine the relevance of the results to their own needs. The tables shown in this Appendix indicate, in outline form, the style of presentation intended for the disaggregated preliminary statistics.

In essence, these tabulations will summarise the information obtained from each NTS region in each individual survey month[1]. In addition, the corresponding quarterly results[2] will be given for each NTS region. As well as the disaggregated tabulations illustrated in this Appendix, similar tabulations will be produced giving the monthly and quarterly data aggregated for each State, the ACT and the Northern Territory. Finally an origin/destination matrix aggregated to the State level will also be provided for each survey month and for each quarter[3].

---

(1) The tables illustrate the results for NTS region 202 obtained in the survey month of July 1977.

(2) The first set of results will be for the quarter July 1977 to September 1977.

(3) Because of the large number of tables required to present the statistical information for each NTS region, these tables will be produced as Computer Output Microfiche (COM). Tables presenting statistical information pertaining to State and National aggregations will be printed in the normal way.

In order to clarify the tabulations further, some of the individual tables are discussed briefly below.

PERFORMANCE SUMMARY

This information summarises the sampling and response information for the particular survey month and NTS region (or regional aggregate) in question. The unusable returns include those returns in which either none of the information was provided or else the information which was provided was not usable in terms of the survey. A return on which some of the information was correctly provided is not included in this category. The response rate is quoted in terms of the 'net returns' relative to the 'net distribution'.

TRIP GENERATION SUMMARY

In order to prepare reliable and consistent travel generation rate statistics, the only households included in the travel summaries are those in which the details of 'destination', 'date ended' and 'persons travelling' appear to be completed correctly for all of the trips reported by the household; where this information is incorrect or incomplete on any reported trip the household is excluded from subsequent tabulations(1). Hence 'Effective Households' represents the number of households remaining in the sample, the statistics of which are to be tabulated. Hence, this number may differ from the figure given in the 'Performance Summary' for the 'Net Returns'.

RELATIVE ERRORS IN ESTIMATED TRIP PROPORTIONS (TABLE 2)

Relative errors in estimates of proportions of a quantity are a function of sample size and the proportion estimate. By providing standard relative errors for a number of reference proportions

(1) The remaining information provided by the households presently excluded from the tabulations on this basis is nevertheless valuable for more specific investigations. The information will therefore be included in the overall primary data base generated from the NTS.

between zero and unity this Table can be used to give an indication of the relative error on any of the estimated trip proportions in the subsequent tabulations.

TRIP PROPORTIONS BY INCOME AND HOUSEHOLD SIZE (TABLE 3)

Basically, this Table provides a standard cross-tabulation of trip proportions by two important household characteristics. However, in addition, the Table provides estimates of the average number of trips generated (per month) by households classified by size and income. The relative errors of these latter estimates are also given since they are different from the standard relative errors described above. This information is required for expansion of the travel generation results out to regional, state and national levels.

TRIP PROPORTIONS BY DISTANCE AND VEHICLE TYPE (TABLE 9)

In order to gain some indication of travel distances, estimates of these distances are made based on the great-circle distance between the approximate population centroids of the Local Government Areas (LGA's) containing the origin and the destination respectively of each trip in the sample. Clearly, this approach can only provide comparatively crude indications of travel distances. The more rigorous alternative of calculating the distance between actual origins and destinations would be a considerable undertaking the size of which is not justified in a general preliminary summary such as this. It should be noted that trips within the same LGA (which would give a zero distance on the basis adopted) are treated specially.

TRIP PROPORTIONS BY DESTINATION AND VEHICLE TYPE (TABLE 11)

The destinations produced in this tabulation are expressed in terms of NTS region numbers. The table includes the NTS regions representing the destinations of the twenty largest

proportions of trips originating in the NTS region whose characteristics are being summarised[1].

OTHER TABLES

The remaining tables are believed to be sufficiently self-explanatory in the present context. However, the publication[2] containing the statistical summaries will include full explanations of all the individual tables.

(1) In the illustrated example, the table presents the information on trips from Region 202 to the twenty NTS regions representing the most frequently occurring destinations. The destination NTS regions illustrated here are quite arbitrary and do not represent the actual most frequently occurring destinations for trips from NTS region 202.

(2) These summaries will be produced as BTE Information Papers.

BUREAU OF TRANSPORT ECONOMICS — NTS REGION 202

NATIONAL TRAVEL SURVEY 1977/78 — JULY 1977

PRELIMINARY STATISTICAL SUMMARY — TRIPS IN SAMPLE ... 0

PERFORMANCE SUMMARY

FORMS MAILED	0
NOT DELIVERED ...	0
NET DISTRIBUTION ..	0
TOTAL RETURNS ...	0
UNUSABLE RETURNS ...	0
NET RETURNS ...	0
RESPONSE RATE	0.00

TRIP GENERATION SUMMARY

TRIPS IN SAMPLE	0
EFFECTIVE H'HOLDS ...	0
GENERATION RATE ...	0.000
RELATIVE ERROR ...	0.000

TABLE 1. VEHICLE AVAILABILITY (HOUSEHOLD BASIS)

	VEHICLES AVAILABLE							
	0	1	2	3	4	OVER 4	NOT STATED	TOTAL
PROPORTION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RELATIVE ERROR	0.000	0 000	0.000	0 000	0 000	0.000	0.000	

TABLE 2. RELATIVE ERRORS IN ESTIMATED TRIP PROPORTIONS

PROPORTION	0.010	0.020	0.030	0.040	0.050	0.060	0.070	0.080	0.090	0.100	0.200	0.300	0.400	0.500	0.600	0.700
RELATIVE ERROR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 3. TRIP PROPORTIONS BY INCOME AND HOUSEHOLD SIZE

	HOUSEHOLD SIZE													
INCOME GROUP	1	2	3	4	5	6	7	8	9	OVER 9	NOT STATED	TOTAL	TRIPS /H'HOLD	REL ERROR
$0-2000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$2001-4000	0 000	0 000	0 000	0 000	0.000	0 000	0 000	0 000	0 000	0 000	0 000	0 000	0 000	0.000
$4001-6000	0.000	0 000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$6001-8000	0 000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000
$8001-1000	0.000	0.000	0 000	0.000	0.000	0 000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$10001-15000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$15001-20000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$20001-25000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$25001-30000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000
OVER $30000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NOT STATED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000		
AVE TRIPS/H'HOLD	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
RELATIVE ERROR	0.000	0.000	0.000	0.000	0 000	0 000	0 000	0.000	0.000	0.000	0.000			

BUREAU OF TRANSPORT ECONOMICS — NTS REGION 202

NATIONAL TRAVEL SURVEY 1977/78 — JULY 1977

PRELIMINARY STATISTICAL SUMMARY — TRIPS IN SAMPLE ... 0

TABLE 4. TRIP PROPORTIONS BY PURPOSE AND VEHICLE TYPE

PURPOSE	VEHICLE TYPE: AIRCRAFT	BUS	CAR	TRUCK	MOTORCYCLE	SHIP	TRAIN	OTHER	NOT STATED	TOTAL
DELIVER FREIGHT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER BUSINESS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
VISITING FRIENDS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RECREATION	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HOLIDAY	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
PERSONAL AFFAIRS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
NOT STATED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 5. TRIP PROPORTIONS BY PARTY SIZE AND VEHICLE TYPE

PARTY SIZE	VEHICLE TYPE: AIRCRAFT	BUS	CAR	TRUCK	MOTORCYCLE	SHIP	TRAIN	OTHER	NOT STATED	TOTAL
1 PERSON	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OVER 9 PERSONS	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000

TABLE 6. TRIP PROPORTIONS BY ACCOMMODATION AND DURATION AT DESTINATION

ACCOMMODATION	DURATION AT DESTINATION (NIGHTS): 0	1	2	3-7	8-14	15-28	29-56	OVER 56	NOT STATED	TOTAL
HOTEL/MOTEL	N.A.	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
FRIENDS HOME	N.A.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CARAVAN/TENT	N.A.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER	N.A.	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
NOT STATED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BUREAU OF TRANSPORT ECONOMICS
NATIONAL TRAVEL SURVEY 1977/78
PRELIMINARY STATISTICAL SUMMARY

NTS REGION 202
JULY 1977
TRIPS IN SAMPLE ... 0

TABLE 7. TRIP PROPORTIONS BY TOTAL DURATION AND VEHICLE TYPE

TOTAL DURATION (NIGHTS)	VEHICLE TYPE AIRCRAFT	BUS	CAR	TRUCK	MOTORCYCLE	SHIP	TRAIN	OTHER	NOT STATED	TOTAL
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000
3-7	0.000	0.000	0.000	0.000	0 000	0.000	0 000	0.000	0.000	0.000
8-14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15-28	0.000	0.000	0.000	0.000	0 000	0 000	0 000	0.000	0.000	0.000
29-56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0 000	0 000
OVER 56	0.000	0.000	0.000	0.000	0 000	0 000	0.000	0.000	0.000	0.000
NOT STATED	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0 000	0.000	0 000
TOTAL	0.000	0.000	0.000	0.000	0 000	0 000	0.000	0.000	0.000	0.000

TABLE 8 TRIP PROPORTIONS BY FARES PAID AND VEHICLE TYPE

FARES PAID	VEHICLE TYPE AIRCRAFT	BUS	CAR	TRUCK	MOTORCYCLE	SHIP	TRAIN	OTHER	NOT STATED	TOTAL
NO FARES	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HOUSEHOLD	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EMPLOYER	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
NOT STATED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 9. TRIP PROPORTIONS BY DISTANCE AND VEHICLE TYPE

DISTANCE (KM)	VEHICLE TYPE AIRCRAFT	BUS	CAR	TRUCK	MOTORCYCLE	SHIP	TRAIN	OTHER	NOT STATED	TOTAL
INTRA-LGA	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0 000
0-100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
101-150	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0 000
151-200	0.000	0 000	0 000	0 000	0.000	0.000	0.000	0.000	0.000	0.000
201-300	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000
301-400	0.000	0 000	0 000	0 000	0.000	0 000	0.000	0.000	0.000	0.000
401-600	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
601-800	0.000	0.000	0 000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
801-1000	0 000	0.000	0 000	0 000	0 000	0.000	0.000	0.000	0.000	0.000
OVER 1000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000

TABLE 10. TRIP PROPORTIONS BY INCOME AND VEHICLE TYPE

INCOME GROUP	VEHICLE TYPE AIRCRAFT	BUS	CAR	TRUCK	MOTORCYCLE	SHIP	TRAIN	OTHER	NOT STATED	TOTAL
$0-2000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$2001-4000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$4001-6000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000
$6001-8000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$8001-1000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0 000	0.000
$10001-15000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$15001-20000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
$20001-25000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000
$25001-30000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OVER $30000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000
NOT STATED	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TABLE 11. TRIP PROPORTIONS BY DESTINATION REGION AND VEHICLE TYPE

DESTINATION REGION	VEHICLE TYPE AIRCRAFT	BUS	CAR	TRUCK	MOTORCYCLE	SHIP	TRAIN	OTHER	NOT STATED	TOTAL
REGION 101	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000
REGION 201	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 202	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 203	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 204	0.000	0 000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
REGION 205	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 206	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000
REGION 208	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 209	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
REGION 210	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 211	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
REGION 212	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 213	0.000	0 000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
REGION 214	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 215	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 216	0.000	0 000	0.000	0.000	0 000	0.000	0.000	0.000	0.000	0.000
REGION 301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 302	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
REGION 303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OTHER REGIONS	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000