

DEPARTMENT OF TRANSPORT
OFFICE OF ROAD SAFETY
DOCUMENT RETRIEVAL INFORMATION

Report No.	Date	ISBN	Pages
CR24	September 1980	0 642 51226 4	(ii) + 119

Title and Subtitle

The 1979/80 ACRUPTC Survey of Vehicle Free Speeds in Capital Cities of Australia.

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Keywords

Speed Limit/Urban Areas/Free Speeds Survey

Abstract

In 1979/80 a Survey of vehicle free speeds in urban areas was undertaken by State and Territory Authorities for the Advisory Committee on Road User Performance and Traffic Codes (ACRUPTC). The survey measured free speeds of cars and derivatives, trucks and other vehicles on a wide spectrum of roads in the capital cities of the six States and in the Australian Capital Territory. The report describes the scope and methodology of the survey, summarises the main survey results and draws preliminary conclusions regarding urban free speeds and speed limits across Australia.

NOTE:

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INTRODUCTION

In 1978/79 the Advisory Committee on Road User Performance and Traffic Codes (ACRUPTC) carried out a review of recommended speed limits in the National Road Traffic Code, in relation to existing speed limit practice in Australian States and Territories. As part of this review, a survey of vehicle free speeds on rural roads was undertaken by State and Territory Authorities. The survey results - reported in Callaghan (1979) - were considered by ACRUPTC at its April 1979 meeting.

Emphasis was placed on rural free speeds and speed limits in the above review, mainly because of the wide variation which existed between the Code and State and Territory speed limit practice. By contrast, the Code provisions and State/Territory practice for urban roads are more consistent. However, the magnitude of the urban road-traffic accident problem and the general lack of urban free speed data in Australia led to an ACRUPTC decision in late 1979 to conduct a national survey of urban free speeds as well. This survey was carried out during late 1979 and early 1980, and measured vehicle speeds in seven Australian capital cities.

The aim of this report is to describe the 1979/80 urban free speed survey, summarise the main survey results and draw preliminary conclusions regarding urban free speeds and speed limits across Australia.

The first Section of this report summarises for reference the Australian Code provisions and State/Territory practice on urban speed limits and speed zoning. The second Section is a broad outline of the ACRUPTC urban speed survey, covering the scope, methodology, etc. The remaining Sections analyse the free speed data by State/Territory, speed limit, road class and vehicle class - with emphasis placed upon cars and trucks, since large sample sizes were obtained for these vehicle classes - and draw preliminary conclusions on the relationship between urban free speeds and speed limits across Australia.

URBAN SPEED LIMITS AND SPEED ZONING

Part 10 of the National Road Traffic Code covers speed restrictions in urban areas as follows:-

"No person shall drive a vehicle -

- (a) in a built-up area at a speed exceeding 60 km/h except within a speed zone in which a higher speed is permitted under paragraph (b) of this sub-regulation;
- (b) in a speed zone, whether within a built-up area or not, at a speed exceeding the speed in kilometres per hour indicated by numerals on the restriction sign at the beginning of the speed zone;..."

The current Code definition of a built-up area is based upon provision of street-lighting, and therefore does not cover other factors such as presence of buildings and special signing.

Urban speed limits (for general traffic) in Australia agree with the Code provision, as 60 km/h is employed in all States and Territories. Definitions of "built-up" area or "urban" area vary between the States and Territories.

The speed limits described above refer to general traffic, but in addition Victoria imposes a lower speed limit of 50 km/h on heavy trucks (masses exceeding 3 tonnes) and omnibuses, and ACT has lower speed limits of 50 and 40 km/h on heavy trucks (masses exceeding 3 and 7 tonnes respectively).

The States and Territories employ urban speed zoning above the 60 km/h general limit, mainly at 70, 80 or 90 km/h, with 80 km/h being used most frequently. Exceptions are Victoria which employs 75 km/h on arterial roads in place of 80 km/h (reserved as a hamlet speed limit), and some States which employ 100 and 110 km/h on urban freeways or high-standard roads. In addition, Victoria imposes differential limits on heavy trucks and buses on speed-zoned roads, 10 km/h below the posted limit.

OUTLINE OF SURVEY

SCOPE

Free speeds of vehicles were measured on urban roads in the capital cities of the six States:-

Sydney	-	New South Wales (NSW)
Melbourne	-	Victoria
Brisbane	-	Queensland
Adelaide	-	South Australia (SA)
Perth	-	Western Australia (WA)
Hobart	-	Tasmania

and in the Australian Capital Territory (ACT). The Northern Territory (NT) was unable to participate because of resource limitations.

The survey took place at various times during the period November 1979 to July 1980, as follows:-

NSW	-	February to July 1980.
Victoria	-	April 1980,
Queensland	-	December 1979,
SA	-	November to December 1979,
WA	-	February 1980,
Tasmania	-	November to December 1979,
ACT	-	November 1979,

and provided free speed data from 145 site-directions, from a total sample of 47,268 vehicles.

A wide spectrum of urban roads was covered, varying from local distributors up to freeways, with speed limits ranging from 60 to 100 km/h.

METHODOLOGY

The survey was carried out by Road and Traffic Authorities according to guidelines and survey methods drawn up by the Office of Road Safety, which are given in Appendix A.

The guidelines called for free speeds to be measured for six classes of vehicle:-

- (1) cars and car-derivatives (and light trucks),
- (2) the above class towing caravans or trailers,
- (3) rigid heavy trucks,
- (4) articulated heavy trucks,
- (5) omnibuses (including minibuses), and
- (6) motorcycles,

on wide range of urban roads in major cities, avoiding congested roads and areas within Central Business Districts.

The guidelines called for speeds to be measured on level, straight roads, on weekdays between 8 am and 5 pm (daylight hours), during non-holiday periods, and on dry pavements.

The survey sheets in Appendix A specify the site and traffic information required in addition to the speed information. Specified sample sizes in Appendix A are as follows:-

- . 10 to 15 site-locations, with direction of travel separated, implying 20 to 30 site-directions,
- . a minimum of 150 cars and derivatives, and 75 heavy commercial vehicles for each site-direction.

These guidelines were generally followed by the Authorities who participated in the survey, except for small samples and site numbers in some cases.

SURVEY DATA

The survey data are summarised in a uniform format in Appendices B to H, for the six States and the ACT. Each Appendix contains 3 Tables - e.g. Table B-1 to B-3 for NSW - which cover site location data, site traffic data and site free speed data respectively. In this context, the term "site" is used to denote "site-direction"; for example, Appendix B shows that 15 NSW locations provided 32 speed measurements, or sites, as speed measurements were separated by direction of travel in all cases and one location was sampled twice.

The location data - Table B-1 to H-1 - were taken from the completed Site Description Sheets (see Appendix A). A few problems were encountered in transcribing some road characteristics - e.g. pavement width, number of lanes, etc. - so that some detailed improvements (e.g. provision of sketches) could be made to the guidelines and survey sheets for future surveys.

The free speed data - Tables B-3 to H-3 - were taken from summary statistics forms or computer printouts wherever possible, although some summary statistics were computed by the author, as described in Appendices B to H. For each site and vehicle class, the following statistical estimates are shown:-

- (1) percentage of vehicles exceeding the speed limit,
- (2) mean speed,
- (3) standard deviation of speeds, and
- (4) 85th percentile speed,

although (1) and (4) are only computed for vehicle sample sizes of 20 or more. This latter restriction is arbitrary, but ensures that statistics (1) and (4) are computed generally to within ± 2 km/h and often to within ± 1 km/h.

SAMPLING STATISTICS

Sampling errors in the speed statistics are dependent upon the spread of the sampled data and the sample sizes. For example, the standard error of the estimate of the mean is defined by the standard deviation (SD) divided by the square root of the sample size, and 95% confidence limits about the sample mean are approximately 2 standard errors, if the sample is taken from a Normal distribution. The standard error of the 85th percentile is approximately 1.5 times that of the mean, again for a Normal distribution. Typical sample statistics for cars on an urban arterial with a 60 km/h speed limit are:- 64 km/h mean, 8 km/h SD and 72 km/h 85th percentile. The precision of this mean and 85th percentile would therefore vary according to sample size as follows:

<u>Sample Size</u>	<u>± 2 Standard Errors (km/h)</u>	
	<u>Mean</u>	<u>85th %ile</u>
16	<u>+ 4</u>	<u>+ 6</u>
64	<u>+ 2</u>	<u>+ 3</u>
256	<u>+ 1</u>	<u>+ 1.5</u>

The shapes of the sample histograms have not been checked to see whether they are drawn from Normal distributions or not. However, for a Normal distribution:-

$$\text{Mean} + 1.04 \text{ SD} = 85\text{th percentile,}$$

and checks on the data in Appendices B to H show that this relationship is generally obeyed to within +2 km/h, and often to within +1 km/h.

SAMPLE SIZES

Table 1 summarises the total vehicle sample sizes obtained in the survey. Large car samples were obtained at all sites, and good samples of rigid trucks were obtained in most States. The samples of articulated trucks vary considerably between States, generally reflecting the different types of roads which were surveyed. Sample sizes of cars-towing, omnibuses and motorcycles were generally small, apart from WA which measured speeds of nearly 500 cars-towing.

Table 2 shows the number of sites at which vehicle speed samples of 20 or more were obtained. This criterion follows that adopted in Callaghan (1979) and is used later when averaging speed statistics across sites within a State, and across States.

ROAD CLASSES

The survey covered a wide range of urban roads which can be classified according to road type/function, whether divided or not and speed limit; other factors such as land use, pavement width and number of through-traffic lanes could be used also. For this report, the roads have been classified by:-

- . road type/function - freeway, arterial, non-arterial,
- . divided, undivided, and
- . speed limit - 60, 70, 75, 80, 100 km/h,

and Table 3 shows the 9 classes which result. District and local distributors have been classified as arterial and non-arterial respectively.

The following Sections examine the speed data by these road classes, although some further grouping of the classes is used for convenience.

FREE SPEEDS OF CARS

The free speeds of cars and car-derivatives (hereafter called cars) are summarised by State/Territory and by road class in Table 4. The 9 basic road classes listed in Table 3 have been further grouped for convenience into 5 major classes in Table 4, as follows:-

- (1) freeways, with 80 or 100 km/h speed limits,
- (2) divided arterials, zoned above 60 km/h, i.e. with 70, 75 or 80 km/h speed limits,
- (3) divided arterials, with a 60 km/h speed limit,
- (4) undivided arterials, with 60 or 75 km/h speed limits,
- (5) non-arterials, with a 60 km/h speed limit.

This does lead to some mixing of data in class (4) for Victoria, (discussed later), but nowhere else.

The speed data shown in Table 4 are simple averages over sites of each of the 3 statistics:-

- percentage exceeding speed limit,
- mean speed,
- 85th percentile speed,

and not averages weighted by vehicle sample sizes. For example, the average 85th percentile value of 95 km/h shown for Victorian freeways is derived from 2 sites with individual 85th percentiles of 92 and 98 km/h. Simple averaging over sites was also adopted in Callaghan (1979). It is unlikely that simple and weighted averages would differ markedly for cars, because sample sizes are large and generally consistent (within a given road class); moreover for trucks and other vehicles with widely differing sample sizes (discussed later), it could be argued that simple averages provide a better comparison of speed statistics across sites than weighted averages.

Table 4 shows that urban free speeds for cars are high, as the Australia-wide averages of site mean and 85th percentile speeds are respectively 67 and 74 km/h; further, some 55% of cars in Australia exceed the posted urban speed limits. However, these Australia-wide speed parameters vary considerably by road class. In broad terms, average means range from 60 to 80 km/h, average 85th percentiles range from 70 to 90 km/h and the proportion of vehicles exceeding speed limits range from 30-40% for freeways and speed-zoned arterials, up to 55-65% for roads operating under the 60 km/h general limit.

The data from the 5 road classes in Table 4 are shown in Figs 1 to 5. These Figures also show lowest and highest values of the site parameters, as well as the simple averages given in Table 4, to give a clearer impression of variations in speed parameters across sites. The results are discussed below for the 5 road classes separately.

FREEWAYS (80, 100 KM/H SPEED LIMITS).

Fig. 1 shows that for freeways with 80 km/h speed limits, site means are around 80 km/h and 85th percentiles are some 5 to 10 km/h higher, the dispersion being noticeably low in the WA results. The speed values for Victoria are only some 5 to 10 km/h higher than those in the other States, even though the Victorian speed limit is 20 km/h higher.

If speed limits for cars were selected on the basis of an 85th percentile free speed criterion, then the limited data (11 sites) in Fig.1 would suggest freeway speed limits of 90 km/h in NSW, Victoria and Queensland, and 80 km/h in WA.

DIVIDED ARTERIALS (SPEED ZONED ABOVE 60 KM/H)

The speed parameters shown in Fig. 2 appear to be polarised into two groups:-

- (a) those for 70 km/h zones (Queensland, WA and Tasmania), with site means between 60 and 70 km/h and 85th percentiles between 70 and 80 km/h and
- (b) those for Victoria (75 km/h limit), and NSW, SA and ACT (80 km/h limit), with means between 70 and 80 km/h and 85th percentiles between 80 and 90 km/h.

The variation in speeds across sites is noticeably large in Victoria. The high values for the ACT are affected by the inclusion of two sites of essentially freeway standard - see footnote to Table 3.

If speed limits for these divided arterials were selected on the basis of an 85th percentile criterion, Fig. 2 would generally suggest limits of 70 or 80 km/h.

DIVIDED ARTERIALS (60 KM/H SPEED LIMIT)

The data from 43 sites in Fig. 3 show site means between 60 and 70 km/h and 85th percentiles between 70 and 80 km/h, in broad terms.

UNDIVIDED ARTERIALS (60, 75 KM/H SPEED LIMITS).

The data from 33 sites in Fig. 4 are fairly similar to those shown for divided arterials in Fig. 3, i.e. site means lying between 60 and 70 km/h and 85th percentiles between 70 and 80 km/h, in broad terms.

The data for Victoria in Fig. 4 are from 7 sites with 60 km/h speed limits and 4 sites with 75 km/h speed limits. As these results are fairly similar they have been aggregated in Table 4.

Figs 3 and 4 suggest that if speed limits for these divided and undivided arterials were selected on the basis of an 85th percentile criterion, they would generally be around 70 km/h and occasionally as high as 80 km/h.

NON-ARTERIALS (60 KM/H SPEED LIMIT).

The results from this class of 35 sites tend to be less consistent than those for the previous road classes. Presumably this reflects the wider range of road standards, road functions, trip purposes, etc. covered by this class of roads.

In broad terms, site means are between 50 and 70 km/h and 85th percentiles are between 60 and 80 km/h, which are high compared with the general 60 km/h speed limit.

SUMMARY

The free speed data for cars, measured at 145 sites in capital cities in Australia, are shown for 5 major road classes in Table 4 and Figs. 1 to 5. In broad terms, the data can be summarised by site means and 85th percentiles (km/h) as follows:-

	<u>Means</u>	<u>85th %iles</u>
(1) Freeways (80,100)	around 80	around 90
(2) Divided Arterials (zoned above 60)	60 - 80	70 - 90
(3) Divided Arterials (60)	60 - 70	70 - 80
(4) Undivided Arterials (60,75)	60 - 70	70 - 80
(5) Non-Arterials (60)	50 - 70	60 - 80

although intersite variations can be larger than these ranges, as shown in Figs. 1 to 5.

As expected, the survey results show that the free speeds of cars in Australian capital cities are very high in comparison with existing speed limits.

There is a general indication from Figs. 1 to 5 that speeds in Sydney and Melbourne are higher than those in the other State capitals, which may be an indication of longer trip-lengths in the larger capital cities.

The similarity between speeds on divided and undivided arterials operating under the 60 km/h speed limit (Figs. 3,4) was not expected, as it was considered that the presence of a median would effect speed significantly. A possible implication of this result is that trip length/purpose may be a more important determinant of speed behaviour than arterial road standard.

FREE SPEEDS OF TRUCKS

Table 2 shows that speed samples from 20 or more rigid (heavy) trucks were obtained at 126 sites across Australia, and from 20 or more articulated trucks at 57 sites across Australia. The speed data for rigid trucks are examined below and this is followed by brief comments on the articulated truck data.

RIGID TRUCKS

The free speeds of rigid trucks are summarised by State/Territory and by road class in Table 5. The road classes in Table 5 are the same as those in Table 4 for cars, and it should be noted that urban speed limits for trucks are the same as the posted speed limits, except in Victoria and ACT. Victorian truck speed limits are 10 km/h below the posted speed limits, subject to an upper truck limit of 80 km/h, so that the speed limit structure (km/h) is:-

Cars	60	75	80	90	100
Trucks (and Buses)	50	65	70	80	80

where heavy trucks are defined as those exceeding 3 tonnes. In the 60 km/h region of the ACT, truck speed limits are 50 or 40 km/h, for truck masses exceeding 3 or 7 tonnes respectively.

From Table 5, the Australia-wide averages of site mean and 85th percentile speeds are respectively 60 and 68 km/h, which are high compared with urban speed limits; further, some 37% of rigid trucks exceed the speed limit. As for cars (Table 4), these Australia-wide speeds vary considerably by road class; however, the truck speed patterns across Australia are more consistent than those for cars.

In broad terms the 85th percentile speeds for rigid trucks can be summarised, by road classes, as follows:-

- (1) Freeways (80,100) - generally 0 to 5 km/h above the truck limit ,
- (2) Divided Arterials - generally 0 to 10 km/h below the (zoned above 60) truck limit (except for WA, ACT),
- (3) Divided Arterials - generally 0 to 10 km/h above the (60) truck limit,
- (4) Undivided Arterials- generally 0 to 10 km/h above the (60, 75) truck limit (except for Victoria, discussed below),
- (5) Non-Arterials (60) - generally 0 to 5 km/h above the truck limit.

The Victorian truck speed parameters for class (4), shown in Table 5, are derived from the following:

<u>Speed Limit (km/h)</u>		<u>No. of Sites</u>	<u>Truck Parameters</u>	
<u>Posted</u>	<u>Trucks</u>		<u>Mean</u>	<u>85th %ile</u>
60	50	7	61	68
75	65	4	57	64
60 or 75	50 or 65	11	59	67

Thus, although the 85th percentile speed for rigid trucks is close to the 65 km/h truck speed limit, it well exceeds the 50 km/h truck speed limit.

When the speed parameters from Tables 4 and 5 are compared, it can be seen that rigid trucks are in general up to 15 km/h slower than cars; these car-truck speed differences are largest in Victoria (some 10 to 15 km/h) and smallest in WA (some

0 to 5 km/h). However, these car-truck speed comparisons should be interpreted carefully when the number of sites is small, as accurate comparisons should be done on a site by site basis; (thus for non-arterial roads in Queensland, trucks are not faster than cars although this might be indicated by Tables 4 and 5).

In summary, the free speeds of rigid trucks in Australian capital cities tend to be high in comparison with (posted) speed limits on arterial and non-arterial roads subject to the general 60 km/h speed limit, and low in comparison with (posted) speed limits on speed-zoned arterials. On freeways, the 85th percentile speeds of trucks are up to 5 km/h above the truck speed limit.

ARTICULATED TRUCKS

At 57 sites across Australia speed samples for 20 or more articulated trucks were obtained, and Table 2 shows that most of these were obtained in NSW, Victoria and WA. Reference to Appendices B, C and F shows that most data were collected on arterial roads.

A comparison between rigid and articulated truck speed parameters on a site by site basis shows that their speed differences are generally within ± 5 km/h. The road class averages for articulated trucks in NSW and Victoria are generally within ± 1 km/h of those for rigid trucks shown in Table 5; the ROSTA Heavy Commercial Vehicle Study in Victoria in 1978 also concluded that the speed characteristics of rigid and articulated trucks were similar, Thompson (1978). However in WA the road class averages for articulated trucks are 2 to 4 km/h lower than those for rigid trucks.

FREE SPEEDS OF OTHER VEHICLES

Table 2 shows that few survey sites yielded sample sizes of 20 or more for cars-towing, omnibuses or motor cycles. Thus no firm conclusions can be drawn about the speed characteristics of these vehicles, particularly regarding variations between road classes and between States. However, further analysis using the statistical estimates given in Appendices B to H might be productive, even for vehicle-samples of less than 20.

A brief examination of the data for cars-towing, omnibuses and motorcycles provides the following indications:-

Cars towing: WA data show that the free speeds of these vehicles are about 0 to 5 km/h slower than those for cars. A comparison with truck speed data (for WA) shows that cars-towing and trucks have similar speed characteristics.

Omnibuses: Victorian, SA and ACT data show that omnibus speeds are 5 to 20 km/h slower than those for cars, and comparable with - or slightly slower than - those for trucks.

Motorcycles: The very limited data on motorcycles show that their speeds tend to be comparable with, or slightly faster than, those for cars.

SUMMARY

This report summarises the main results from the ACRUPTC 1979/80 urban free speed survey, which was carried out during the period November 1979 to July 1980. Vehicle speeds were measured in the six State capital cities and the Australian Capital Territory, according to guidelines drawn up by the Office of Road Safety (Appendix A).

The survey provided free speed data from 145 site-directions (hereafter called sites) covering a total vehicle sample of 47,268. The sites covered a wide spectrum of urban roads varying from local distributors up to freeways, with posted speed limits ranging from 60 to 100 km/h. Large samples were obtained for cars and car derivatives and rigid trucks. Samples of articulated trucks were considerably smaller than those for rigid trucks (Table 1,2). Samples of cars-towing, omnibuses and motorcycles were generally very small.

The basic speed data are given in Appendices B to H, by State/Territory, site and vehicle type. The speed statistics are then summarised (e.g. Tables 4,5) by simple averaging of the individual site statistics; this is done for five road classes, defined according to road type/function, whether divided or not, and posted speed limit.

The summary statistics for cars are given in Table 4 and in Figs. 1 to 5. In broad terms, the data can be described by site means and 85th percentiles (km/h) as follows:-

	<u>Means</u>	<u>85th %iles</u>
(1) Freeways (80,100)	around 80	around 90
(2) Divided Arterials (zoned above 60)	60 - 80	70 - 90
(3) Divided Arterials (60)	60 - 70	70 - 80
(4) Undivided Arterials (60,75)	60 - 70	70 - 80
(5) Non-Arterials (60)	50 - 70	60 - 80

although inter-site variations can be larger than the ranges shown.

Thus, the free speeds of cars in Australian capital cities are very high in comparison with existing speed limits; in addition, speeds in Sydney and Melbourne tend to be higher than those for other State capitals. Compliance with the speed limit is better on freeways and speed-zoned arterials than on other urban roads. On arterials subject to the 60 km/h speed limit, the speed behaviour on undivided roads is similar to that on divided roads.

The summary statistics for rigid trucks are given in Table 5 and generally show a similar pattern to that for cars, namely, high free speeds compared with speed limits and better compliance with speed limits on freeways and speed-zoned arterials than on other roads; however, rigid truck speeds are more consistent than car speeds around Australia so that, for example, Sydney and Melbourne trucks are not noticeably faster than those in other capital cities. Rigid trucks are in general 0 to 15 km/h slower than cars; these car-truck speed differences are largest in Victoria (some 10 to 15 km/h) and smallest in WA (some 0 to 5 km/h).

The free speeds of articulated trucks appear to be comparable with those for rigid trucks, although in WA articulated trucks are a little slower.

The limited data on other vehicle classes indicate that:-

- . cars-towing are 0 to 5 km/h slower than cars,
- . omnibuses are 5 to 20 km/h slower than cars, and thus slightly slower than trucks, and
- . motorcycles have speeds comparable with, or slightly faster than, cars.

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APPENDIX A

GUIDELINES AND SURVEY

FIELD SHEETS FOR ACRUPTC

URBAN FREE SPEED SURVEY

1979/80

METHODOLOGY FOR THE COLLECTION OF FREE SPEED DATA
IN BUILT-UP AREAS

Data to be Collected and Recorded

1. Free Speeds are to be measured for each direction of travel separately
 - for each of the following classes of vehicle
 - : cars, station wagons, utilities, panel vans, light trucks etc
 - : vehicles or the above class towing caravans or trailers
 - : heavy commercial vehicles of the rigid type
 - : omnibuses, including minibuses
 - : heavy commercial vehicles of the articulated type
 - : motorcycles.
2. The total volume of vehicles of each class passing through the spot speed checkpoint during the survey for each direction separately.
3. Site information including
 - location identification
 - road classification
 - applicable speed limit and type
 - roadside development
 - shoulder width, road width, number of lanes

- centre line and edge marking details
- divided/undivided
- condition of pavement
- weather
- and other factors that may influence free speeds such as priority road system, nearby obstructions, intersections etc.

Selection of Sites

4. In each State a total of 10 to 15 sites should be surveyed and be representative of built-up areas in major urban areas.
 - if desired free speeds in built-up areas in provincial areas may also be measured
5. Depending on the State road classification system used, attempts should be made to cover all major road classes such as
 - freeways
 - arterials
 - district distributors
 - local distributors (i.e. residential)

If possible the peak flow capacity of the road category should be provided to assist definition.

6. Sites should be selected so that sufficient numbers of vehicles in the main vehicle classes may be sampled.

7. To achieve free speed measurements the site selected should be level terrain, on straight alignment, free from obvious roadside obstructions, not influenced by the proximity of intersections or traffic levels. Congested highways and areas within the Central Business District should be avoided.

- where 'platooning' occurs only the speed of the lead vehicle should be taken.

- observation should be made on dry pavements.

Number of Observations

8. Desirable sample sizes are

- a minimum of 150 cars and derivatives

- and a minimum of 75 heavy commercial vehicles during the survey period.

It is recognised that these sample sizes may not be practical except on freeways and main arterial roads.

Times of Observations

9. Data should be collected

- on weekdays between 8 am and 5 pm avoiding holiday periods and special local events

- if desired some data may also be collected at night-time at the same site to enable day/night comparisons.

Presentation of Data

10. Results of the survey at each site for each direction of travel should be summarized on the attached forms

- (1) Site description sheet
- (2) Traffic count field sheet
- (3) Coding summary sheet (for each vehicle class).

11. Analysis of the free speed survey results should present for each site and direction of travel and each vehicle class

- the mean and standard deviation of the distribution
- a plot of the free speed distribution
- the proportion of traffic exceeding the applicable speed limit.

ADVISORY COMMITTEE ON ROAD USER PERFORMANCE AND TRAFFIC CODES

SITE DESCRIPTION SHEET

STATE.....

- SITE NO..... DATE.....
- PERIOD OF SURVEY.....

LOCATION

- ROAD NAME.....
- DETAILS.....
- DIRECTION OF TRAVEL..... TOWARDS.....
- ROAD CLASSIFICATION FLOW CAPACITY.....
(ref guideline 5)
- TYPE OF ROAD: (Tick one) TWO-WAY TWO LANE
MULTI-LANE..... NO OF LANES....

APPLICABLE SPEED LIMIT.....KM/H

- TYPE OF LIMIT (Tick one) GENERAL LIMIT.....
SPEED ZONING.....

TRAFFIC VOLUMES AND
SAMPLE SIZES

TRAFFIC
VOLUME

SAMPLE
SIZE

- CARS ETC	.....	.....
- CARS ETC. INVOLVED IN TOWING	.....	.....
- RIGID TRUCKS	.....	.....
- OMNIBUSES	.....	.....
- ARTICULATED TRUCKS	.....	.....
- MOTORCYCLES	.....	.....
	-----	-----
TOTAL	-----	-----
	-----	-----

ROAD DETAILS

- LAND USE, COMMERCIAL YES..... NO.....
INDUSTRIAL YES..... NO.....
RESIDENTIAL YES..... NO.....
OTHER (Describe).....
- WIDTH OF SEALED PAVEMENT.....M
- WIDTH OF ROAD SHOULDERS.....M
- CENTRE LINE MARKING (tick one) YES..... NO.....
- EDGE MARKING (" " ") YES..... NO.....
- MEDIAN (" " ") YES..... NO.....
- PARKING LANES (" " ") YES..... NO.....

REMARKS (OTHER ROAD FEATURES, PRIORITY ROAD, OBSTRUCTIONS,
PARKING LANES ETC).

.....
.....

- SPEED READINGS BY.....
- TRAFFIC COUNTS BY.....

APPENDIX B - NEW SOUTH WALES DATA

The collection and analysis of urban speed data in NSW were carried out by the Department of Motor Transport. The survey covered 15 site-locations in Sydney during February, March, June and July, 1980, providing 32 speed measurements (site-directions). Details are given in Table B-1 to B-3.

The Department provided the summary statistics, given in Table B-3, (although for some small sample sizes standard deviations were computed by the author).

The Department's computer printout included the following speed data in addition to the figures given in Table B-3:-

- variance,
- coefficient of variation,
- skewness,
- kurtosis,
- highest,
- lowest,
- median,
- mode,
- 98th percentile,
- 15th percentile,
- basic and cumulative frequency distributions,

and therefore provided a most comprehensive description of the speed distributions.

Two speed measurements were taken at all sites, except 80-008 where four were taken. The separate measurements at each site are labelled (a), (b), etc. in Tables B-2 and B-3.

Sites have been allocated to road classes (see Table 3 in text) as follows:-

Freeway,	80	-	Site 15, (a) and (b)
Divided Arterial,	80	-	Site 11, (a) and (b)
Divided Arterial,	60	-	Sites 5, (a) and (b), 8, (a) to (d), 10, 12, 13 and 14, (a) and (b)
Undiv. Arterial,	60	-	Sites 7 and 9, (a) and (b)
Non-Arterial,	60	-	Sites 1, 2, 3, 4 and 6, (a) and (b)

It should be noted that Sites 5, 10, 13 and 14 are District Distributors, not "Arterials".

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
80-001	2-way 2-lane Distributor	60	Banks Avenue, Pagewood	Residential	12.8	
80-002	2-way 2-lane Distributor	60	Chancery Street, Lansvale (Ped.Crossing within 200m)	Residential	12.6	Centreline marking.
80-003	2-way 2-lane Distributor	60	St Georges Road, Bexley	Residential	12.6	
80-004	2-way 2-lane Distributor	60	Roberts Road, Chullora	Commercial Industrial Residential	6.7	2.7m shoulders. Fair road surface.
80-005	4-lane divided Distributor	60	Avoca Street, Randwick	Residential	8.4 (2 lanes)	Priority Road
80-006	2-way 2-lane Distributor	60	Vanessa Street, Kingsgrove	Industrial Residential	9.8	Fair road surface.
80-007	2-way 2-lane Distributor	60	Anzac Road, Holsworthy	Residential	6.2	Centreline marking. 2.5m shoulders.
80-008	6-lane divided Arterial	60	Victoria Road, Gladesville. (Traffic signals within 300m)	Residential	8.5 (3 lanes)	Priority Road. Fair road surface.
80-009	4-lane Arterial	60	Grand Parade, Brighton. (Ped.Crossing within 150m.)	Residential	13.1	Centreline marking. Priority Road.
80-010	3-lane divided Distributor	60	Condamine Street, Brookvale (near Golf Course)	Residential	10 (3 lanes) 7 (2 lanes)	Priority Road. 2.8m Southbound shoulder

TABLE B-1. N.S.W. STATE LOCATION DATA

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
80-011	6-lane divided Arterial	80	Milperra Road, Milperra (near Airport)	Commercial Industrial	10. (3 lanes)	Priority Road
80-012	6-lane divided Arterial	60	Hume Highway, Bankstown (traffic signals within 50m)	Commercial Industrial Residential	9.5. (3 lanes)	Priority Road
80-013	6-lane divided Distributor	60	Rookwood Road, Lidcombe (traffic signals within 600m)	Commercial Industrial	9.9 (3 lanes)	Priority Road
80-014	6-lane divided Distributor	60	Silverwater Rd, Silverwater	Commercial Industrial	9.8 (3 lanes)	Priority Road
80-015	4-lane divided Expressway	80	Warringah Expressway, Naremburn	Residential	7.5 (2 lanes)	2.9 NS, 2.4 OS shoulders. Edge marking. Parking lanes.

TABLE B-1 Continued

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
80-001 (a)	2-way 2-lane Distributor	60	North	Mon	11/2/80	1100 1400	365	213	
80-001 (b)	2-way 2-lane Distributor	60	South	Mon	11/2/80	1100 1400	406	181	
80-002 (a)	2-way 2-lane Distributor	60	East	Tues	12/2/80	1000 1300	409	213	
80-002 (b)	2-way 2-lane Distributor	60	West	Tues	12/2/80	1000 1300	320	187	
80-003 (a)	2-way 2-lane Distributor	60	NW	Wed	13/2/80	1200 1515	203	153	
80-003 (b)	2-way 2-lane Distributor	60	SE	Wed	13/2/80	1200 1515	188	143	
80-004 (a)	2-way 2-lane Distributor	60	North	Thur	14/2/80	1000 1300	494	214	
80-004 (b)	2-way 2-lane Distributor	60	South	Thur	14/2/80	1000 1300	607	211	
80-005 (a)	4-lane divided Distributor	60	North	Tues	10/6/80	1245 1400	416	225	
80-005 (b)	4-lane divided Distributor	60	South	Tues	10/6/80	1100 1200	433	225	

TABLE B-2 N.S.W. SITE TRAFFIC DATA

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
80-006 (a)	2-way 2-lane Distributor	60	NE	Mon	25/2/80	1100 1400	503	195	
80-006 (b)	2-way 2-lane Distributor	60	SW	Mon	25/2/80	1100 1400	527	200	
80-007 (a)	2-way 2-lane Distributor	60	East	Tues	26/2/80	1015 1315	617	240	
80-007 (b)	2-way 2-lane Distributor	60	West	Tues	26/2/80	1015 1315	566	197	
80-008 (a)	6-lane divided Arterial	60	East	Tues	4/3/80	2015 2215	1138	109	
80-008 (b)	6-lane divided Arterial	60	West	Tues	4/3/80	2015 2215	1821	132	
80-008 (c)	6-lane divided Arterial	50	East	Mon	23/6/80	1340 1510	1581	561	) ) Repeat of
80-008 (d)	6-lane divided Arterial	60	West	Mon	23/6/80	1055 1220	1463	625	) ) March Survey)
80-009 (a)	4-lane Arterial	60	North	Mon	9/6/80	1330 1430	806	200	
80-009 (b)	4-lane Arterial	60	South	Mon	9/6/80	1145 1245	623	250	

TABLE B-2 Continued

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
80-010 (a)	5-lane divided Distributor	60	North	Wed	11/6/80	1115 1215	1010	287	3 lanes (no shoulder)
80-010 (b)	5-lane divided Distributor	60	South	Wed	11/6/80	1300 1400	1049	279	2 lanes (with shoulder)
80-011 (a)	6-lane divided Arterial	80	East	Mon	4/7/80	1250 1420	1568	450	
80-011 (b)	6-lane divided Arterial	80	West	Mon	4/7/80	1025 1155	1675	575	
80-012 (a)	6-lane divided Arterial	60	East	Wed	18/6/80	1310 1440	1899	475	
80-012 (b)	6-lane divided Arterial	60	West	Wed	18/6/80	1020 1150	1810	575	
80-013 (a)	6-lane divided Distributor	60	North	Thur	19/6/80	1300 1430	1288	500	
80-013 (b)	6-lane divided Distributor	60	South	Thur	19/6/80	1010 1140	1230	500	
80-014 (a)	6-lane divided Distributor	60	North	Wed	25/6/80	1030 1200	1619	578	
80-014 (b)	6-lane divided Distributor	60	South	Fri	20/6/80	1030 1215	2053	500	

TABLE B-2 Continued

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
80-015 (a)	4-lane divided Expressway	80	North	Thur	26/6/80	1015 1145	807	500	
80-015 (b)	4-lane divided Expressway	80	South	Thur	26/6/80	1200 1430	807	500	

TABLE B-2 continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-001 (a)	2-way 2-lane Local Distributor	60	Cars etc. *	184	74	65.6	9.0	75
			Cars*towing	2	-	54.5	5.0	-
			Rigid Tr.	21	10	52.2	8.2	59
			Artic. Tr.	1	-	56.0	-	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	5	-	66.8	6.9	-
80-001 (b)	2-way 2-lane Local Distributor	60	Cars etc. *	163	80	67.0	9.3	77
			Cars*towing	1	-	68.0	-	-
			Rigid Tr.	15	-	47.4	8.1	-
			Artic. Tr.	1	-	52.0	-	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	1	-	64.0	-	-
80-002 (a)	2-way 2-lane Local Distributor	60	Cars etc. *	176	79	66.6	8.4	73
			Cars*towing	3	-	54.7	9.3	-
			Rigid Tr.	25	28	55.4	7.9	65
			Artic. Tr.	3	-	56.0	11.5	-
			Omnibuses	4	-	54.0	6.3	-
			Motor Cycles	2	-	88.0	11.3	-
80-002 (b)	2-way 2-lane Local Distributor	60	Cars etc. *	150	80	66.3	9.0	75
			Cars*towing	5	-	61.6	9.6	-
			Rigid Tr.	24	50	58.0	7.2	65
			Artic. Tr.	5	-	53.0	9.7	-
			Omnibuses	2	-	66.5	2.1	-
			Motor Cycles	1	-	90.0	-	-

* Cars plus Car-derivatives.

TABLE B-3 N.S.W. SITE FREE SPEED DATA

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-003 (a)	2-way 2-lane Local Distributor	60	Cars etc. *	146	59	63.1	10.1	73
			Cars*towing	1	-	68.0	-	-
			Rigid Tr.	5	-	59.0	10.3	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	1	-	69.0	-	-
80-003 (b)	2-way 2-lane Local Distributor	60	Cars etc. *	123	71	64.8	10.0	75
			Cars*towing	1	-	61.0	-	-
			Rigid Tr.	16	-	60.7	8.7	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	3	-	76.0	32.1	-
80-004 (a)	2-way 2-lane Local Distributor	60	Cars etc. *	146	79	66.6	8.6	75
			Cars*towing	0	-	-	-	-
			Rigid Tr.	50	58	61.2	8.7	71
			Artic. Tr.	9	-	52.7	6.7	-
			Omnibuses	7	-	49.9	9.4	-
			Motor Cycles	2	-	67.0	1.4	-
80-004 (b)	2-way 2-lane Local Distributor	60	Cars etc. *	127	77	68.2	10.4	79
			Cars*towing	0	-	-	-	-
			Rigid Tr.	63	49	61.6	10.0	73
			Artic. Tr.	13	-	60.8	8.6	-
			Omnibuses	4	-	53.0	15.0	-
			Motor Cycles	4	-	58.7	10.2	-

* Cars plus Car-derivatives.

TABLE B-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-005 (a)	4-lane divided District Distributor	60	Cars etc. *	206	67	63.9	8.1	72
			Cars*towing	2	-	57.0	17.0	-
			Rigid Tr.	15	-	52.4	9.2	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	2	-	71.0	4.2	-
80-005 (b)	4-lane divided District Distributor	60	Cars etc. *	200	59	62.7	8.2	72
			Cars*towing	1	-	54.0	-	-
			Rigid Tr.	20	40	60.1	8.6	68
			Artic. Tr.	2	-	64.0	9.9	-
			Omnibuses	1	-	47.0	-	-
			Motor Cycles	1	-	69.0	-	-
80-006 (a)	2-way 2-lane Local Distributor	60	Cars etc. *	170	76	66.1	9.2	74
			Cars*towing	2	-	69.5	6.4	-
			Rigid Tr.	20	50	59.3	5.8	67
			Artic. Tr.	0	-	-	-	-
			Omnibuses	1	-	65.0	-	-
			Motor Cycles	2	-	79.5	2.1	-
80-006 (b)	2-way 2-lane Local Distributor	60	Cars etc. *	156	71	66.2	9.6	77
			Cars*towing	0	-	-	-	-
			Rigid Tr.	37	46	60.1	8.1	70
			Artic. Tr.	5	-	51.0	10.9	-
			Omnibuses	1	-	65.0	-	-
			Motor Cycles	1	-	74.0	-	-

* Cars plus Car-derivatives.

TABLE B-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-007 (a)	2-way 2-lane District Distributor	60	Cars etc. *	200	94	73.0	10.7	81
			Cars*towing	4	-	65.0	7.6	-
			Rigid Tr.	28	71	66.3	9.2	75
			Artic. Tr.	2	-	69.5	14.8	-
			Omnibuses	1	-	69.0	-	-
			Motor Cycles	5	-	78.0	13.6	-
80-007 (b)	2-way 2-lane District Distributor	60	Cars etc. *	162	94	74.2	10.3	83
			Cars*towing	3	-	71.7	0.6	-
			Rigid Tr.	23	78	66.0	9.2	75
			Artic. Tr.	1	-	60.0	-	-
			Omnibuses	1	-	65.0	-	-
			Motor Cycles	7	-	69.4	7.4	-
80-008 (a)	6-lane divided Arterial	60	Cars etc. *	98	52	61.8	7.1	68
			Cars*towing	0	-	-	-	-
			Rigid Tr.	3	-	48.7	2.9	-
			Artic. Tr.	4	-	57.2	8.7	-
			Omnibuses	2	-	59.5	10.6	-
			Motor Cycles	2	-	71.5	7.8	-
80-008 (b)	6-lane divided Arterial	60	Cars etc. *	122	73	66.2	9.5	75
			Cars*towing	0	-	-	-	-
			Rigid Tr.	6	-	60.5	4.1	-
			Artic. Tr.	2	-	73.0	7.1	-
			Omnibuses	1	-	44.0	-	-
			Motor Cycles	1	-	73.0	-	-

* Cars plus Car-derivatives.

TABLE B-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-008 (c)	6-lane divided Arterial	60	Cars etc. *	453	77	66.4	7.6	74
			Cars*towing	3	-	68.3	5.5	-
			Rigid Tr.	64	41	58.4	8.8	68
			Artic. Tr.	24	62	60.8	5.2	66
			Omnibuses	7	-	58.0	4.1	-
			Motor Cycles	10	-	70.5	7.7	-
80-008 (d)	6-lane divided Arterial	60	Cars etc. *	500	73	64.9	6.9	72
			Cars*towing	3	-	63.0	6.6	-
			Rigid Tr.	85	36	58.3	7.7	63
			Artic. Tr.	23	57	61.8	7.0	69
			Omnibuses	7	-	55.6	9.6	-
			Motor Cycles	7	-	82.7	12.8	-
80-009 (a)	4-lane Arterial	60	Cars etc. *	162	75	65.2	7.5	72
			Cars*towing	0	-	-	-	-
			Rigid Tr.	24	50	61.0	5.4	66
			Artic. Tr.	10	-	65.4	7.5	-
			Omnibuses	2	-	49.5	6.4	-
			Motor Cycles	2	-	74.0	0.0	-
80-009 (b)	4-lane Arterial	60	Cars etc. *	205	77	66.3	8.1	76
			Cars*towing	1	-	55.0	-	-
			Rigid Tr.	31	52	59.5	10.2	72
			Artic. Tr.	8	-	62.5	10.2	-
			Omnibuses	3	-	50.3	6.0	-
			Motor Cycles	2	-	62.0	9.9	-

* Cars plus Car-derivatives.

TABLE B-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-010 (a)	5-lane divided District Distributor	60	Cars etc. *	232	61	63.1	8.0	71
			Cars*towing	1	-	61.0	-	-
			Rigid Tr.	41	34	58.6	8.2	66
			Artic. Tr.	3	-	55.0	4.6	-
			Omnibuses	7	-	51.6	12.3	-
			Motor Cycles	3	-	70.0	5.3	-
80-010 (b)	5-lane divided District Distributor	60	Cars etc. *	234	46	61.1	7.4	69
			Cars*towing	0	-	-	-	-
			Rigid Tr.	26	31	55.1	8.3	63
			Artic. Tr.	2	-	54.5	2.1	-
			Omnibuses	12	-	52.0	10.0	-
			Motor Cycles	5	-	60.2	8.5	-
80-011 (a)	6-lane divided Arterial	80	Cars etc. *	336	27	75.9	10.2	87
			Cars*towing	5	-	68.8	9.4	-
			Rigid Tr.	80	4	64.7	9.0	73
			Artic. Tr.	18	-	64.9	8.3	-
			Omnibuses	5	-	65.6	2.9	-
			Motor Cycles	6	-	72.2	6.0	-
80-011 (b)	6-lane divided Arterial	80	Cars etc. *	442	14	71.8	8.6	80
			Cars*towing	3	-	60.3	10.2	-
			Rigid Tr.	100	2	62.5	9.2	73
			Artic. Tr.	23	0	64.8	8.7	77
			Omnibuses	2	-	63.5	2.1	-
			Motor Cycles	5	-	79.8	14.0	-

* Cars plus Car-derivatives.

TABLE B-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-012 (a)	6-lane divided Arterial	60	Cars etc. *	368	78	67.0	8.1	76
			Cars*towing	4	-	62.0	7.9	-
			Rigid Tr.	70	50	60.3	7.9	69
			Artic. Tr.	30	40	57.7	7.5	66
			Omnibuses	0	-	-	-	-
			Motor Cycles	3	-	76.7	10.8	-
80-012 (b)	6-lane divided Arterial	60	Cars etc. *	419	80	66.0	7.3	74
			Cars*towing	3	-	64.3	4.0	-
			Rigid Tr.	108	41	59.5	7.4	68
			Artic. Tr.	38	45	59.3	9.0	71
			Omnibuses	2	-	58.0	1.4	-
			Motor Cycles	5	-	61.8	4.1	-
80-013 (a)	6-lane divided District Distributor	60	Cars etc. *	409	90	70.5	8.4	80
			Cars*towing	3	-	69.3	2.3	-
			Rigid Tr.	59	76	66.1	8.0	78
			Artic. Tr.	23	61	64.5	9.9	73
			Omnibuses	3	-	59.3	6.7	-
			Motor Cycles	3	-	76.0	16.8	-
80-013 (b)	6-lane divided District Distributor	60	Cars etc. *	375	78	67.1	8.6	76
			Cars*towing	3	-	65.0	8.9	-
			Rigid Tr.	98	34	58.9	7.0	66
			Artic. Tr.	22	50	62.0	4.9	68
			Omnibuses	0	-	-	-	-
			Motor Cycles	2	-	70.5	2.1	-

* Cars plus Car-derivatives.

TABLE B-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
80-014 (a)	6-lane divided District Distributor	60	Cars etc. *	422	71	64.1	7.8	72
			Cars*towing	4	-	60.8	8.8	-
			Rigid Tr.	122	29	55.3	8.2	65
			Artic. Tr.	25	36	57.4	7.4	66
			Omnibuses	1	-	46.0	-	-
			Motor Cycles	4	-	50.5	8.7	-
80-014 (b)	6-lane divided District Distributor	60	Cars etc. *	354	68	63.8	7.1	71
			Cars*towing	5	-	58.0	8.5	-
			Rigid Tr.	113	34	57.9	6.5	64
			Artic. Tr.	26	35	57.8	6.3	65
			Omnibuses	1	-	39.0	-	-
			Motor Cycles	1	-	54.0	-	-
80-015 (a)	4-lane divided Expressway	80	Cars etc. *	452	53	82.1	10.1	93
			Cars*towing	0	-	-	-	-
			Rigid Tr.	33	24	73.3	9.0	82
			Artic. Tr.	13	-	75.3	7.1	-
			Omnibuses	1	-	76.0	-	-
			Motor Cycles	1	-	74.0	-	-
80-015 (b)	4-lane divided Expressway	80	Cars etc. *	469	45	80.1	10.3	90
			Cars*towing	2	-	79.0	15.6	-
			Rigid Tr.	17	-	70.1	8.1	-
			Artic. Tr.	6	-	65.0	10.4	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	6	-	96.8	33.7	-

* Cars plus Car-derivatives.

TABLE B-3 Continued

APPENDIX C - VICTORIAN DATA

A Heavy Commercial Vehicle Speed and Operational Safety Study was carried out by the Road Safety and Traffic Authority (RoSTA) in early 1978. An important part of this Study was the collection and analysis of free speed data for trucks, cars and other vehicles at 14 rural and 16 urban sites in Victoria, reported in Thompson (1978). An interim follow-up survey of speeds at the 14 rural sites was carried out in early 1979 and a comprehensive follow-up survey at the 14 rural and 16 urban sites was done in early 1980.

The urban speed data presented here are taken from the 1980 follow-up survey. The data were collected by RoSTA at 16 site-locations in Melbourne during April and provided 30 speed measurements (site-directions). The sites were on arterial roads.

The data are given in Table C-1 to C-3. Site description data were recorded on RoSTA forms instead of the ACRUPTC forms given in Appendix A.

The summary statistics in Table C-3 were computed by the author from the survey field sheets.

It should be noted that heavy trucks and omnibuses in Victoria have speed limits 10 km/h below the general or posted speed limits (for general traffic), subject to an upper speed limit of 80 km/h. Victorian speed limits (km/h) can therefore be summarised as follows:-

General traffic	60	75	80	90	100
Trucks and buses	50	65	70	80	80

Cars towing heavy trailers have an upper speed limit of 80 km/h.

Sites have been allocated to road classes (see Table 3 in text) as follows:-

- Freeway, 100 - 19 (-1 and -2).
- Divided Arterial, 75 - 23, 24, 26 and 27 (-1 and -2).
- Divided Arterial, 60 - 17, 18 and 28 (-1 and -2), 29-1, 32 (-1 and -2).
- Undiv. Arterial, 75 - 22 and 25 (-1 and -2).
- Undiv. Arterial, 60 - 20-1, 21, 30 and 31 (-1 and -2).

Site No	Road Type	Speed Limit* (km/h)	Location	Land Use	Pavement Width (m)	Notes
17	6-lane divided Arterial	60	Beaconsfield Parade, South Melbourne, near McGregor Street	Residential	10 (3 lanes)	
18	6-lane divided Arterial	60	Nepean Highway, Moorabbin near Alfred Street	Commercial Residential	11 (3 lanes)	Service roads
19	4-lane divided Freeway	100	Tullamarine Freeway, Coburg, near Brentwood Avenue	-	12 (2 lanes)	Emergency lane
20	4-lane Arterial	60	Queens Road, Sth Melbourne, between Louise/Hanna Sts	Commercial	13.5 (4 lanes)	Clearway
21	4-lane Arterial	60	Ballarat Road, Footscray, east of Thompson Road	Residential	11 (4 lanes)	
22	5-lane Arterial	75	Footscray Road, Melbourne, east of Railway Canal	Industrial	16 (5 lanes)	
23	6-lane divided Arterial	75	Geelong Road, Sunshine, west of Cyprus Avenue	Residential	9 (3 lanes)	Service roads
24	6-lane divided Arterial	75	Maroondah Hwy, Nunawading, near Ceylon Street	Residential	12 (3 lanes)	Service road on North side only
25	4-lane Arterial	75	Stud Road, Dandenong, near David Street	Residential	15 (4 lanes)	
26	6-lane divided Arterial	75	Princes Hwy, Springvale near Kalina Avenue	Industrial	10 (3 lanes)	Service road on West side only

* Speed limit for General Traffic. See Table C-3 for differential speed limits for certain vehicle types.

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
27	6-line divided Arterial	75	Mahoneys Road, Preston, East of Lockton Avenue	Residential	9 (3 lanes)	
28	6-line divided Arterial	60	Springvale Rd, Nunawading near Parkmore Road	Residential	11 (3 lanes)	
29	4-lane divided Arterial	60	Warrigal Road, Malvern, South of Midlothian Street	Residential	7 (2 lanes)	2m shoulder
30	2-lane Arterial	60	Heidelberg Rd, Heidelberg, North of the Boulevard	Residential	-	
31	4-lane Arterial	60	Pascoe Vale Rd, Broadmeadows, Sth of Chapman Av.	Residential	13 (4 lanes)	
32	6-lane divided Arterial	60	Hume Hwy, Broadmeadows, south of Lynch Road.	Residential	10 (3 lanes)	1 of 3 lanes is Parking lane

TABLE C-1 Continued

* Speed limit for General Traffic. See Table C-3 for differential speed limits for certain vehicle types.

TABLE C-2 VICTORIAN SITE TRAFFIC DATA

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
17-1	6-lane divided Arterial	60	South	Mon	14/4/80	0900 1100	1214	335	
17-2	6-lane divided Arterial	60	North	Mon	14/4/80	1300 1500	1325	331	
18-1	6-lane divided Arterial	60	South	Fri	18/4/80	0900 1200	2986	316	
18-2	6-lane divided Arterial	60	North	Fri	18/4/80	1300 1600	3440	307	
19-1	4-lane divided Freeway	100	North	Tues	15/4/80	0900 1045	1743	327	
19-2	4-lane divided Freeway	100	South	Tues	15/4/80	1300 1600	1955	325	
20-1	4-lane Arterial	60	South	Mon	14/4/80	0900 1100	2140	383	
21-1	4-lane Arterial	60	East	Mon	14/4/80	1435 1600	1122	235	
21-2	4-lane Arterial	60	West	Mon	14/4/80	1300 1430	1055	231	
22-1	5-lane Arterial	75	West	Wed	16/4/80	1100 1230	2057	322	

* Speed limit for General Traffic. See Table C-3 for differential speed limits for certain vehicle types.

Site No	Road Type	Speed Limit* (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
22-2	5-lane Arterial	75	East	Wed	16/4/80	1300 1600	2659	339	
23-1	6-lane divided Arterial	75	West	Thur	17/4/80	0900 1115	1586	371	
23-2	6-lane divided Arterial	75	East	Thur	17/4/80	1300 1440	1232	438	
24-1	6-lane divided Arterial	75	East	Wed	16/4/80	1100 1200	993	235	
24-2	6-lane divided Arterial	75	West	Wed	16/4/80	1300 1600	3550	293	
25-1	4-lane Arterial	75	South	Fri	11/4/80	0945 1200	1605	276	
25-2	4-lane Arterial	75	North	Fri	11/4/80	1300 1600	2503	281	
26-1	5-lane divided Arterial	75	East	Tues	15/4/80	0900 1200	1090	305	
26-2	6-lane divided Arterial	75	West	Tues	15/4/80	1300 1600	1452	320	
27-1	5-lane divided Arterial	75	West	Mon	21/4/80	0930 1200	2600	392	

* Speed limit for General Traffic. See Table C-3 for differential speed limits for certain vehicle types.

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
27-2	6-lane divided Arterial	75	East	Mon	21/4/80	1300 1600	3380	451	
28-1	6-lane divided Arterial	60	South	Thur	17/4/80	0900 1140	2712	329	
28-2	6-lane divided Arterial	60	North	Thur	17/4/80	1300 1600	2478	318	
29-1	4-lane divided Arterial	60	South	Tues	22/4/80	1300 1600	2668	321	
30-1	2-lane Arterial	60	North	Tues	15/4/80	0915 1200	1754	267	
30-2	2-lane Arterial	60	South	Tues	15/4/80	1300 1600	1534	266	
31-1	4-lane Arterial	60	South	Fri	18/4/80	0900 1100	1471	429	
31-2	4-lane Arterial	60	North	Fri	18/4/80	1300 1445	1377	363	
32-1	6-lane divided Arterial	60	North	Mon	21/4/80	0900 1200	2003	299	
32-2	6-lane divided Arterial	60	South	Mon	21/4/80	1300 1600	2146	281	

* Speed limit for General Traffic. See Table C-3 for differential speed limits for certain vehicle types.

TABLE C-2 Continued

TABLE C-3 VICTORIAN SITE FREE SPEED DATA

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
17-1	6-lane divided Arterial	60	Cars etc. *	165	94	73.5	8.4	82
			Cars*towing	4	-	63.8	9.4	-
			Rigid Tr.	80	95	61.4	7.0	68
		50	Artic. Tr.	81	96	62.1	7.2	69
			Omnibuses	5	-	62.8	14.1	-
		60	Motor Cycles	0	-	-	-	
17-2	6-lane divided Arterial	60	Cars etc. *	162	92	72.2	8.4	80
			Cars*towing	5	-	65.6	8.1	-
			Rigid Tr.	81	84	59.5	9.1	70
		50	Artic. Tr.	81	89	60.6	8.4	68
			Omnibuses	2	-	48.5	2.1	-
		60	Motor Cycles	0	-	-	-	
18-1	6-lane divided Arterial	60	Cars etc. *	160	90	70.4	8.8	78
			Cars*towing	12	-	63.7	8.2	-
			Rigid Tr.	80	91	60.1	8.0	67
		50	Artic. Tr.	44	93	59.9	6.5	66
			Omnibuses	20	70	56.4	10.1	68
		60	Motor Cycles	0	-	-	-	
18-2	6-lane divided Arterial	60	Cars etc. *	160	87	70.0	8.6	78
			Cars*towing	3	-	62.0	6.6	-
			Rigid Tr.	81	94	59.5	6.5	66
		50	Artic. Tr.	40	87	59.7	7.2	67
			Omnibuses	23	57	51.5	7.6	58
		60	Motor Cycles	0	-	-	-	

* Cars plus Car-derivatives.

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
19-1	4-lane divided Freeway	100	Cars etc. *	160	3	82.9	9.3	92
		80	Cars*towing	7	-	69.0	10.3	-
			Rigid Tr.	75	8	68.1	9.2	76
			Artic. Tr.	80	6	65.5	9.7	74
			Omnibuses	5	-	79.6	5.9	-
100	Motor Cycles	0	-	-	-	-		
19-2	4-lane divided Freeway	100	Cars etc. *	160	9	87.6	10.6	98
		80	Cars*towing	1	-	82.0	-	-
			Rigid Tr.	75	35	76.2	10.3	85
			Artic. Tr.	80	38	78.3	8.9	86
			Omnibuses	8	-	80.1	8.9	-
100	Motor Cycles	1	-	75.0	-	-		
20-1	4-lane Arterial	60	Cars etc. *	174	81	68.4	9.4	77
		50	Cars*towing	2	-	55.0	4.2	-
			Rigid Tr.	127	83	59.3	8.5	68
			Artic. Tr.	80	75	56.0	8.0	64
			Omnibuses	0	-	-	-	-
60	Motor Cycles	0	-	-	-	-		
21-1	4-lane Arterial	60	Cars etc. *	134	81	66.2	7.8	73
		50	Cars*towing	1	-	71.0	-	-
			Rigid Tr.	65	92	59.5	6.2	66
			Artic. Tr.	29	79	57.7	8.3	65
			Omnibuses	6	-	45.2	8.8	-
60	Motor Cycles	0	-	-	-	-		

* Cars plus Car-derivatives.

TABLE C-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
21-2	4-lane Arterial	60	Cars etc. *	104	68	64.1	6.7	71
		50	Cars*towing	1	-	62.0	-	-
			Rigid Tr.	72	90	58.8	6.3	64
			Artic. Tr.	50	92	57.7	6.0	63
60	Omnibuses	4	-	52.3	5.1	-		
			Motor Cycles	0	-	-	-	
22-1	5-lane Arterial	75	Cars etc. *	126	24	69.2	10.7	80
		65	Cars*towing	5	-	69.6	9.5	-
			Rigid Tr.	103	8	55.6	7.6	63
			Artic. Tr.	82	10	54.8	7.9	63
			Omnibuses	6	-	52.3	8.7	-
75	Motor Cycles	0	-	-	-	-		
22-2	5-lane Arterial	75	Cars etc. *	162	47	74.7	9.7	84
		65	Cars*towing	4	-	78.0	18.1	-
			Rigid Tr.	80	24	58.1	9.9	69
			Artic. Tr.	88	22	58.5	9.0	68
			Omnibuses	5	-	58.4	6.5	-
75	Motor Cycles	0	-	-	-	-		
23-1	6-lane divided Arterial	75	Cars etc. *	164	67	80.2	10.8	91
		65	Cars*towing	12	-	71.5	7.8	-
			Rigid Tr.	103	40	62.6	8.8	72
			Artic. Tr.	89	48	63.8	8.6	72
			Omnibuses	3	-	66.7	5.8	-
75	Motor Cycles	0	-	-	-	-		

* Cars plus Car-derivatives.

TABLE C-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
23-2	6-lane divided Arterial	75	Cars etc. *	250	56	76.3	9.2	84
			Cars*towing	11	-	66.0	13.1	-
			Rigid Tr.	93	22	58.5	8.9	68
			Artic. Tr.	80	30	59.5	11.0	70
			Omnibuses	4	-	66.5	10.5	-
		75	Motor Cycles	0	-	-	-	
24-1	6-lane divided Arterial	75	Cars etc. *	160	9	66.6	6.4	73
			Cars*towing	3	-	60.7	10.5	-
			Rigid Tr.	54	13	56.4	9.4	63
			Artic. Tr.	14	-	54.7	6.3	-
			Omnibuses	4	-	61.3	5.7	-
		75	Motor Cycles	0	-	-	-	
24-2	6-lane divided Arterial	75	Cars etc. *	160	2	61.6	6.6	68
			Cars*towing	4	-	52.8	15.1	-
			Rigid Tr.	90	9	53.8	9.3	64
			Artic. Tr.	28	4	54.1	9.1	62
			Omnibuses	11	-	62.6	7.6	-
		75	Motor Cycles	0	-	-	-	
25-1	4-lane Arterial	75	Cars etc. *	160	8	66.7	6.6	73
			Cars*towing	3	-	61.7	2.3	-
			Rigid Tr.	78	6	57.2	5.8	63
			Artic. Tr.	33	6	56.3	5.7	61
			Omnibuses	2	-	52.5	4.9	-
		75	Motor Cycles	0	-	-	-	

* Cars plus Car-derivatives.

TABLE C-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
25-2	4-lane Arterial	75	Cars etc. *	161	4	64.4	5.9	70
			Cars*towing	7	-	58.7	9.4	-
			Rigid Tr.	78	5	56.1	5.9	61
			Artic. Tr.	32	6	55.8	6.9	63
			Omnibuses	2	-	47.5	0.7	-
75	Motor Cycles	1	-	78.0	-	-		
26-1	6-lane divided Arterial	75	Cars etc. *	160	46	74.7	9.7	85
			Cars*towing	2	-	66.5	3.5	-
			Rigid Tr.	80	35	62.9	7.6	71
			Artic. Tr.	56	27	61.8	6.7	68
			Omnibuses	7	-	56.7	11.2	-
75	Motor Cycles	0	-	-	-	-		
26-2	6-lane divided Arterial	75	Cars etc. *	160	64	78.6	10.3	89
			Cars*towing	8	-	78.4	13.5	-
			Rigid Tr.	81	53	66.2	9.2	76
			Artic. Tr.	64	73	68.4	8.8	76
			Omnibuses	7	-	55.6	6.7	-
75	Motor Cycles	0	-	-	-	-		
27-1	6-lane divided Arterial	75	Cars etc. *	178	55	78.8	11.3	90
			Cars*towing	22	23	67.9	7.5	77
			Rigid Tr.	120	59	66.6	8.2	74
			Artic. Tr.	71	65	68.3	7.6	75
			Omnibuses	1	-	72.0	-	-
75	Motor Cycles	0	-	-	-	-		

* Cars plus Car-derivatives.

TABLE C-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
27-2	6-lane divided Arterial	75	Cars etc. *	253	46	75.3	8.8	84
			Cars*towing	9	-	68.1	9.5	-
		65	Rigid Tr.	109	59	67.3	9.0	74
			Artic. Tr.	78	59	66.8	8.4	75
75	Omnibuses	2	-	76.0	1.4	-		
	Motor Cycles	0	-	-	-	-		
28-1	6-lane divided Arterial	60	Cars etc. *	160	87	69.4	8.5	77
			Cars*towing	4	-	60.0	6.9	-
		50	Rigid Tr.	79	87	60.6	8.5	69
			Artic. Tr.	78	79	56.5	6.9	63
60	Omnibuses	8	-	52.8	6.9	-		
	Motor Cycles	0	-	-	-	-		
28-2	6-lane divided Arterial	60	Cars etc. *	160	92	70.0	7.2	76
			Cars*towing	7	-	59.6	8.8	-
		50	Rigid Tr.	80	95	61.1	6.4	67
			Artic. Tr.	61	97	60.2	5.4	63
60	Omnibuses	10	-	51.5	8.7	-		
	Motor Cycles	0	-	-	-	-		
29-1	4-lane divided Arterial	60	Cars etc. *	207	91	72.3	10.0	83
			Cars*towing	8	-	65.5	9.1	-
		50	Rigid Tr.	80	85	59.2	7.8	66
			Artic. Tr.	11	-	63.3	5.5	-
60	Omnibuses	15	-	54.5	8.3	-		
	Motor Cycles	0	-	-	-	-		

* Cars plus Car-derivatives.

TABLE C-3. Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
30-1	2-lane Arterial	60	Cars etc. *	174	85	69.0	8.1	76
			Cars*towing	6	-	63.7	14.1	-
			Rigid Tr.	69	94	59.8	7.1	67
			Artic. Tr.	13	-	58.5	12.3	-
			Omnibuses	5	-	51.6	10.4	-
60	Motor Cycles	0	-	-	-	-		
30-2	2-lane Arterial	60	Cars etc. *	185	91	69.0	6.7	75
			Cars*towing	6	-	68.2	8.1	-
			Rigid Tr.	59	97	63.6	7.2	70
			Artic. Tr.	7	-	60.1	8.0	-
			Omnibuses	9	-	52.9	7.2	-
60	Motor Cycles	0	-	-	-	-		
31-1	4-lane Arterial	60	Cars etc. *	229	93	71.6	8.5	81
			Cars*towing	11	-	73.5	15.3	-
			Rigid Tr.	88	93	63.0	7.6	72
			Artic. Tr.	98	100	64.5	7.3	72
			Omnibuses	3	-	64.7	3.1	-
60	Motor Cycles	0	-	-	-	-		
31-2	4-lane Arterial	60	Cars etc. *	188	93	70.6	7.8	79
			Cars*towing	5	-	70.8	9.7	-
			Rigid Tr.	84	82	59.0	9.1	70
			Artic. Tr.	85	76	56.1	8.9	66
			Omnibuses	1	-	57.0	-	-
60	Motor Cycles	0	-	-	-	-		

* Cars plus Car-derivatives.

TABLE C-3 continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
32-1	6-lane divided Arterial	60	Cars etc. *	160	89	69.3	7.9	76
			Cars*towing Rigid Tr.	12	-	56.4	5.4	-
			Artic. Tr.	75	85	59.6	8.7	67
		50	Artic. Tr.	43	88	57.5	7.2	63
			Omnibuses	5	-	64.4	3.8	-
			Motor Cycles	4	-	74.3	14.8	-
32-2	6-lane divided Arterial	60	Cars etc. *	160	94	70.8	8.4	80
			Cars*towing Rigid Tr.	19	-	65.0	8.9	-
			Artic. Tr.	79	91	62.5	8.8	71
		50	Artic. Tr.	21	95	64.4	7.4	70
			Omnibuses	1	-	56.0	-	-
			Motor Cycles	1	-	69.0	-	-
			Cars etc. *					
			Cars*towing Rigid Tr.					
			Artic. Tr.					
			Omnibuses					
			Motor Cycles					

* Cars plus Car-derivatives.

TABLE C-3 Continued

APPENDIX D - QUEENSLAND DATA

The collection and analysis of urban speed data in Queensland were arranged by the Traffic Branch of the Police Department and carried out by the Main Roads Department. The survey covered 13 site-locations in Brisbane during December 1979 and provided 22 speed measurements (site-directions). The data are summarised in Table D-1 to D-3.

No site numbering was used, so that the sampled speed data in Table D-3 are taken directly from the January 1980 computer printout in the order given, and sites have been assigned arbitrary numbers from 1 to 22. The additional data for Tables D-1 to D-2 have been taken from the site survey forms. Road type - e.g. arterial, distributor, local - was not always recorded.

The computer printout included the following speed data in addition to the figures given in Table D-3:

lowest
highest
histogram.

The traffic sample sizes (for speed measurement) given in Tables D-2 and D-3 are taken from the computer printout, but the traffic counts in Table D-2 are from the survey forms.

Sites have been allocated to road classes (see Table 3 in text) as follows):-

Freeway, 80 - 1, 2, 21 and 22.
Divided Arterial, 70 - 8 and 9.
Divided Arterial, 60 - 6, 13, 14, 15, 16, 19 and 20.
Undiv. Arterial, 60 - 3, 7, 17 and 18.
Non-Arterial, 60 - 4, 5, 10, 11 and 12.

It should be noted that Sites 21 and 22 are included in the Freeway, 80 class, although they are at the end of a Freeway.

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
1	4-lane Freeway	80	South-East Freeway (near Gasworks)	Residential	5.5 (2 lanes)	3m emergency parking lane. 1 m paved median shoulder. Edge marking.
2	4-lane Freeway	80	South-East Freeway (adjacent to Cornwall St.)	Residential	5.5 (2 lanes)	
3	4-lane Arterial	60	Sandgate Road (near Noble/Kedron Streets)	Residential	7 (4 lanes)	Centreline marking
4	2-way 2-lane	60	Bayview Terrace (near Jolly Street)	Residential	10 (2 lanes)	Near school
5	2-way 2-lane	60	Bayview Terrace (near Jolly Street)	Residential	10 (2 lanes)	Near school
6	4-lane divided Arterial	60	Webster Road (near Babarra Street)	Residential	15 (4 lanes)	
7	4-lane Arterial	60	Sandgate Road (near Noble/Kedron Streets)	Residential	7 (4 lanes)	Centreline marking
8	4-lane divided Arterial	70	Sandgate Road (near Virginia Golf Course)	Commercial and Golf Course	4 ? (2 lanes)	2m shoulders
9	4-lane divided Arterial	70	Sandgate Road (near Virginia Golf Course)	Commercial and Golf Course	5 (2 lanes)	3.5m shoulders
10	2-way 2-lane	60	Ogden Street (near Midson St towards Stafford St)	Residential	8.6 (2 lanes)	

TABLE D-1 QUEENSLAND SITE LOCATION DATA

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
11	2-way 2-lane	60	Ogden Street (near Midson St towards Fogarty St)	Residential	8.6 (2 lanes)	
12	2-way 2-lane	60	Shand Street (near Grinstead Park)	Residential	6.4 (2 lanes)	3.7m shoulders. Centreline marking. Edge marking.
13	4-lane divided Arterial	60	Stafford Road (near Beaconsfield Terrace towards Gympie Road)	Commercial and Residential	13.4 (4 lanes)	
14	4-lane divided Arterial	60	Stafford Rd (near Beaconsfield Terrace towards Webster Road)	Commercial and Residential	13.4 (4 lanes)	
15	4-lane divided Arterial	60	Webster Road (near Barbara Street inbound)	Residential	15 (4 lanes)	
16	4-lane divided Arterial	60	Webster Road (near Barbara Street outbound)	Residential	15 (4 lanes)	
17	4-lane Arterial	60	Samford Road (near Blackwood Street inbound)	Residential	12.8 (4 lanes)	Centreline marking
18	4-lane Arterial	60	Samford Road (near Glenholme Street outbound)	Residential	12.8 (4 lanes)	Centreline marking
19	4-lane divided Arterial	60	Logan Road (near Wishart Road inbound)	Residential	7.5 (2 lanes)	
20	4-lane divided Arterial	60	Logan Road (at Wishart Road outbound)	Residential	7.7 (2 lanes)	

TABLE D-1 Continued

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
21	3-lane undivided Freeway	80	Western Freeway (0.5 km from Toowong end)	Bushland	13 (3 lanes)	No median. Edge marking. 3m shoulder.
22	3-lane undivided Freeway	80	Western Freeway (100 m from Toowong end)	Bushland	13 (3 lanes)	No median. Edge marking. 3m shoulder.
			(One inbound lane, two outbound lanes. Traffic lights 100m further inbound)			

TABLE D-1 Continued

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
1	4-lane Freeway	80	Outbound	Tues	4/12/79	0915 1200	3210	438	
2	4-lane Freeway	80	Inbound	Tues	4/12/79	1300 1600	4296	629	
3	4-lane Arterial	60	Outbound	Fri	7/12/79	0800 1000	1608	457	
4	2-way 2-lane	60	East	Mon	10/12/79	0830 1130	197	183	
5	2-way 2-lane	60	West	Mon	10/12/79	0830 1130	155	150	
6	4-lane divided Arterial	60	Inbound	Mon	10/12/79	1200 1345	1257	349	
7	4-lane Arterial	60	Inbound	Fri	7/12/79	1015 1215	1748	508	
8	4-lane divided Arterial	70	Inbound	Thur	6/12/79	1030 1200	1596	394	
9	4-lane divided Arterial	70	Outbound	Thur	6/12/79	0830 1015	1813	375	
10	2-way 2-lane	60	South	Mon	10/12/79	1200 1600	90	90	

TABLE D-2 QUEENSLAND SITE TRAFFIC DATA

00.

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
11	2-way 2-lane	60	North	Mon	10/12/79	1200 1600	71	69	
12	2-way 2-lane	60	Inbound	Mon	10/12/79	0845 1145	938	478	
13	4-lane divided Arterial	60	East	Fri	7/12/79	1100 1330	1071	379	
14	4-lane divided Arterial	60	West	Fri	7/12/79	0830 1045	1083	395	
15	4-lane divided Arterial	60	Inbound	Thur	6/12/79	1100 1300	1228	369	
16	4-lane divided Arterial	60	Outbound	Thur	6/12/79	0830 1030	1471	395	
17	4-lane Arterial	60	Inbound	Wed	5/12/79	1230 1500	1555	464	
18	4-lane Arterial	60	Outbound	Wed	5/12/79	0845 1130	1317	432	
19	4-lane divided Arterial	60	Inbound	Tues	4/12/79	1300 1430	1857	323	
20	4-lane divided Arterial	60	Outbound	Tues	4/12/79	0900 1200	3649	282	

TABLE D-2 Continued

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
21	3-lane undivided Freeway	80	Outbound	Wed	5/12/79	0845 1100	1227	397	
22	3-lane undivided Freeway	80	Inbound	Wed	5/12/79	1100 1300	894	356	

TABLE D-2 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
1	4-lane Freeway	80	Cars etc. *	285	45	80.1	8.0	88
			Cars*towing	-	-	-	-	-
			Rigid Tr.	95	37	77.5	8.5	88
			Artic. Tr.	28	39	79.3	6.9	86
			Omnibuses	11	-	75.1	5.1	-
			Motor Cycles	19	-	81.1	8.3	-
2	4-lane Freeway	80	Cars etc. *	471	45	80.1	8.1	88
			Cars*towing	3	-	73.7	6.9	-
			Rigid Tr.	95	22	75.3	7.8	84
			Artic. Tr.	26	38	78.2	9.1	89
			Omnibuses	9	-	75.6	7.8	-
			Motor Cycles	25	36	77.5	6.4	85
3	4-lane Arterial	60	Cars etc. *	316	51	60.5	6.9	67
			Cars*towing	5	-	53.0	4.3	-
			Rigid Tr.	103	16	53.8	7.2	61
			Artic. Tr.	8	-	53.3	5.2	-
			Omnibuses	22	5	52.0	6.8	59
			Motor Cycles	3	-	67.3	10.3	-
4	2-way 2-lane	60	Cars etc. *	177	13	50.2	9.7	60
			Cars*towing	-	-	-	-	-
			Rigid Tr.	4	-	53.3	3.0	-
			Artic. Tr.	1	-	38.0	-	-
			Omnibuses	-	-	-	-	-
			Motor Cycles	1	-	63.0	-	-

* Cars plus Car-derivatives.

TABLE D-3 QUEENSLAND SITE FIVE SPEED DATA

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
5	2-way 2-lane	60	Cars etc. *	147	19	52.5	8.8	62
			Cars*towing	-	-	-	-	-
			Rigid Tr.	2	-	45.5	3.5	-
			Artic. Tr.	-	-	-	-	-
			Omnibuses	-	-	-	-	-
			Motor Cycles	1	-	76.0	-	-
6	4-lane divided Arterial	60	Cars etc. *	259	59	61.9	8.3	70
			Cars*towing	3	-	61.3	4.1	-
			Rigid Tr.	72	22	55.3	7.1	64
			Artic. Tr.	8	-	49.4	6.2	-
			Omnibuses	2	-	48.0	10.0	-
			Motor Cycles	5	-	58.8	4.7	-
7	4-lane Arterial	60	Cars etc. *	361	43	60.1	7.8	68
			Cars*towing	9	-	55.2	5.9	-
			Rigid Tr.	103	21	55.5	7.2	63
			Artic. Tr.	11	-	57.5	6.1	-
			Omnibuses	16	-	52.3	6.1	-
			Motor Cycles	8	-	59.9	6.6	-
8	4-lane divided Arterial	70	Cars etc. *	268	20	65.0	7.5	73
			Cars*towing	7	-	58.6	4.6	-
			Rigid Tr.	84	7	59.3	7.1	69
			Artic. Tr.	24	13	63.7	8.7	73
			Omnibuses	5	-	57.2	5.9	-
			Motor Cycles	6	-	65.5	15.9	-

* Cars plus Car-derivatives.

TABLE D-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
9	4-lane divided Arterial	70	Cars etc. *	256	21	64.9	7.2	72
			Cars*towing	6	-	61.2	7.6	-
			Rigid Tr.	80	4	59.4	6.7	67
			Artic. Tr.	21	14	57.2	9.1	71
			Omnibuses	4	-	62.3	5.8	-
			Motor Cycles	8	-	60.1	6.0	-
10	2-way 2-lane	60	Cars etc. *	82	12	48.3	11.0	60
			Cars*towing	2	-	43.0	5.0	-
			Rigid Tr.	3	-	49.0	12.4	-
			Artic. Tr.	-	-	-	-	-
			Omnibuses	-	-	-	-	-
			Motor Cycles	3	-	47.3	9.9	-
11	2-way 2-lane	60	Cars etc. *	65	11	49.1	9.6	59
			Cars*towing	-	-	-	-	-
			Rigid Tr.	1	-	61.0	-	-
			Artic. Tr.	-	-	-	-	-
			Omnibuses	-	-	-	-	-
			Motor Cycles	3	-	42.7	8.3	-
12	2-way 2-lane	60	Cars etc. *	382	68	64.1	7.3	72
			Cars*towing	12	-	61.3	8.2	-
			Rigid Tr.	72	54	61.5	6.0	67
			Artic. Tr.	7	-	64.4	7.3	-
			Omnibuses	-	-	-	-	-
			Motor Cycles	5	-	69.0	7.5	-

* Cars plus Car-derivatives.

TABLE D-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
13	4-lane divided Arterial	60	Cars etc. *	288	34	57.4	7.7	65
			Cars*towing	8	-	55.8	7.2	-
			Rigid Tr.	69	26	54.0	7.6	63
			Artic. Tr.	6	-	45.2	7.8	-
			Omnibuses	3	-	52.7	9.0	-
			Motor Cycles	5	-	66.0	4.0	-
14	4-lane divided Arterial	60	Cars etc. *	309	49	60.2	7.7	68
			Cars*towing	3	-	58.3	6.6	-
			Rigid Tr.	68	26	55.0	7.6	65
			Artic. Tr.	7	-	54.4	6.7	-
			Omnibuses	5	-	55.6	6.0	-
			Motor Cycles	3	-	67.7	8.0	-
15	4-lane divided Arterial	60	Cars etc. *	276	47	60.1	6.5	67
			Cars*towing	3	-	55.7	4.5	-
			Rigid Tr.	79	22	55.4	7.0	64
			Artic. Tr.	5	-	59.6	6.3	-
			Omnibuses	4	-	52.3	3.8	-
			Motor Cycles	2	-	57.0	2.0	-
16	4-lane divided Arterial	60	Cars etc. *	303	47	60.1	6.4	67
			Cars*towing	1	-	64.0	-	-
			Rigid Tr.	77	23	55.4	7.0	64
			Artic. Tr.	9	-	56.1	9.9	-
			Omnibuses	4	-	49.0	1.2	-
			Motor Cycles	1	-	62.0	-	-

* Cars plus Car-derivatives.

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
17	4-lane Arterial	60	Cars etc. *	370	68	63.5	6.5	70
			Cars*towing	1	-	70.0	-	-
			Rigid Tr.	80	45	59.3	7.6	67
			Artic. Tr.	7	-	59.3	9.8	-
			Omnibuses	2	-	59.5	0.5	-
			Motor Cycles	4	-	67.8	2.5	-
18	4-lane Arterial	60	Cars etc. *	320	50	60.9	6.8	68
			Cars*towing	3	-	55.7	4.5	-
			Rigid Tr.	88	30	56.9	7.8	64
			Artic. Tr.	11	-	52.6	12.1	-
			Omnibuses	5	-	56.4	5.3	-
			Motor Cycles	5	-	61.0	3.8	-
19	4-lane divided Arterial	60	Cars etc. *	218	60	61.7	6.4	68
			Cars*towing	2	-	67.0	3.0	-
			Rigid Tr.	73	38	58.2	5.9	65
			Artic. Tr.	17	-	60.2	9.2	-
			Omnibuses	10	-	51.7	7.8	-
			Motor Cycles	3	-	68.0	10.8	-
20	4-lane divided Arterial	60	Cars etc. *	178	58	61.9	7.7	71
			Cars*towing	3	-	52.0	6.4	-
			Rigid Tr.	58	19	49.6	11.5	63
			Artic. Tr.	24	4	41.9	9.7	55
			Omnibuses	13	-	40.4	6.6	-
			Motor Cycles	6	-	64.2	5.8	-

* Cars plus Car-derivatives.

TABLE D-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
21	3-lane undivided Freeway	80	Cars etc. *	287	31	76.4	9.4	86
			Cars*towing	2	-	60.0	4.0	-
			Rigid Tr.	75	4	65.3	9.1	75
			Artic. Tr.	14	-	64.4	12.1	-
			Omnibuses	7	-	59.6	9.0	-
			Motor Cycles	12	-	80.1	12.9	-
22	3-lane undivided Freeway	80	Cars etc. *	268	49	80.4	8.9	90
			Cars*towing	4	-	76.8	2.8	-
			Rigid Tr.	61	21	74.8	7.1	83
			Artic. Tr.	17	-	74.1	7.8	-
			Omnibuses	1	-	66.0	-	-
			Motor Cycles	5	-	75.2	4.5	-
			Cars etc. *					
			Cars*towing					
			Rigid Tr.					
			Artic. Tr.					
			Omnibuses					
			Motor Cycles					
			Cars etc. *					
			Cars*towing					
			Rigid Tr.					
			Artic. Tr.					
			Omnibuses					
			Motor Cycles					

* Cars plus Car-derivatives.

TABLE D-3 Continued

APPENDIX E - SOUTH AUSTRALIAN DATA

The collection and analysis of urban speed data in SA were carried out by the Highways Department. The survey covered 15 site-locations in or near Adelaide during November and December 1979, providing 30 speed measurements (site-directions). Details are given in Tables E-1 to E-3.

The Department provided the summary statistics given in Table E-3, although some figures were computed by the author. Two speed measurements were obtained at every site-location, and these are labelled (a) and (b) in Tables E-2 and E-3.

Speed data were recorded to the nearest unit of mph, so that radar speed meter errors would be higher than those in other States.

Sites have been allocated to road classes (see Table 3 in text) as follows:-

Divided Arterial, 80	-	Sites 6012, 6458.
Divided Arterial, 60	-	Sites 6455-57, 6461.
Undiv. Arterial, 60	-	Sites 6053, 6463, 6466.
Non-Arterial, 60	-	Sites 6459, 6460, 6462, 6464, 6465, 6467.

It should be noted that all roads in the first two classes are recorded as NAASRA Class 6, and roads in the third class are recorded as NAASRA Class 7. In the fourth class, Sites 6460 and 6464 are NAASRA Class 7 and the remainder are NAASRA Class 8.

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
6012	6-lane divided Arterial	80	Main North Road (Elizabeth). 300m N of Hogarth Road	Open	11.0 (3 lanes)	Edge marking
6053	2-way 2-lane	60	Golden Grove Road, Redwood Park. 75m SW of Maughan Ave	Open	6.1	Shoulders - Table E-2. Centreline marking.
6455	4-lane divided Arterial	60	Grand Junction Road, Pennington. 300m W. of Eastern Parade	Commercial Open	9.0 (2 lanes)	
6456	6-lane divided Arterial	60	Portrush Road, Payneham. 10m. S. of Taylor Avenue.	Residential	8.5 (3 lanes)	2 lanes + Parking Lane
6457	6-lane divided Arterial	60	Hampstead Road, Northfield. 100m. S. of Pettitt Street	Residential	8.6 (3 lanes)	Edge marking 2 lanes + Parking Lane
6458	4-lane divided Arterial	80	Sherriff's Road, Morphett Vale. 100m. W. of Bus Stop 52.	Open	7.2 (2 lanes)	Edge marking 2.3m Shoulders
6459	2-way 2-lane	60	Ashley Road, Underdale. opp. Underdale Distributors	Residential	9.1	Shoulders - Table E-2.
6460	2-way 2-lane	60	Seacombe Road, Seacliffe Park 30m. W. of Burke Street	Residential	13.1	Centreline marking
6461	6-lane divided Arterial	60	Main South Road, Morphett Vale. 200m. S. of Connington Crescent	Commercial	10.0 (3 lanes)	2 lanes + Parking lane
6462	2-way 2-lane	60	Edward Street, Clarence Gardens. Opp. Esk Street	Residential	10.7	Shoulders - Table E-2.

TABLE E-1. S.A. SITE LOCATION DATA

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
6463	4-lane undivided	60	South Road, Edwardstown. 10m S. of Conmurra Avenue	Commercial Industrial	7.2 (2 lanes)	Centreline marking
6464	4-lane undivided	60	Holbrooks Rd, Flinders Park 50m N. of Westall Avenue	Residential	6.4 (2 lanes)	Centreline marking Shoulders - Table E-2
6465	2-way 2-lane	60	The Parade, Kensington Park 10m E. of Tobruk Avenue	Residential	8.5	
6466	2-way 2-lane	60	Cross Road, Clarence Park 30m E. of Gordon Road	Residential	12.0	Centreline marking
6467	2-way 2-lane	60	Walkerville Terrace, Walkerville. By Old Age Peoples Home.	Residential	12.0	Centreline marking

TABLE E-1. S.A. SITE LOCATION DATA

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
6012 (a)	6-lane divided Arterial	80	South	Thur	29/11/79	1100 1200	717	233	
6012 (b)	6-lane divided Arterial	80	North	Thur	29/11/79	1100 1200	628	229	
6053 (a)	2-way 2-lane	60	South	Fri	30/11/79	0930 1115	443	337	1.2m shoulder*
6053 (b)	2-way 2-lane	60	North	Fri	30/11/79	0930 1115	430	243	2.3m shoulder*
6455 (a)	4-lane divided Arterial	60	East	Thur	6/12/79	1330 1430	635	239	
6455 (b)	4-lane divided Arterial	60	West	Thur	6/12/79	1330 1430	640	238	
6456 (a)	5-lane divided Arterial	60	South	Thur	6/12/79	1115 1245	594	238	
6456 (b)	6-lane divided Arterial	60	North	Thur	6/12/79	1115 1245	701	201	
6457 (a)	6-lane divided Arterial	60	North	Fri	30/11/79	1215 1345	908	315	
6457 (b)	6-lane divided Arterial	60	South	Fri	30/11/79	1215 1345	734	212	

* May be footpaths

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
6458 (a)	4-lane divided Arterial	80	East	Tues	11/12/79	1215 1400	679	234	
6458 (b)	4-lane divided Arterial	80	West	Tues	11/12/79	1215 1400	713	239	
6459 (c)	2-way 2-lane	60	West	Tues	11/12/79	1045 1530	578	422	2.8m shoulder*
6459 (b)	2-way 2-lane	60	East	Tues	11/12/79	1045 1530	520	351	3.1m shoulder*
6460 (a)	2-way 2-lane	60	East	Tues	11/12/79	1030 1530	1016	224	
6460 (b)	2-way 2-lane	60	West	Tues	11/12/79	1030 1530	1041	235	
6461 (a)	6-lane divided Arterial	60	South	Tues	11/12/79	0945 1145	1880	254	
6461 (b)	6-lane divided Arterial	60	North	Tues	11/12/79	0945 1145	1636	255	
6462 (a)	2-way 2-lane	60	East	Wed	12/12/79	1115 1600	624	243	4.2m shoulder*
6462 (b)	2-way 2-lane	60	West	Wed	12/12/79	1115 1600	529	251	3.4m shoulder*

TABLE E-2. Continued

* May be footpaths

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
6463 (a)	4-lane undivided	60	South	Wed	12/12/79	1400 1545	1279	247	
6463 (b)	4-lane undivided	60	North	Wed	12/12/79	1400 1545	1532	237	
6464 (a)	4-lane undivided	60	South	Thur	13/12/79	1415 1545	736	244	4.0m shoulder*
6464 (b)	4-lane undivided	60	North	Thur	13/12/79	1415 1545	724	241	3.6m shoulder*
6465 (a)	2-way 2-lane	60	West	Thur	13/12/79	0915 1515	1489	232	
6465 (b)	2-way 2-lane	60	East	Thur	13/12/79	0915 1515	1615	239	
6466 (a)	2-way 2-lane	60	East	Thur	13/12/79	1030 1330	1421	239	
6466 (b)	2-way 2-lane	60	West	Thur	13/12/79	1030 1330	1845	244	
6467 (a)	2-way 2-lane	60	S. West	Tues	11/12/79	0845 1345	924	379	
6467 (b)	2-way 2-lane	60	N. East	Tues	11/12/79	0845 1345	613	325	

* May be footpaths

TABLE E-2. Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
6012 (a)	6-lane divided Arterial	80	Cars etc. *	142	18	75.3	7.3	83
			Cars*towing	5	-	64.3	9.7	-
			Rigid Tr.	56	2	68.0	7.6	76
			Artic. Tr.	16	-	66.8	10.3	-
			Omnibuses	4	-	72.8	8.8	-
			Motor Cycles	10	-	87.7	8.0	-
6012 (b)	6-lane divided Arterial	80	Cars etc. *	148	22	75.2	7.9	83
			Cars*towing	0	-	-	-	-
			Rigid Tr.	52	4	71.2	8.3	80
			Artic. Tr.	21	19	73.9	6.7	81
			Omnibuses	4	-	69.6	10.6	-
			Motor Cycles	4	-	79.2	5.3	-
6053 (a)	2-way 2-lane	60	Cars etc. *	255	93	71.3	8.1	80
			Cars*towing	0	-	-	-	-
			Rigid Tr.	61	80	66.5	7.3	74
			Artic. Tr.	14	-	68.3	4.5	-
			Omnibuses	4	-	57.9	3.5	-
			Motor Cycles	3	-	76.2	4.1	-
6053 (b)	2-way 2-lane	60	Cars etc. *	164	91	71.9	8.7	81
			Cars*towing	0	-	-	-	-
			Rigid Tr.	61	77	66.9	7.5	75
			Artic. Tr.	12	-	69.6	5.0	-
			Omnibuses	4	-	55.1	5.0	-
			Motor Cycles	2	-	66.0	25.0	-

* Cars plus Car-derivatives.

TABLE E-3. S.A. SITE FREE SPEED DATA

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
6455 (a)	4-lane divided Arterial	60	Cars etc. *	155	37	58.4	5.9	65
			Cars*towing	3	-	55.8	2.5	-
			Rigid Tr.	52	17	53.8	6.5	61
			Artic. Tr.	22	5	52.4	4.8	57
			Omnibuses	3	-	57.9	8.0	-
			Motor Cycles	4	-	52.3	3.4	-
6455 (b)	4-lane divided Arterial	60	Cars etc. *	160	26	58.7	8.2	67
			Cars*towing	1	-	61.1	-	-
			Rigid Tr.	51	10	54.0	4.9	59
			Artic. Tr.	23	9	52.6	4.3	57
			Omnibuses	3	-	52.0	2.5	-
			Motor Cycles	0	-	-	-	-
6456 (a)	6-lane divided Arterial	60	Cars etc. *	173	38	58.6	6.2	65
			Cars*towing	2	-	50.7	1.1	-
			Rigid Tr.	40	15	54.8	5.1	60
			Artic. Tr.	17	-	52.4	7.0	-
			Omnibuses	5	-	47.6	4.8	-
			Motor Cycles	1	-	62.8	-	-
6456 (b)	6-lane divided Arterial	60	Cars etc. *	159	48	60.1	6.1	66
			Cars*towing	1	-	49.9	-	-
			Rigid Tr.	28	11	53.0	4.9	58
			Artic. Tr.	6	-	56.1	3.4	-
			Omnibuses	4	-	53.5	2.4	-
			Motor Cycles	3	-	69.2	11.6	-

* Cars plus Car-derivatives.

TABLE E-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
6457 (a)	6-lane divided Arterial	60	Cars etc. *	224	65	63.8	7.5	72
			Cars*towing	0	-	-	-	-
			Rigid Tr.	60	48	59.8	6.0	66
			Artic. Tr.	12	-	57.5	5.5	-
			Omnibuses	7	-	59.6	4.7	-
			Motor Cycles	12	-	64.0	5.8	-
6457 (b)	6-lane divided Arterial	60	Cars etc. *	148	43	59.6	6.4	66
			Cars*towing	2	-	49.9	2.3	-
			Rigid Tr.	40	8	52.5	6.2	59
			Artic. Tr.	4	-	51.1	5.3	-
			Omnibuses	14	-	52.5	5.9	-
			Motor Cycles	4	-	51.9	9.5	-
6453 (a)	4-lane divided Arterial	80	Cars etc. *	151	2	66.8	7.0	74
			Cars*towing	0	-	-	-	-
			Rigid Tr.	63	0	59.2	8.0	67
			Artic. Tr.	12	-	57.0	8.2	-
			Omnibuses	5	-	59.2	6.9	-
			Motor Cycles	3	-	78.3	16.1	-
6458 (b)	4-lane divided Arterial	80	Cars etc. *	153	3	66.0	8.5	75
			Cars*towing	0	-	-	-	-
			Rigid Tr.	67	0	59.2	6.3	66
			Artic. Tr.	12	-	63.0	6.7	-
			Omnibuses	3	-	57.4	8.1	-
			Motor Cycles	4	-	62.8	7.3	-

* Cars plus Car-derivatives.

TABLE E-3. Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
6459 (a)	2-way 2-lane	60	Cars etc. *	344	28	56.6	7.1	64
			Cars*towing	0	-	-	-	-
			Rigid Tr.	60	2	48.6	5.9	55
			Artic. Tr.	3	-	56.9	10.3	-
			Omnibuses	14	-	51.5	7.8	-
Motor Cycles	1	-	54.7	-	-			
6459 (b)	2-way 2-lane	60	Cars etc. *	274	34	57.8	8.8	67
			Cars*towing	0	-	-	-	-
			Rigid Tr.	60	8	48.6	7.0	56
			Artic. Tr.	5	-	43.8	4.9	-
			Omnibuses	8	-	47.3	6.4	-
Motor Cycles	4	-	66.8	10.1	-			
6460 (a)	2-way 2-lane	60	Cars etc. *	157	38	58.6	5.8	65
			Cars*towing	0	-	-	-	-
			Rigid Tr.	54	7	50.8	5.9	57
			Artic. Tr.	9	-	55.2	5.2	-
			Omnibuses	0	-	-	-	-
Motor Cycles	4	-	58.3	9.2	-			
6460 (b)	2-way 2-lane	60	Cars etc. *	179	51	60.2	6.6	67
			Cars*towing	0	-	-	-	-
			Rigid Tr.	48	19	54.9	6.6	62
			Artic. Tr.	2	-	47.5	8.0	-
			Omnibuses	3	-	48.3	6.4	-
Motor Cycles	3	-	55.8	14.5	-			

* Cars plus Car-derivatives.

TABLE E-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
5461 (a)	6-lane divided Arterial	60	Cars etc. *	168	40	58.4	5.8	64
			Cars*towing	5	-	53.7	2.7	-
			Rigid Tr.	49	6	54.6	3.7	59
			Artic. Tr.	14	-	54.9	4.8	-
			Omnibuses	11	-	56.4	5.3	-
			Motor Cycles	7	-	55.6	6.1	-
5461 (b)	6-lane divided Arterial	60	Cars etc. *	174	42	58.7	5.6	65
			Cars*towing	0	-	-	-	-
			Rigid Tr.	62	10	55.1	4.6	60
			Artic. Tr.	12	-	52.3	5.9	-
			Omnibuses	3	-	54.2	7.9	-
			Motor Cycles	4	-	57.9	2.3	-
6462 (a)	2-way 2-lane	60	Cars etc. *	205	63	62.9	8.0	71
			Cars*towing	0	-	-	-	-
			Rigid Tr.	28	18	51.0	8.6	60
			Artic. Tr.	4	-	50.3	4.0	-
			Omnibuses	5	-	49.6	6.8	-
			Motor Cycles	1	-	54.7	-	-
6462 (b)	2-way 2-lane	60	Cars etc. *	216	78	65.9	8.3	74
			Cars*towing	0	-	-	-	-
			Rigid Tr.	27	37	56.6	8.5	65
			Artic. Tr.	2	-	66.8	3.4	-
			Omnibuses	5	-	49.2	3.5	-
			Motor Cycles	1	-	70.8	-	-

* Cars plus Car-derivatives.

TABLE E-3. Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
6463 (a)	4-lane undivided	60	Cars etc. *	166	28	57.5	5.6	63
			Cars*towing	0	-	-	-	-
			Rigid Tr.	58	10	52.3	5.9	58
			Artic. Tr.	10	-	49.9	4.6	-
			Omnibuses	12	-	53.7	5.2	-
			Motor Cycles	1	-	57.9	-	-
6463 (b)	4-lane undivided	60	Cars etc. *	157	24	55.9	6.1	62
			Cars*towing	1	-	62.8	-	-
			Rigid Tr.	64	5	52.2	4.8	57
			Artic. Tr.	5	-	46.3	4.3	-
			Omnibuses	9	-	47.6	4.4	-
			Motor Cycles	1	-	54.7	-	-
6464 (a)	4-lane undivided	60	Cars etc. *	162	31	57.5	5.3	63
			Cars*towing	1	-	49.9	-	-
			Rigid Tr.	61	5	51.7	5.7	58
			Artic. Tr.	10	-	49.9	8.0	-
			Omnibuses	8	-	52.9	3.3	-
			Motor Cycles	2	-	52.3	17.1	-
6464 (b)	4-lane undivided	60	Cars etc. *	160	41	59.4	6.2	66
			Cars*towing	0	-	-	-	-
			Rigid Tr.	65	26	55.7	7.1	63
			Artic. Tr.	7	-	50.6	5.2	-
			Omnibuses	7	-	54.0	7.6	-
			Motor Cycles	2	-	69.2	2.3	-

* Cars plus Car-derivatives.

TABIE E-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
6465 (a)	2-way 2-lane	60	Cars etc. *	163	56	61.6	6.7	69
			Cars*towing	0	-	-	-	-
			Rigid Tr.	41	22	55.9	6.6	63
			Artic. Tr.	1	-	56.3	-	-
			Omnibuses	27	37	58.0	5.9	64
			Motor Cycles	0	-	-	-	-
6465 (b)	2-way 2-lane	60	Cars etc. *	161	48	60.3	7.2	68
			Cars*towing	1	-	67.6	-	-
			Rigid Tr.	53	30	57.5	7.2	65
			Artic. Tr.	0	-	-	-	-
			Omnibuses	20	25	56.3	7.9	64
			Motor Cycles	4	-	59.9	12.8	-
6466 (a)	2-way 2-lane	60	Cars etc. *	155	28	57.3	6.0	63
			Cars*towing	0	-	-	-	-
			Rigid Tr.	53	0	52.0	4.6	57
			Artic. Tr.	9	-	51.0	5.6	-
			Omnibuses	15	-	51.2	4.3	-
			Motor Cycles	7	-	55.9	5.6	-
6466 (b)	2-way 2-lane	60	Cars etc. *	162	28	56.5	5.8	63
			Cars*towing	1	-	54.7	-	-
			Rigid Tr.	59	3	52.5	5.3	58
			Artic. Tr.	9	-	47.4	4.5	-
			Omnibuses	8	-	54.0	3.2	-
			Motor Cycles	5	-	56.6	6.3	-

* Cars plus Car-derivatives.

TABLE E-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
6467 (a)	2-way 2-lane	60	Cars etc. *	343	42	59.1	6.7	66
			Cars*towing	0	-	-	-	-
			Rigid Tr.	11	-	56.3	5.8	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	19	-	49.6	6.6	-
			Motor Cycles	6	-	59.0	6.6	-
6467 (b)	2-way 2-lane	60	Cars etc. *	287	57	62.2	7.0	69
			Cars*towing	0	-	-	-	-
			Rigid Tr.	21	29	55.8	8.4	65
			Artic. Tr.	0	-	-	-	-
			Omnibuses	13	-	50.6	5.9	-
			Motor Cycles	4	-	61.5	10.9	-
			Cars etc. *					
			Cars*towing					
			Rigid Tr.					
			Artic. Tr.					
			Omnibuses					
			Motor Cycles					
			Cars etc. *					
			Cars*towing					
			Rigid Tr.					
			Artic. Tr.					
			Omnibuses					
			Motor Cycles					

* Cars plus Car-derivatives.

TABLE E-3. Continued

APPENDIX F - WESTERN AUSTRALIAN DATA

The collection and analysis of urban speed data in WA was carried out by the Main Roads Department in cooperation with the Road Traffic Authority. The survey covered 11 site-locations in Perth during February 1980 and provided 18 speed measurements (site-directions). The data are summarised in Tables F-1 to F-3.

The Department provided summary statistics, where sample sizes were large, and these are given in Table F-3, (although corrections have been made to some figures which had obvious errors). Where sample sizes were small, summary statistics were computed by the author.

Speed data were recorded in multiples of 2 km/h. Site descriptions were recorded on the forms drawn up for the ACRUPTC rural speed survey in 1978/79, instead of the ACRUPTC urban forms (Appendix A), so that no land-use data were provided. Trucks were recorded as being lightly or heavily laden on the site description sheets, but not on the speed data sheets. Speeds of omnibuses and motorcycles were not measured.

The Department's summary statistics included the following speed data in addition to the figures given in Table F-3:-

lowest,
highest,
histogram (for cars).

Sites have been allocated to road classes (see Table 3 in text) as follows:-

Freeway, 80	-	17, 18 and 19
Divided Arterial, 70	-	15 and 16
Divided Arterial, 60	-	5, 6, 13 and 14
Undiv. Arterial, 60	-	1, 2, 3, 4, 7 and 8
Non-Arterial, 60	-	9, 11 and 12

It should be noted that Sites 3, 4, 13 and 14 are District Distributors, not "Arterials".

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
1,2	2-way 2-lane Arterial	60	Great Eastern Highway (H5), 8km east of Perth.	-	13.4	Centreline marking
3,4	2-way 2-lane Distributor	60	Hardey Road, 5 km east of Perth	-	13.4	Centreline marking
5,6	4-lane divided Arterial	60	Canning Highway, 16 km from Perth	-	7.4 (2 lanes)	
7,8	2-way 2-lane Arterial	50	Canning Highway, 2.4 km south of Perth	-	12.2	Centreline marking
9	2-way 2-lane Distributor	60	Mills Street, 7 km from Perth	-	5.5	
11,12	2-way 2-lane Distributor	60	Belmont Avenue, 4.4 km north of Perth	-	9.4	Centreline marking
13,14	4-lane divided Distributor	60	Kewdale Road, 11 km west of Perth	-	7.4 (2 lanes)	
15	4-lane divided Arterial	70	Wanneroo Road, 12 km from Wanneroo	-	7.4 (2 lanes)	
16	4-lane divided Arterial	70	Wanneroo Road, 9 km from Perth	-	7.4 (2 lanes)	
17,18	4-lane divided Freeway	80	Kwinana Freeway, 3.76 km from Perth	-	7.4 (2 lanes)	Edge marking

TABLE F-1 W.A. SITE LOCATION DATA

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
19,20	4-lane divided Freeway	80	Mitchell Freeway, 5.76 km from Perth	-	7.4 (2 lanes)	Edge marking

TABLE F-1 Continued

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
1	2-way 2-lane Arterial	60	East	Mon	18/2/80	0930 1215	1866	356	
2	2-way 2-lane Arterial	60	West	Mon	18/2/80	1400 1630	1603	336	
3	2-way 2-lane Distributor	60	North	Tues	19/2/80	0910 1210	1118	305	
4	2-way 2-lane Distributor	60	South	Tues	19/2/80	1345 1630	1885	318	
5	4-lane divided Arterial	60	West	Wed	20/2/80	0900 1200	2803	485	
6	4-lane divided Arterial	60	East	Wed	20/2/80	1355 1625	3041	503	
7	2-way 2-lane Arterial	60	North	Thur	21/2/80	0855 1155	1672	349	
8	2-way 2-lane Arterial	60	South	Thur	21/2/80	1345 1615	1412	316	
9	2-way 2-lane Distributor	60	Both ways	Thur	21/2/80	0900 1630	170	114	
10	-	-	-	-	-	-	-	-	

TABLE F-2 W.A. SITE TRAFFIC DATA

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
11	2-way 2-lane Distributor	60	North	Fri	22/2/80	0900 1200	779	289	
12	2-way 2-lane Distributor	60	South	Fri	22/2/80	1345 1630	1159	299	
13	4-lane divided Distributor	60	West	Fri	22/2/80	0900 1200	1345	486	
14	4-lane divided Distributor	60	East	Fri	22/2/80	1350 1620	1326	475	
15	4-lane divided Arterial	70	North	Mon	25/2/80	0910 1210	2508	475	
16	4-lane divided Arterial	70	South	Mon	25/2/80	1355 1625	2616	473	
17	4-lane divided Freeway	80	South	Tues	26/2/80	0900 1200	4195	492	
18	4-lane divided Freeway	80	North	Tues	26/2/80	1350 1620	4369	494	
19	4-lane divided Freeway	80	North	Wed	27/2/80	0900 1200	1742	483	
20	-	-	-	-	-	-	-	-	

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
1	2-way 2-lane Arterial	60	Cars etc. *	200	70	64.4	7.0	71
			Cars*towing	6	-	56.7	11.2	-
			Rigid Tr.	75	72	62.3	9.6	69
			Artic. Tr.	75	56	61.4	5.9	69
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
2	2-way 2-lane Arterial	60	Cars etc. *	200	75	65.9	8.6	72
			Cars*towing	3	-	62.0	7.2	-
			Rigid Tr.	74	57	62.2	10.4	71
			Artic. Tr.	59	42	60.4	4.5	64
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
3	2-way 2-lane District Distributor	60	Cars etc. *	200	72	64.9	6.7	71
			Cars*towing	6	-	58.7	9.9	-
			Rigid Tr.	75	49	61.4	6.9	69
			Artic. Tr.	24	33	59.8	4.9	65
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
4	2-way 2-lane District Distributor	60	Cars etc. *	200	77	65.1	5.7	71
			Cars*towing	18	-	59.4	5.4	-
			Rigid Tr.	75	51	61.0	6.5	67
			Artic. Tr.	25	32	60.0	5.6	67
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-

* Cars plus Car-derivatives.

TABLE F-3 W.A. STATE FREE SPEED DATA

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
5	4-lane divided Arterial	60	Cars etc. *	200	69	64.1	6.2	68
			Cars*towing	41	49	61.1	5.1	68
			Rigid Tr.	200	48	61.3	7.4	69
			Artic. Tr.	44	34	59.0	6.1	65
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
6	4-lane divided Arterial	60	Cars etc. *	200	80	65.8	6.8	71
			Cars*towing	46	61	62.2	6.9	69
			Rigid Tr.	200	58	61.9	6.7	69
			Artic. Tr.	57	32	58.0	7.1	67
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
7	2-way 2-lane Arterial	60	Cars etc. *	200	41	60.3	6.1	65
			Cars*towing	0	-	-	-	-
			Rigid Tr.	100	25	56.7	6.6	64
			Artic. Tr.	49	16	54.2	6.6	62
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
8	2-way 2-lane Arterial	60	Cars etc. *	200	51	61.0	5.9	67
			Cars*towing	19	-	57.5	6.1	-
			Rigid Tr.	75	24	56.5	6.4	63
			Artic. Tr.	22	18	54.9	13.9	65
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-

* Cars plus Car-derivatives.

TABLE F-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
9	2-way 2-lane Local Distributor	60	Cars etc. *	100	55	61.7	10.8	71
			Cars*towing	1	-	50.0	-	-
			Rigid Tr.	11	-	59.2	12.5	-
			Artic. Tr.	2	-	51.0	4.2	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
10	-	-	Cars etc. *	-	-	-	-	-
			Cars*towing	-	-	-	-	-
			Rigid Tr.	-	-	-	-	-
			Artic. Tr.	-	-	-	-	-
			Omnibuses	-	-	-	-	-
Motor Cycles	-	-	-	-	-			
11	2-way 2-lane local Distributor	60	Cars etc. *	200	50	61.3	8.3	68
			Cars*towing	6	-	52.7	8.5	-
			Rigid Tr.	75	32	55.6	7.9	64
			Artic. Tr.	8	-	48.8	9.1	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
12	2-way 2-lane local Distributor	60	Cars etc. *	200	54	61.4	7.1	68
			Cars*towing	11	-	50.7	7.9	-
			Rigid Tr.	82	27	56.7	7.7	67
			Artic. Tr.	6	-	45.7	8.1	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-

TABLE F-3 Continued

* Cars plus Car-derivatives.

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
13	4-lane divided District Distributor	60	Cars etc. *	200	69	64.7	6.4	71
			Cars*towing	21	24	58.6	5.2	65
			Rigid Tr.	200	31	56.8	9.3	67
			Artic. Tr.	65	11	53.3	6.6	61
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
14	4-lane divided District Distributor	60	Cars etc. *	200	77	65.9	7.4	72
			Cars*towing	20	70	63.8	7.2	72
			Rigid Tr.	200	47	60.4	7.7	70
			Artic. Tr.	55	33	59.0	6.2	67
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
15	4-lane divided Arterial	70	Cars etc. *	200	29	67.5	5.5	72
			Cars*towing	55	11	63.9	5.9	69
			Rigid Tr.	200	16	64.6	6.7	72
			Artic. Tr.	20	15	61.0	8.0	70
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
16	4-lane divided Arterial	70	Cars etc. *	200	37	68.7	6.0	74
			Cars*towing	57	30	67.0	6.3	74
			Rigid Tr.	200	21	66.4	6.4	73
			Artic. Tr.	16	-	65.1	7.2	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-

* Cars plus Car-derivatives.

TABLE F-3 Continued

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
17	4-lane divided Freeway	80	Cars etc. *	200	41	79.8	6.5	84
			Cars*towing	59	19	74.1	7.7	79
			Rigid Tr.	200	15	74.9	6.8	80
			Artic. Tr.	33	9	71.3	7.4	79
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
18	4-lane divided Freeway	80	Cars etc. *	200	28	77.3	7.7	84
			Cars*towing	75	12	73.9	6.4	81
			Rigid Tr.	200	13	72.8	7.5	81
			Artic. Tr.	19	-	70.6	6.8	-
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
19	4-lane divided Freeway	80	Cars etc. *	200	40	79.8	6.9	85
			Cars*towing	45	36	77.5	7.9	85
			Rigid Tr.	200	25	75.8	8.0	85
			Artic. Tr.	38	39	78.0	9.0	86
			Omnibuses	0	-	-	-	-
			Motor Cycles	0	-	-	-	-
20	4-lane divided Freeway	80	Cars etc. *					
			Cars*towing					
			Rigid Tr.					
			Artic. Tr.					
			Omnibuses					

* Cars plus Car-derivatives.

TABLE F-3 Continued

APPENDIX G - TASMANIAN DATA

The collection of urban speed data in Tasmania was carried out by the Transport Commission and covered 5 sites in Hobart during November and December 1979. The data were not separated by direction of travel.

The data are given in Table G-1 to G-3. It should be noted that in Table G-2, traffic figures were given as ADT instead of counts during the survey period.

The summary statistics in Table G-3 were computed by the author from the survey field sheets.

Sites have been allocated to road classes (see Table 3 in text) as follows:-

Divided Arterial, 70	-	1.
Divided Arterial, 60	-	5.
Undiv. Arterial, 60	-	2 and 3.
Non-Arterial, 60	-	4.

It should be noted that Site 3 is a District Distributor not "Arterial".

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
1	4-lane divided Arterial	70	Brooker Highway, south of Derwent Park Road	Residential	9.7 (4 lanes)	Parking lanes
2	4-lane Arterial	60	Tasman Highway, east of Banks Street	Residential	11.7 (4 lanes)	Parking lanes. Centreline marking.
3	2-way 2-lane Distributor	60	Clarence Street, between High Street and River St	Residential	12.0 (4 lanes?)	Parking lanes. Centreline marking.
4	2-way 2-lane Distributor	60	Augusta Road, west of Bedford Street	Residential	12.6 (4 lanes?)	Parking lanes. Centreline marking. Priority Road.
5	4-lane divided Arterial	60	East Derwent Hwy, between Lenna and Ronnie Streets	Residential	13.2 (4 lanes)	Parking lanes.

TABLE G-1 TASMANIAN SITE LOCATION DATA

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Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
1	4-lane divided Arterial	70	Both ways	Tues	11/12/79	1430 1530	17575 ADT	350	
2	4-lane Arterial	60	Both ways	Thur	29/11/79	0900 1000	14570 ADT	340	
3	2-way 2-lane Distributor	60	Both ways	Thur	29/11/79	1100 1200	17654 ADT	381	
4	2-way 2-lane Distributor	60	Both ways	Thur	6/12/79	1200 1300	8960 ADT	260	
5	4-lane divided Arterial	60	Both ways	Tues	11/12/79	1100 1200	13950 ADT	283	

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
1	4-lane divided Arterial	70	Cars etc. *	247	31	67.7	9.1	75
			Cars*towing	3	-	59.0	14.8	-
			Rigid Tr.	58	9	61.3	7.0	68
			Artic. Tr.	21	0	59.5	7.0	67
			Omnibuses	16	-	62.6	7.1	-
			Motor Cycles	5	-	77.0	18.8	-
2	4-lane Arterial	60	Cars etc. *	266	33	57.1	8.5	65
			Cars*towing	0	-	-	-	-
			Rigid Tr.	48	4	52.4	7.1	58
			Artic. Tr.	7	-	54.3	2.5	-
			Omnibuses	12	-	52.8	8.6	-
			Motor Cycles	7	-	59.9	1.3	-
3	2-way 2-lane District Distributor	60	Cars etc. *	317	54	61.2	7.1	68
			Cars*towing	0	-	-	-	-
			Rigid Tr.	40	27	57.9	5.8	63
			Artic. Tr.	12	-	61.8	6.0	-
			Omnibuses	12	-	53.3	4.8	-
			Motor Cycles	0	-	-	-	-
4	2-way 2-lane local Distributor	60	Cars etc. *	250	24	56.2	7.1	63
			Cars*towing	0	-	-	-	-
			Rigid Tr.	7	-	49.3	6.1	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	3	-	48.3	6.0	-
			Motor Cycles	0	-	-	-	-

* Cars plus Car-derivatives.

TABLE G-3 TASMANIAN SITE FREE SPEED DATA

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
5	4-lane divided Arterial	60	Cars etc. *	235	76	65.3	8.5	71
			Cars*towing	4	-	59.8	3.6	-
			Rigid Tr.	31	74	64.7	6.5	70
			Artic. Tr.	6	-	68.5	4.3	-
			Omnibuses	6	-	58.5	4.0	-
			Motor Cycles	1	-	76.0	-	-
			Cars etc. *					
			Cars*towing					
			Rigid Tr.					
			Artic. Tr.					
			Omnibuses					
			Motor Cycles					
			Cars etc. *					
			Cars*towing					
			Rigid Tr.					
			Artic. Tr.					
			Omnibuses					
			Motor Cycles					

* Cars plus Car-derivatives.

TABLE G-3 Continued

APPENDIX H - AUSTRALIAN CAPITAL TERRITORY DATA

The collection and analysis of urban speed data was carried out by the Department of the Capital Territory. The survey covered 6 site-locations during November 1979, and provided 8 speed measurements (site-directions). Details are given in Tables H-1 to H-3.

The Department provided summary statistics, where sample sizes were large, and these are given in Table H-3, (although corrections have been made to some figures which had obvious errors). Where sample sizes were small, means and standard deviations were computed by the author.

The Department's summary statistics included the following speed data in addition to the figures given in Table H-3:-

- lowest,
- highest,
- 15th percentile,
- median,
- histogram.

It should be noted that urban speed limits for trucks in the ACT are:-

- 50 km/h for masses exceeding 3 but not 7 tonnes,
- 40 km/h for masses exceeding 7 tonnes.

Sites have been allocated to road classes (see Table 3 in text) as follows:-

Divided Arterial, 80 - 1, 2, 5 and 6.

Non-Arterial, 60 - 3, 4, 7 and 8.

It should be noted that Sites 5 and 6 are District Distributors, not "Arterials". In addition, it should be noted that Sites 1 and 2 are essentially Freeway standard.

Site No	Road Type	Speed Limit (km/h)	Location	Land Use	Pavement Width (m)	Notes
1	4-lane divided Arterial	80	Yarra Glen, north of Carruthers Street	Other *	8.7 (2 lanes)	Edge marking. 2m shoulders.
2	4-lane divided Arterial	80	Yarra Glen, north of Carruthers Street	Other *	10.8 (3 lanes)	Edge marking. 2.7m shoulders. 2 lanes + Bus Lane.
3	2-way 2-lane Distributor	60	Streeton Drive, south of Hindmarsh Drive	Residential	12.6	Centreline marking.
4	2-way 2-lane Distributor	60	Streeton Drive, west of Namatjira Drive	Residential	12.6	Centreline marking.
5	4-lane divided Distributor	80	Hayden Drive, north of Belconnen Way	Other *	7.3 (2 lanes)	
6	4-lane divided Distributor	80	Hayden Drive, north of Belconnen Way	Other *	7.5 (2 lanes)	
7	2-way 2-lane Collector	60	Maribyrnong Avenue, north of Ellenborough Street	Residential	10.7	Centreline marking.
8	2-way 2-lane Collector	60	Maribyrnong Avenue, south of Ellenborough Street	Residential	10.3	Centreline marking.

* Land Use details not given

Site No	Road Type	Speed Limit (km/h)	Traffic Headed	Survey Period			All Vehicles		Notes
				Day	Date	Hours	Traffic Count	Sample Size	
1	4-lane divided Arterial	80	South	Wed	14/11/79	1310 1615	1460	593	
2	4-lane divided Arterial	80	North	Fri	16/11/79	1300 1615	1239	422	
3	2-way 2-lane Distributor	60	South	Fri	16/11/79	0915 1230	371	254	
4	2-way 2-lane Distributor	60	West	Tues	20/11/79	1000 1230	162	156	
5	4-lane divided Distributor	80	North	Wed	21/11/79	0900 1230	668	338	
6	4-lane divided Distributor	80	South	Mon	26/11/79	0925 1230	944	544	
7	2-way 2-lane Collector	60	North	Mon	26/11/79	1400 1700	364	275	
8	2-way 2-lane Collector	60	West	Thur	29/11/79	0930 1230	313	213	

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
1	4-lane divided Arterial	80#	Cars etc. *	498	66	84.4	9.3	94
			Cars*towing	3	-	80.3	6.8	-
			Rigid Tr.	46	#	77.3	10.4	85
			Artic. Tr.	11	-	74.9	5.9	-
			Omnibuses	27	43	77.4	6.8	81
			Motor Cycles	8	-	81.6	6.4	-
2	4-lane divided Arterial	80#	Cars etc. *	332	61	83.5	10.0	94
			Cars*towing	0	-	-	-	-
			Rigid Tr.	49	#	75.9	14.0	85
			Artic. Tr.	0	-	-	-	-
			Omnibuses	35	71	79.2	3.4	82
			Motor Cycles	6	-	76.2	5.0	-
3	2-way 2-lane local Distributor	60	Cars etc. *	245	85	69.5	9.1	79
			Cars*towing	2	-	62.0	17.0	-
			Rigid Tr.	6	-	63.2	9.3	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	1	-	45.0	-	-
			Motor Cycles	0	-	-	-	-
4	2-way 2-lane local Distributor	60	Cars etc. *	145	72	65.4	10.1	77
			Cars*towing	5	-	66.0	6.8	-
			Rigid Tr.	0	-	-	-	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	1	-	59.0	-	-
			Motor Cycles	5	-	60.2	6.9	-

* Cars plus Car-derivatives.

Truck speed limit is 40 or 50 km/h, dependent upon truck mass.

TABLE II.3 A.C.T. SITE FREE SPEED DATA

SITE NO	ROAD TYPE	SPEED LIMIT (km/h)	VEHICLE TYPE	SAMPLE SIZE	% EXC. LIMIT	SPEED (km/h)		
						MEAN	SD	85th %ILE
5	4-lane divided District Distributor	80	Cars etc. *	299	40	78.2	9.1	87
			Cars*towing	4	-	77.5	12.6	-
			Rigid Tr.	19	-	64.3	11.8	-
			Artic. Tr.	3	-	66.0	4.6	-
			Omnibuses	10	-	65.7	8.2	-
			Motor Cycles	3	-	80.0	13.5	-
6	4-lane divided District Distributor	80#	Cars etc. *	492	39	78.1	8.8	87
			Cars*towing	3	-	79.3	14.2	-
			Rigid Tr.	29	#	60.0	13.0	72
			Artic. Tr.	2	-	73.5	3.5	-
			Omnibuses	13	-	64.2	7.3	-
			Motor Cycles	5	-	77.0	9.0	-
7	2-way 2-lane Collector	60	Cars etc. *	247	77	66.0	7.8	74
			Cars*towing	3	-	60.0	8.9	-
			Rigid Tr.	8	-	58.6	8.1	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	14	-	55.3	7.6	-
			Motor Cycles	3	-	65.7	13.2	-
8	2-way 2-lane Collector	60	Cars etc. *	177	73	66.3	8.4	74
			Cars*towing	1	-	70.0	-	-
			Rigid Tr.	19	-	60.5	10.7	-
			Artic. Tr.	0	-	-	-	-
			Omnibuses	13	-	58.8	8.9	-
			Motor Cycles	3	-	71.7	23.3	-

* Cars plus Car-derivatives.

Truck speed limit is 40 or 50 km/h, dependent upon truck mass.

TABLE H-3 Continued

TABLE 1 - TOTAL NUMBER OF VEHICLE-SPEED READINGS, BY TYPE OF VEHICLE

STATE/ TERRITORY	NSW	VIC	QLD	SA	WA	TAS	ACT	NT	AUST
NUMBER OF SITES									
	32	30	22	30	18	5	8		145
NUMBER OF VEHICLE-SPEED READINGS									
Cars etc.*	8361	5096	5886	5665	3500	1315	2435		32,258
Cars* towing	65	204	77	23	489	7	21		886
Rigid Trucks	1442	2498	1442	1505	2442	184	176		9,689
Artic.Trucks	342	1697	251	273	617	46	16		3,242
Omnibuses	78	184	123	247	0	49	114		795
Motorcycles	105	7	133	107	0	13	33		396
All Vehicles	10393	9686	7912	7820	7048	1614	2795		47,268

TABLE 2 - NUMBER OF SITES WITH 20 OR MORE VEHICLE-SPEED READINGS, BY TYPE OF VEHICLE

STATE/ TERRITORY	NSW	VIC	QLD	SA	WA	TAS	ACT	NT	AUST
Cars etc.*	32	30	22	30	18	5	8		145
Cars* towing	0	1	0	0	9	0	0		10
Rigid Trucks	25	30	18	29	17	4	3		126
Artic.Trucks	9	26	5	3	13	1	0		57
Omnibuses	0	2	1	2	0	0	2		7
Motorcycles	0	0	1	0	0	0	0		1
All Vehicles	66	89	47	64	57	10	13		346

* Cars plus Car-derivatives

TABLE 3 - NUMBER OF SITES BY ROAD CLASS

STATE/ TERRITORY	NSW	VIC	QLD	SA	WA	TAS	ACT	NT	AUST
Fwy.100	-	2	-	-	-	-	-	-	2
Fwy.80	2	-	4*	-	3	-	-	-	9
Div.Art.80	2	-	-	4	-	-	4#	-	10
Div.Art.75	-	8	-	-	-	-	-	-	8
Div.Art.70	-	-	2	-	2	1	-	-	5
Div.Art.60	14	9	7	8	4	1	-	-	43
Undiv.Art.75	-	4	-	-	-	-	-	-	4
Undiv.Art.60	4	7	4	6	6	2	-	-	29
Non-Art.60	10	-	5	12	3	1	4	-	35
All Roads	32	30	22	30	18	5	8	-	145

The actual sites allocated to these Classes are given in Appendices B to H.

District Distributors have been assigned to the relevant Arterial Classes.

* Includes 2 Sites (Nos. 21,22, see Appendix D) which could perhaps be placed in an Arterial Class.

Includes 2 Sites (Nos. 1,2, see Appendix H) which could perhaps be placed in the Freeway Class.

TABLE 4 - CAR*FREE SPEED PARAMETERS ON URBAN ROADS -
SIMPLE AVERAGES ACROSS SITES.

ROAD CLASS \ STATE	NSW	VIC	QLD	SA	WA	TAS	ACT	NT	AUST
NUMBER OF SITES									
Freeways (80,100)	2	2	4	0	3	0	0		11
Div.Arterials (>60)	2	8	2	4	2	1	4		23
Div.Arterials (60)	14	9	7	8	4	1	0		43
Undiv.Art. (60,75)	4	11	4	6	6	2	0		33
Non-Arterials (60)	10	0	5	12	3	1	4		35
All Roads	32	30	22	30	18	5	8		145
PERCENTAGE EXCEEDING SPEED LIMIT									
Freeways (80,100)	49	6	43	-	36	-	-		35
Div.Arterials (>60)	21	43	21	11	33	31	52		34
Div.Arterials (60)	70	91	51	42	74	76	-		66
Undiv.Art. (60,75)	85	61#	53	49	64	44	-		60
Non-Arterials (60)	75	-	25	47	53	24	77		55
All Roads	69	62	41	42	56	44	64		55
MEAN SPEED (KM/H)									
Freeways (80,100)	81	85	79	-	79	-	-		81
Div.Arterials (>60)	74	74	65	71	68	68	81		73
Div.Arterials (60)	65	71	61	60	65	65	-		65
Undiv.Art. (60,75)	70	69#	61	62	64	59	-		65
Non-Arterials (60)	66	-	53	60	62	56	67		62
All Roads	67	72	63	62	67	62	74		67
85TH PERCENTILE (KM/H)									
Freeways (80,100)	92	95	88	-	84	-	-		89
Div.Arterials (>60)	84	83	73	79	73	75	91		82
Div.Arterials (60)	73	79	68	66	71	71	-		72
Undiv.Art. (60,75)	78	76#	68	69	70	67	-		72
Non-Arterials (60)	75	-	63	67	69	63	76		70
All Roads	76	80	71	69	73	68	83		74

* Cars plus Car-Derivatives.

Averages of sites with 60 and 75 km/h speed limits - see Fig.4.

TABLE 5 - RIGID TRUCK FREE SPEED PARAMETERS ON URBAN
ROADS - SIMPLE AVERAGES ACROSS SITES

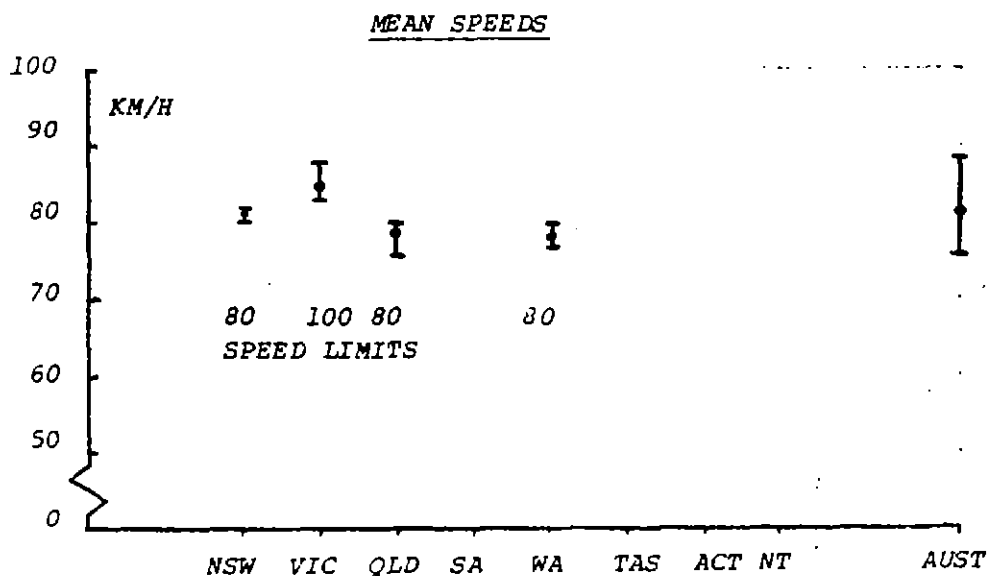
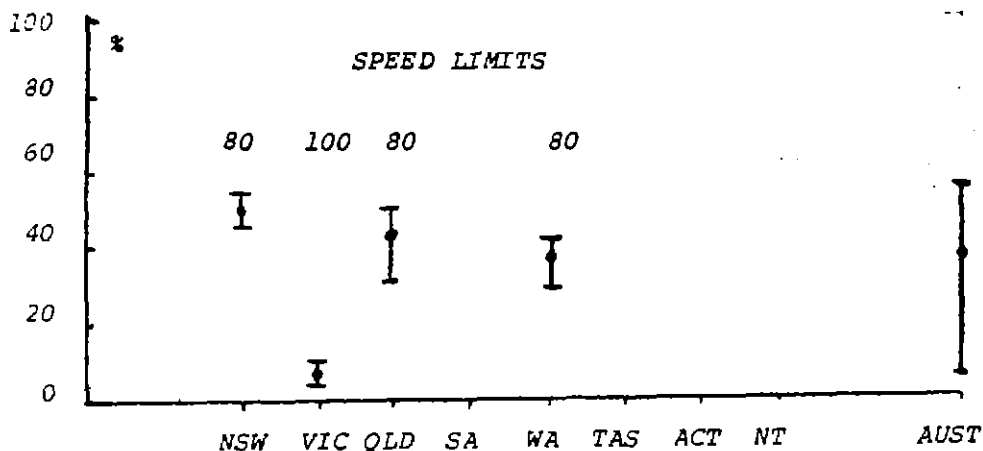
ROAD CLASS \ STATE	NSW	VIC	QLD	SA	WA	TAS	ACT	NT	AUST.
SITES WITH 20 OR MORE VEHICLE-SPEED READINGS									
Freeways (80,100)	1	2	4	0	3	0	0		10
Div.Arterials (>60)	2	8	2	4	2	1	3		22
Div.Arterials (60)	11	9	7	8	4	1	0		40
Undiv.Art. (60,75)	4	11	4	6	6	2	0		33
Non-Arterials (60)	7	0	1	11	2	0	0		21
All Roads	25	30	18	29	17	4	3		126
PERCENTAGE EXCEEDING SPEED LIMIT*									
Freeways (80,100)	24	22	21	-	18	-	-		20
Div.Arterials (>60)	3	36	6	2	19	9	NC		19
Div.Arterials (60)	41	90	25	16	46	74	-		45
Undiv.Art. (60,75)	63	61#	28	29	46	16	-		46
Non-Arterials (60)	42	-	54	19	30	-	-		29
All Roads	41	61	24	18	36	29	-		37
MEAN SPEED (KM/H)									
Freeways (80,100)	73	72	73	-	75	-	-		73
Div.Arterials (>60)	64	62	59	64	66	61	71		64
Div.Arterials (60)	59	61	55	55	60	65	-		58
Undiv.Art. (60,75)	63	59#	57	57	60	55	-		59
Non-Arterials (60)	58	-	62	54	57	-	-		56
All Roads	60	61	60	56	63	59	71		60
85TH PERCENTILE (KM/H)									
Freeways (80,100)	82	81	83	-	82	-	-		82
Div.Arterials (>60)	73	70	68	72	73	68	81		72
Div.Arterials (60)	68	68	64	60	69	70	-		66
Undiv.Art. (60,75)	72	67#	64	63	67	61	-		66
Non-Arterials (60)	67	-	67	61	66	-	-		64
All Roads	69	69	69	63	71	65	81		68

* Truck speed limits are posted speed limits, except in Victoria and ACT.

NC Not computed as speed limit depends on truck mass.

Averages of sites with 60, 75 km/h posted speed limits, i.e. 50 and 65 km/h truck speed limits.

PERCENTAGES EXCEEDING SPEED LIMITS



SYMBOLS ON ALL GRAPHS:-

- = AVERAGE OVER SITES
- I = RANGE OVER SITES

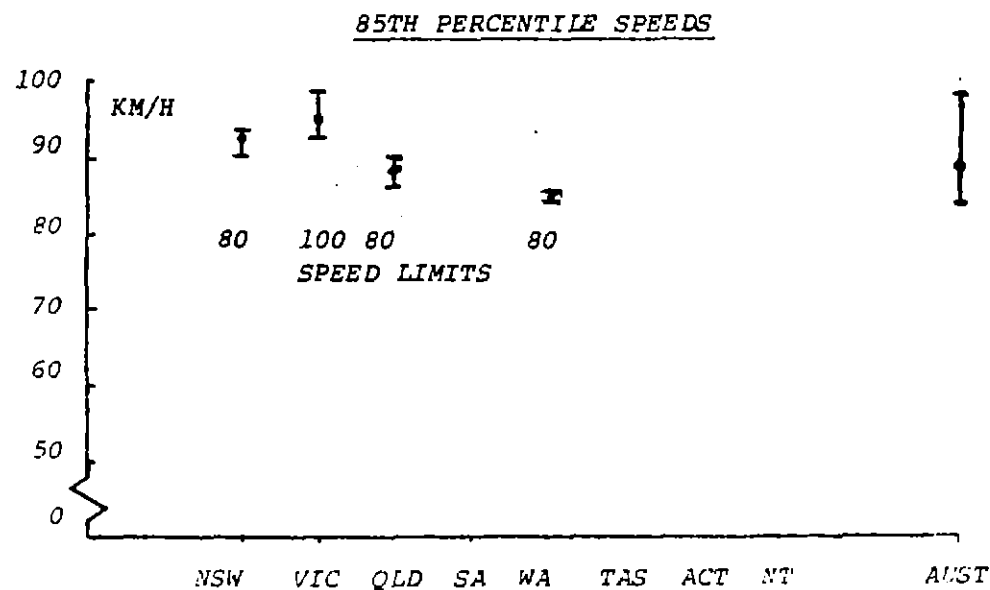
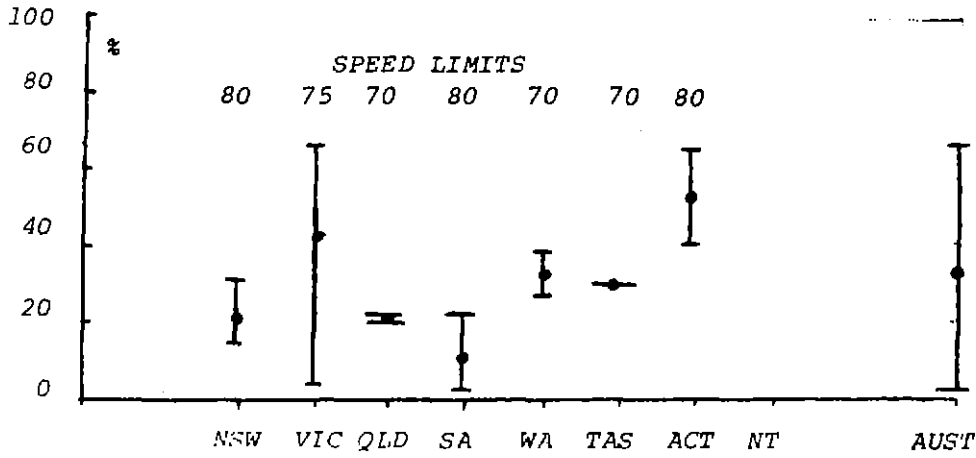


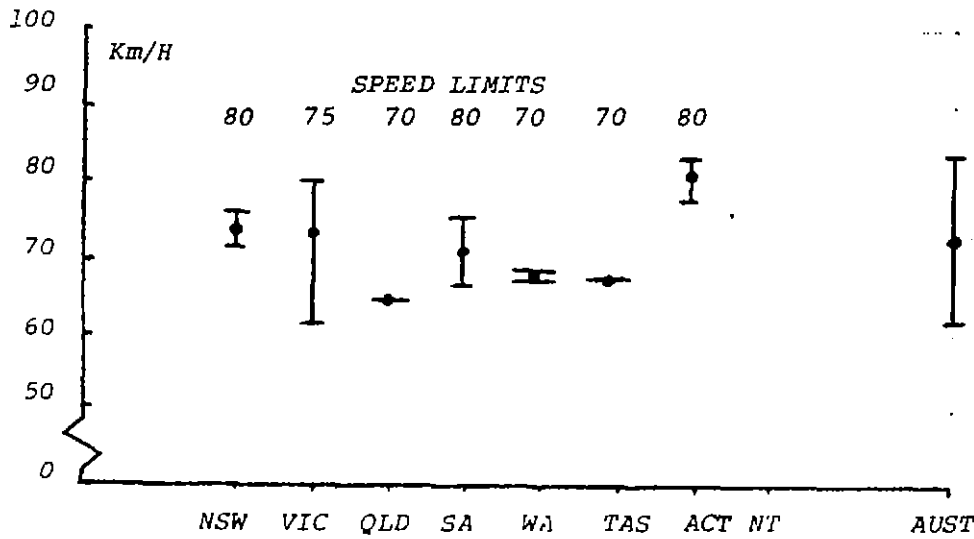
FIG. 1 - CAR FREE SPEEDS ACROSS SITES

- FREEWAYS (80, 100 Km/H)

PERCENTAGES EXCEEDING SPEED LIMITS



MEAN SPEEDS



SYMBOLS ON ALL
GRAPHS :-
● = AVERAGE
OVER SITES
| = RANGE OVER
SITES

85TH PERCENTILE SPEEDS

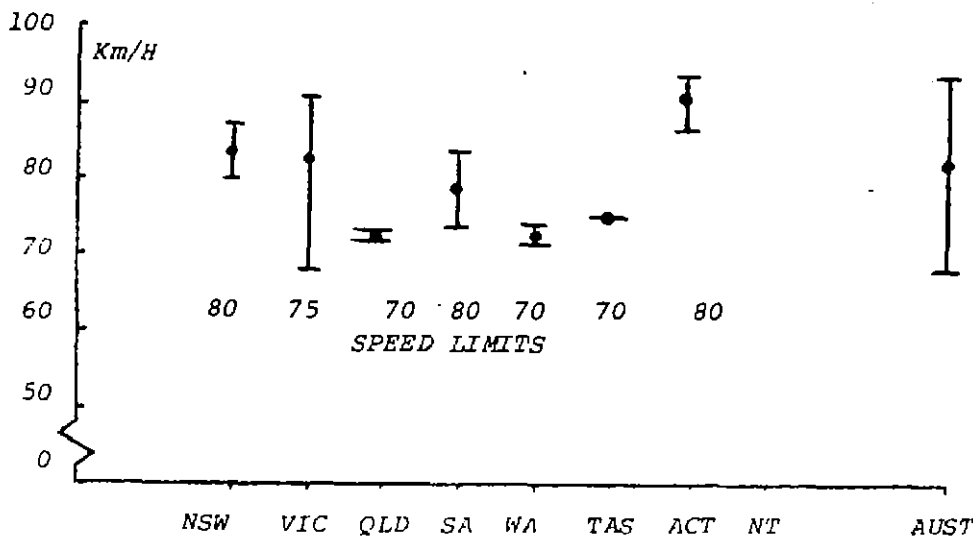
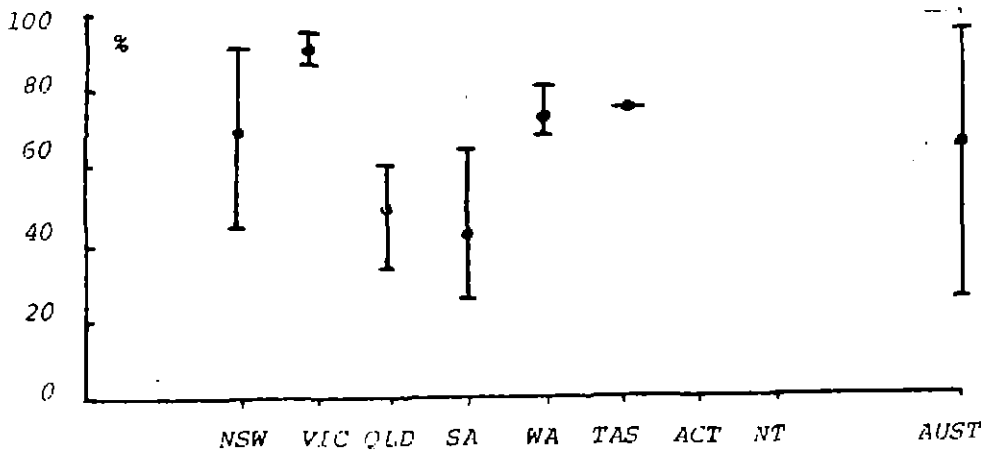


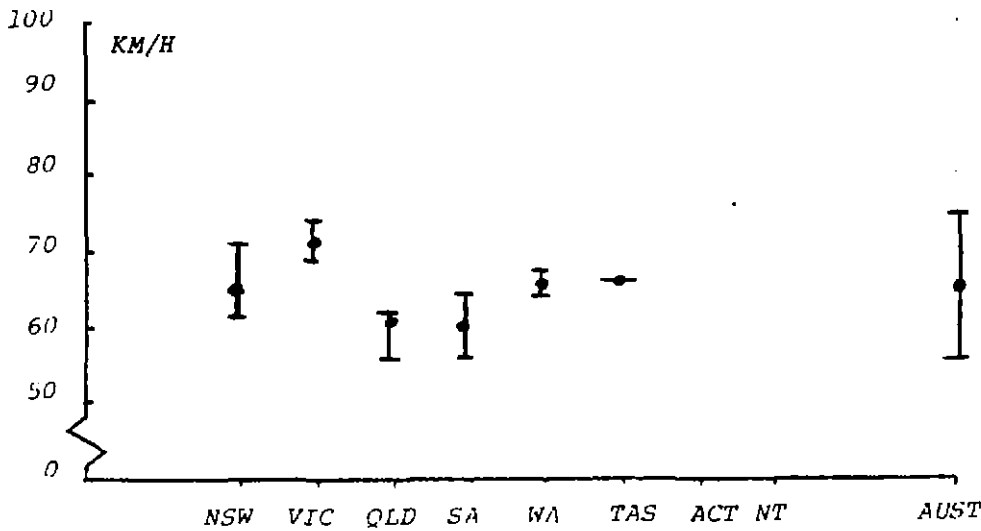
FIG 2 - CAR FREE SPEEDS ACROSS SITES

- DIVIDED ARTERIALS (ZONED ABOVE 60 KM/H)

PERCENTAGES EXCEEDING SPEED LIMITS



MEAN SPEEDS



85TH PERCENTILE SPEEDS

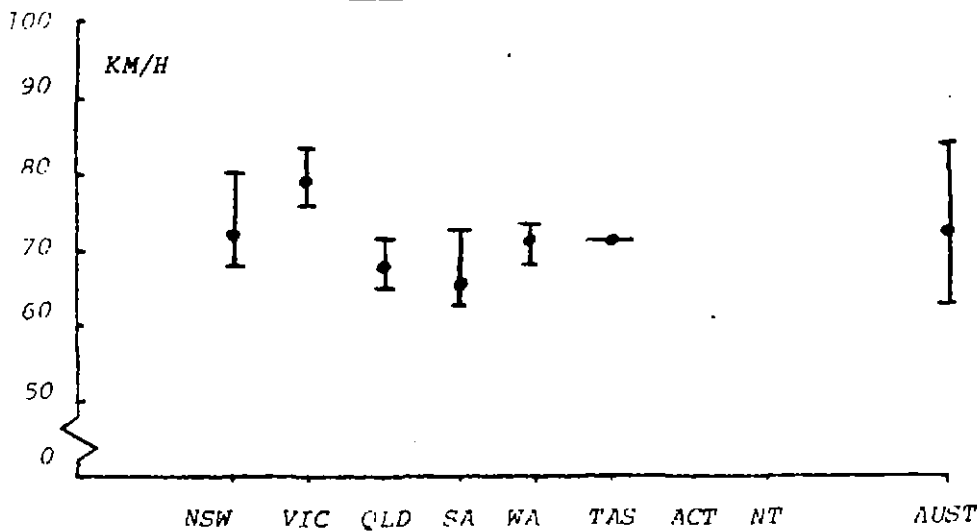


FIG. 3 - CAR FREE SPEEDS ACROSS SITES

- DIVIDED ARTERIALS (60 KM/H)

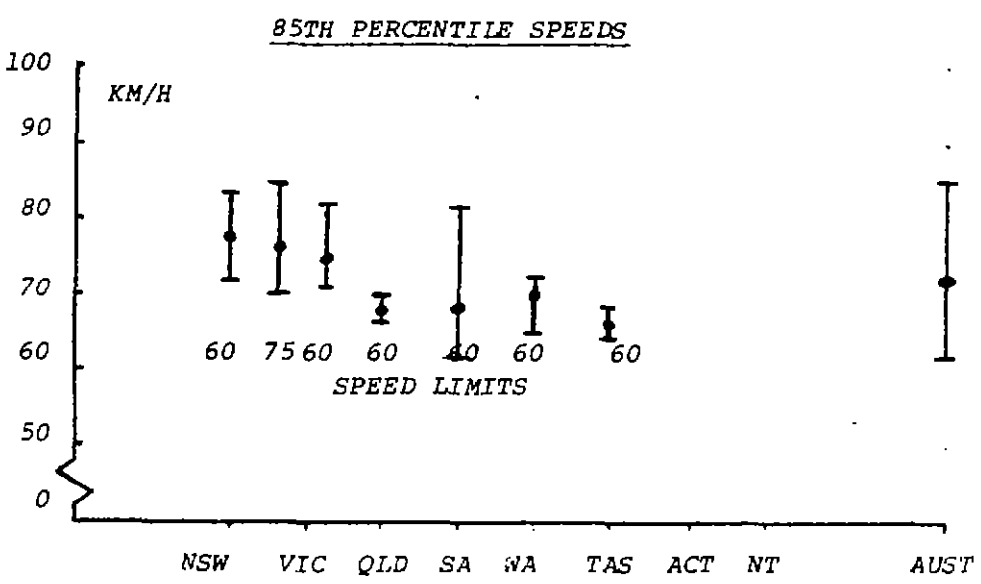
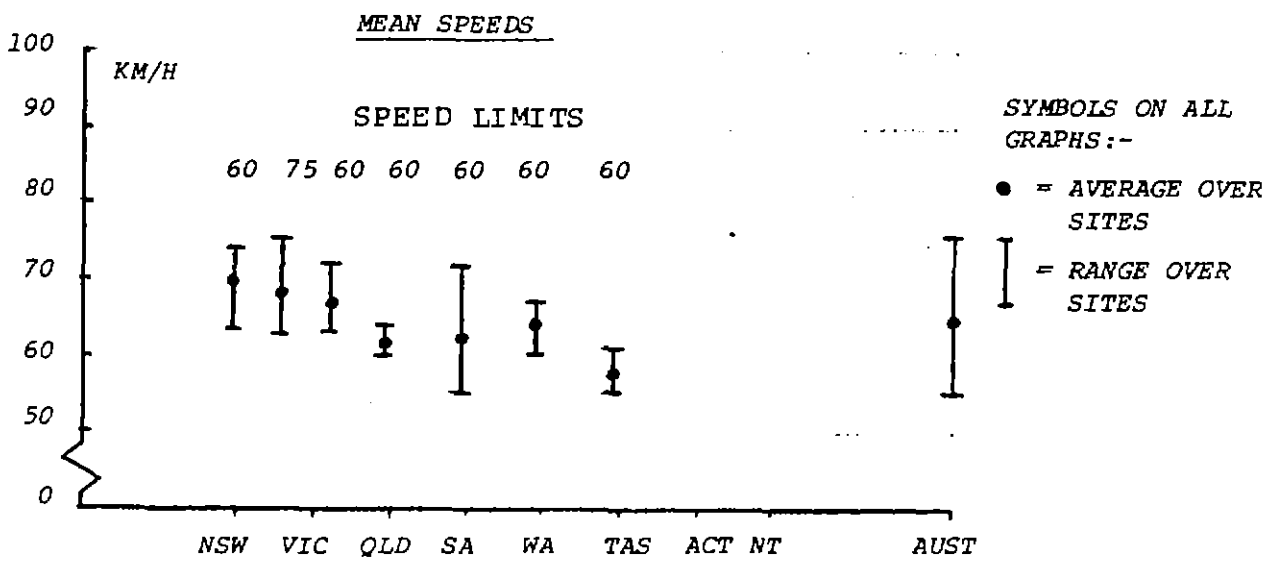
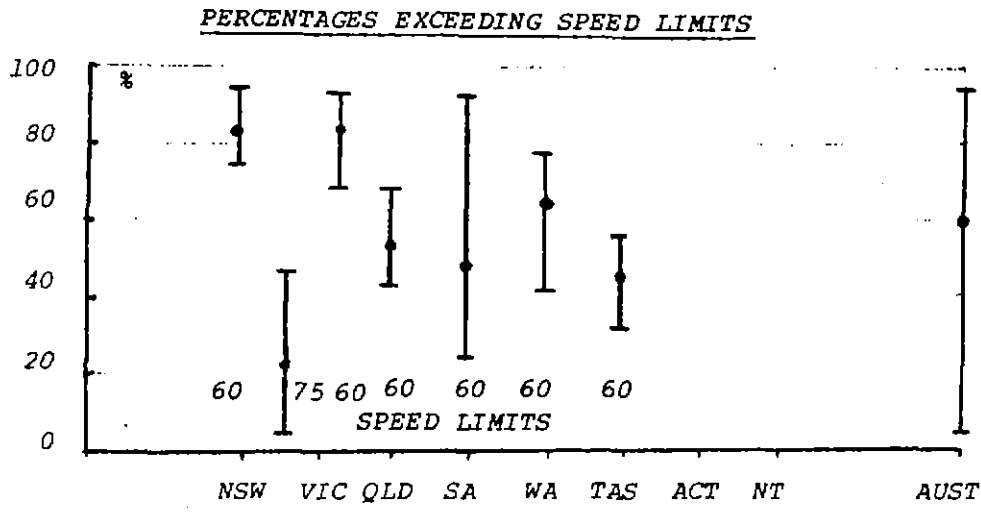
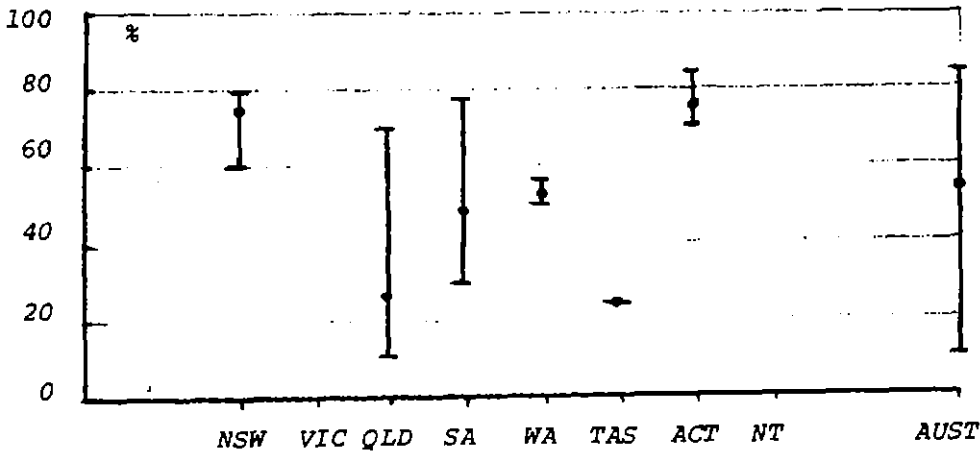
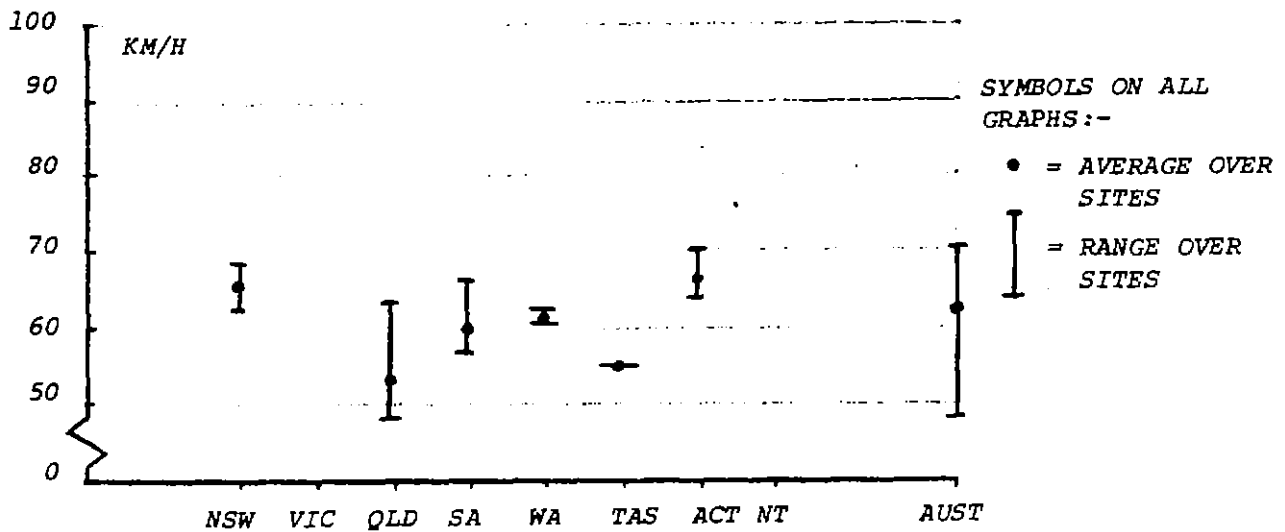


FIG. 4 - CAR FREE SPEEDS ACROSS SITES
- UNDIVIDED ARTERIALS (60,75 KM/H)

PERCENTAGES EXCEEDING SPEED LIMITS



MEAN SPEEDS



85TH PERCENTILE SPEEDS

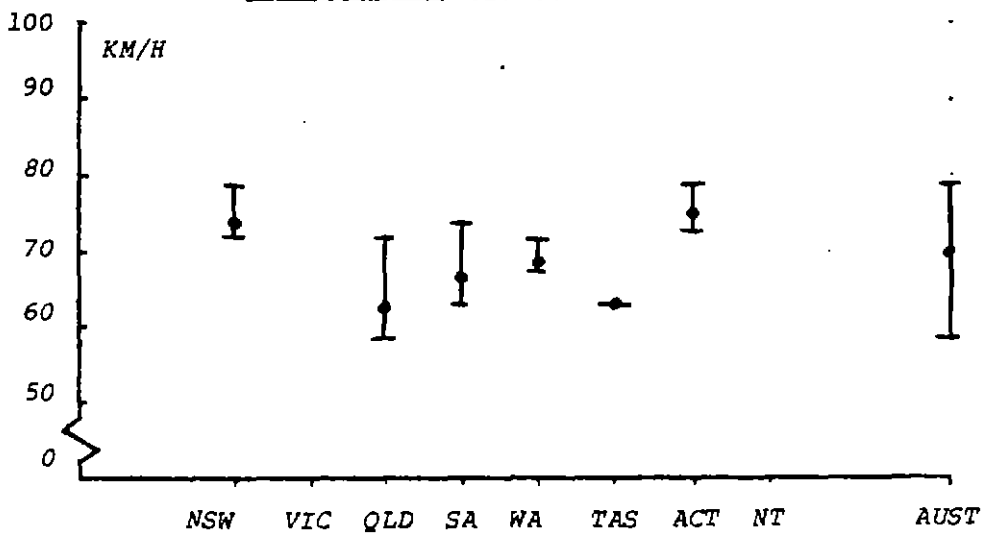


FIG. 5 - CAR FREE SPEEDS ACROSS SITES

- NON-ARTERIALS (60 KM/H)