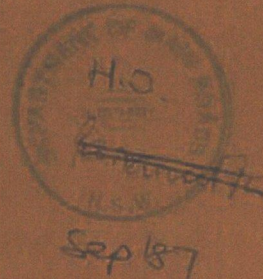


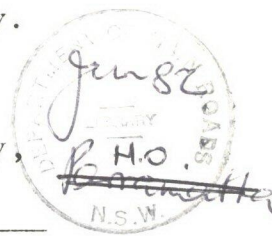
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F3 SYDNEY - NEWCASTLE
SLOW VEHICLE ANALYSES

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
Wahroonga to Wallsend. The percentage
volume of slow moving vehicles.

REFERENCE: Traffic Engineer's minute of 5th January,
1981.



Enclosed is a report on traffic flow analyses for
F3-Sydney-Newcastle Freeway.

The report is based on classification counts taken
either as a part of special surveys or during a process of
toll collections. This is further supplemented with data
from the Origin/Destination Survey (1975) and data from the
permanent counting station just north of the Toll Gates
(76.001).

A composition of traffic flow was analysed, as much
as the data would permit, with special attention being given
to heavy vehicles, slow vehicles, their daily and hourly
distribution, trend, weekly variability (mid week vs weekend)
as well as general traffic variability.

Major points of the report are:-

1. Relationship between the design hour and percentage
of heavy vehicles is not established (there is very
limited data on hourly distribution of heavy
vehicles).
2. Percentage of slow vehicles in daily traffic is
found to be between 14% and 22%. This is based on
a mean obtained from a lengthy period (normal
months in 1978 and 1979 were used).
3. Friday traffic has an increased component of cars
with trailers, while heavy vehicles do not show a
reduction in volume. Thus, it becomes a "heavy day".
4. Percentages of heavy vehicles and cars with trailers
are increasing, but the heavy vehicles are increasing
faster.
5. The Sydney/Newcastle region is a dominant generator
of heavy traffic. Its hourly pattern indicates
that (contrary to popular belief) 75%-79% of its
heavy vehicle daily traffic occurs in the day time
(4.00 a.m. - 6.00 p.m.).

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
Wahroonga to Wallsend. The percentage
volume of slow moving vehicles.

6. From 1976 and in six years, heavy vehicle traffic has increased by 53%-58%. This is a major increase.
7. On weekends there is a considerable traffic volume of slow vehicles. However, this is often unrecognised as their percentage is reduced. This is only a relative reduction due to a greatly increased number of cars using this recreational route.
8. Sydney-Newcastle Freeway is both a:
 - * heavy industrial, and
 - * heavy recreationalroute.

Consequently, it is RECOMMENDED:

- A. To accept a percentage of slow vehicles to be 16% as a minimum.
- B. Taking into account a steady increase in slow vehicle percentage, it is desirable to use 18% as a more appropriate value.
- C. To provide sufficient capacity to compensate for a great fluctuation in traffic. This occurs more and more.
- D. To retain the operational safety on sections with extensive grades by introducing an additional lane(s) to compensate for an increase in relative speed and extensive lane changes.



(A. Dimitric)
Supervising Engineer.

1. TRAFFIC ENGINEER.
2. ACTING CHIEF ENGINEER (T & D).

2 JUN 1981

F2 JUN 1981

F3 - SYDNEY/NEWCASTLE
SLOW VEHICLE ANALYSES
SUMMARY

HEAVY VEHICLES CLASSIFICATION
SINGLE DAY

(16.8.79)	Heavy	NB	23.1%
(TABLE 1)	Vehicles	SB	22.0%

HEAVY VEHICLES
MIDWEEK COUNTS

Daily
Average for 5 months in 1978 and 1979

					RANGE (veh; %)
(TABLE 4)	Slow	NB	1978	1367-1553	(12.7% - 21.6%)
	Vehicles		1979	1518-1735	(19.8% - 21.5%)
(TABLE 4)	Total	NB	1979/	increase	(1.8% - 19.9%)
(FIG.1)	Vehicles		1978		
(TABLE 5)	Heavy	NB	1978	1032-1190	(13.1% - 16.9%)
	Vehicles		1979	1160-1311	(14.8% - 16.7%)

SLOW VEHICLES
ON FRIDAYS

					RANGE (veh; %)
(TABLES	Slow	NB	1978	1420-3124	(11.7% - 15.6%)
6,7)	Vehicles		1979	1301-3900	(9.3% - 17.4%)
(TABLES		SB	1978	1344-4319	(13.8% - 17.9%)
8,9)			1979	1494-2343	(15.1% - 19.2%)

DESIGN HOUR AND
% HEAVY VEHICLES

		(VEHICLES)	
	Highest Hour	NB	SB
(TABLES 10, 11)	1st	2,360	2,500
	10th	2,210	2,290
	20th	2,110	2,230
	30th	2,020	2,180
	40th	1,950	2,130

DAYS OF WEEK WITH HIGHEST HOUR	
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
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19	19
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21	21
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91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

(TABLE 12)	21st - 40th Highest Hour:	16 on Public Holiday
		4 on School Holiday

(TABLES 13,14) Relationship between highest hour and average daily traffic not established.

HOURLY DISTRIBUTION OF HEAVY VEHICLES

(On 8/9 January, 1981
School Holidays)

(APPENDIX 'A')

NB	* Peak for cars	9a.m. - 10a.m.
		3p.m. - 6p.m.
	* Slow vehicles	12.7%
SB	* Heavy flow of cars	12 noon - 6p.m.
	* In the same period	
	two largest hourly	
	volumes of heavy	
	vehicles have occurred	
	* Slow vehicles	12.6%

DAILY DISTRIBUTION

December, 1979 and
December, 1980

(APPENDIX 'B')

- * There is a pattern for each vehicle class (cars, cars and trailers, heavy vehicles) alternating mid week to weekend traffic.
- * The last week in December is greatly affected by locations of the Christmas Day. When adjacent to weekend cars and cars with trailers show great increase.
- * Peaks for trucks alternate with peaks for cars with trailers with some overlapping on Fridays (for NB traffic only).

O/D SURVEY AND HOURLY
PATTERN OF HEAVY VEHICLES

(25th June, 1975 - Wed)

1. There are two distinctly different patterns.

(FIGURE 2 &
FIGURE 3)

(Heavy Vehicles 24 Hr Flow)

<u>REGION A</u>	<u>NB</u>	<u>SB</u>
Sydney-Newcastle	743 (74%)	696 (72%)
<u>REGION B</u>		
Interstate and North Coast	257 (26%)	273 (28%)
Combined	1,000 (100%)	969 (100%)

2. Sydney-Newcastle region pattern is dominantly daily traffic where 75%-79% occurs in the period 4.00 a.m. till 6.00 p.m.

CLASSIFICATION COUNT AND
HOURLY PATTERN FOR ALL
VEHICLES - F3

(29th April, 1981 - Wed)

(24 Hr Traffic)

(TABLES 15,16)

	<u>Slow Veh.</u>	<u>Total Veh.</u>
NB	1,906 (20.6%)	9,254 (100%)
SB	1,880 (20.4%)	9,224 (100%)

The hourly distribution, adjusted for proportion of traffic on S.H.10, is compared to the hourly distribution in 1975.

(FIGURE 4,
FIGURE 5)

1. The pattern of two surveys is similar
2. There is a major increase in Heavy Vehicle total traffic

	<u>1975</u>	<u>1981</u>
NB	1,000 veh/day	1,532 veh/day (+53%)
SB	969 veh/day	1,530 veh/day (+58%)

3. As expected, the increase is by far the largest in day time (obviously Sydney-Newcastle region is the most contributing factor).
4. This trend is expected to continue as the Newcastle region is being developed and, in particular, with a better freeway connection.

LANE USAGE

(TABLES 17,18) Lane usage is very good indicating proper discipline.

	<u>Heavy Veh.</u>	<u>Slow Veh.</u>
Kerb lane is used by	83%-89%	76%-89%

As cars are also using the kerb lane extensively (45%-51%) there must be a difference in speed, in particular, on up-hill sections. On these sections a considerable lane change is likely to take place, unless an additional lane is provided.

HEAVY VEHICLES DURING SCHOOL/NON SCHOOL HOLIDAYS

		<u>Slow Veh.</u>	<u>Total Traffic</u>
School Holidays	14.1.81 (Wed)	1,776 (14.6%)	12,170
	16.1.81 (Fri)	2,052 (11.5%)	17,901
	17.1.81 (Sat)	1,654 (83%)	20,037
Non School Holidays	29.4.81 (Wed)	1,906 (20.6%)	9,254

FUTURE TRAFFIC
FORECAST

(TABLE 21) Out of several, the best and the most
(FIGURE 7, conservative appears to be the logarithmic
FIGURE 8 curve. Applied to total flow on F3 between
FIGURE 9) 1967 and 1979 it gives a forecast till
2010 (30 year period).

Total traffic would double in that period
and factors of 1980/2010 for different
classes are:

	Cars with trailers	Heavy Vehicles	Slow Vehicles	Total Vehicles
f =	2.237	2.606	2.4575	2.002

VARIABILITY
OF TRAFFIC

1978 (July-Dec.)	NB	SB
Monthly	285,730 - 428,100	284,430 - 359,480
Average Daily	9,217 - 13,810	9,175 - 11,596
Average Peak Hr	1,489 - 2,150	1,990 - 2,360
1979 (12 months)		
Monthly	249,480 - 485,780	273,480 - 455,460
Average Daily	8,048 - 15,670	18,822 - 14,692
Average Peak Hr	1,370 - 2,360	2,070 - 2,400

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
Wahroonga to Wallsend. The percentage
volume of slow moving vehicles.

REFERENCE: Traffic Engineer's minute of 5th January, 1981.

INTRODUCTION

The design hour (DH) is usually the 30th highest hourly volume in a given year. This is a well accepted method in which the most economical solution is provided. A number of references is available. Major disruption to the flow is caused by high percentage of heavy vehicles or slow vehicles and presence of extensive grades.

The traffic counting system in N.S.W. is well established but seriously lacks information on vehicle classifications. Occasionally, manual counts are undertaken to establish percentage of heavy vehicles. However, these figures are sparse and usually give a percentage for a single day or at most for two days a year.

Further to the question of percentage of heavy vehicles, it should be known hourly distribution of heavy vehicles. It is also desirable to have some kind of relationship between proportion of heavy vehicles and design hour (DH).

Research through literature reveals existence of a number of papers relating AADT to DH but there is no relationship between percentage of HV and DH.

DATA AVAILABLE

Directional hourly traffic volume for F3 and SH.10 is readily available from the Permanent Station just north of Berowra Tollgates. Further, special classification counts carried out for the Commission of Enquiry on 16th August, 1979 are available and is shown in Table 1.

However, the former does not give the percentage of heavy vehicles while the latter groups heavy vehicles into two periods: Day and Night.

DATA COLLECTION

1. To compensate lack of hourly distribution, arrangements were made with the Toll Manager at Berowra Tollgates to obtain hourly classification by class of vehicles for 24 hours. This was possible as different tolls are collected for different classes of vehicles. Although possible, the money collecting system is not suitable for this task. Exceptional efforts were made by the Toll Manager and his staff to obtain this classification. It was collected for 24 hours from 8th January, 1981 at 11.00 p.m. till 9th January, 1981 at 11.00 p.m. during this year's summer school holidays.

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
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2. Daily records of vehicle classes at tolls do exist. It was arranged with the Toll Manager to supply this information for the years 1978, 1979 and 1980.
3. A special manual count was arranged for the long weekend of 23rd to 26th January, 1981. Simultaneously a new classifying counting machine (Trafficomp) just obtained at that time was also used over the same period as the manual counts. Due to shortage in manpower and to the way that the Trafficomp classifier performs, northbound traffic and southbound traffic could not have been measured at the same time. Instead northbound was counted on Friday and Saturday when the highest demand was present, while southbound was counted on Sunday and Monday (public holiday) when heavier demand existed for that direction.

DATA ANALYSIS

Hourly classification of traffic on 8th/9th January 1981 (Thursday/Friday) is shown in Appendix 'A'. From it, it could be seen:-

Northbound

1. There is a peak for cars 9.00 a.m. - 10 a.m. and 3.00 p.m. - 6.00 p.m.
2. Although heavy vehicles and cars with trailers are not too excessive in volume they still amount to 12.7%.

Southbound

1. There is a heavy flow of cars towards Sydney for seven hours (12 noon till 6.00 p.m.)
2. In the same period the two largest hourly volumes of heavy vehicles have occurred.
3. Heavy vehicles and cars with trailers amount to 12.6%.

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
Wahroonga to Wallsend. The percentage
volume of slow moving vehicles.

Daily classification of traffic at tollgates for December, 1979 and December, 1980 has been analysed and is shown in Appendix 'B'. It is well known that the Sydney-Newcastle Freeway is heavily used route for both: industrial traffic between Sydney/Newcastle region (as well as interstate) and heavy recreation traffic. From Appendix 'B' it could be seen that:-

1. A regular pattern exists for cars, cars with trailers and trucks.
2. Comparing December, 1979 to December, 1980, patterns are very similar with the exception that in the last week of December, 1980 there is much more traffic. This could be contributed to the position of Christmas Day which in 1979 was joined with Saturday and Sunday.
3. There is a noticeable increase in car with trailer traffic on northbound traffic in last week of December, 1980.
4. It is noticeable from truck patterns that peaks occur during Monday to Friday while cars and trailers have peak on Friday to Sunday periods.

From vehicle classification counts taken on Thursday 16th August, 1979 (shown in Table 1) could be seen:-

1. An overall percentage of heavy vehicles was -
NB 23%
SB 22%.

It should be noted that cars with trailers are not included in the above.

2. On that day northbound traffic had very similar percentage of heavy vehicles during daytime (22%) and nighttime (25%). However, the number of heavy vehicles at night was 269 while in the daytime it was 547. Similarly for the southbound traffic at night it was 30% and 578 vehicles and in the daytime 19% but 1068 vehicles.

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
Wahroonga to Wallsend. The percentage
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WEEKDAY TRAFFIC COMPOSITION

To establish percentage of heavy vehicles there is a need to separate weekends from midweek days. Further, as heavy volumes do occur regularly on long weekends and school holidays, an attempt has been made to analyse daily traffic for the month that has a minimum number of holidays in it. The source of data was a daily classification of vehicles from tollgates for the years 1978 and 1979, (see Tables 2 and 3). Five months were selected namely March, April, May, October and November and the percentage of heavy vehicles and cars with trailers were calculated for each week of every month.

A comparison of slow vehicle percentages from 1978 and 1979 is shown in Table 4. From this table it could be seen that:-

1. The percentage of slow vehicles has increased for each month from 9.5 to 26.6%.
2. The total traffic also has increased from 1.8% (May) to 19.9% (April). The same comparison is shown in Figure 1.
3. Heavy vehicle trend has been examined for the same months. A comparison between 1978 and 1979 is shown in Table 5. The average daily flow of heavy vehicles has increased for both northbound and southbound for each month. This is quite an important finding as averages were calculated from a considerable sample.

FRIDAY TRAFFIC COMPOSITION

As the route has both industrial and recreational characteristics there is some overlapping that usually occurs on Fridays. For that reason, Fridays from the months March, April, May, October and November were analysed from both years 1978 and 1979 (see Tables 6, 7, 8 and 9). It is noticeable that heavy vehicles in 1979 on average have increased and range between 1,114 and 1,343 heavy vehicles per Friday.

It should be also pointed out that in some special cases where cars and trailers increase two to three times the average, heavy vehicles are still presented in large proportions e.g. on Easter thursday (which was taken instead of Friday) in 1979 for northbound traffic, there were 1,400 heavy vehicles and 2,500 cars and trailers giving a total of 3,900 slow vehicles. As the percentage, this came only up to 15% due to heavy increase of total northbound traffic that came to 26,035 vehicles. Similarly the same

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occurred in 1978 where total slow vehicles were 3,124 (12.9%) while total traffic for northbound was 24,193.

Similarly northbound, there is a steady increase in heavy vehicles in southbound traffic on Fridays. For example the range was in 1978, 900 to 1,178 vehicles and in 1979, 1,038 to 1,311 vehicles.

DESIGN HOUR AND PERCENTAGE OF HEAVY VEHICLES

From the Permanent Station P76010 situated on F3 just north of tollgates the first 40 highest hours were computer listed (see Tables 10 and 11). The listing was for 12 months from July, 1979 till June, 1980:-

<u>Highest Hour</u>	<u>NB</u>	<u>SB</u>
1st	2,360	2,500
10th	2,210	2,290
20th	2,110	2,230
30th	2,020	2,180
40th	1,950	2,130

However, the analysis of the highest hour revealed that all of them are falling on either a public holiday or school holiday. This is shown in Table 12. In the same table heavy vehicles and cars with trailers are shown for the day when the highest (21st-40th) hour has occurred. The daily total is also shown as well as slow vehicles percentage of a total traffic. The percentage of slow vehicles could not have been related to highest hours. A distribution of highest hours is unrelated to daily distribution of heavy vehicles and for example 26th HH with peak hour 2,030 falls on Saturday 5th April, 1980 with slow vehicles being 990 vehicles per day with 5.6% of total and daily total being 17,717. However, the 40th highest hour of 1,950 falls on the same day with the same slow vehicle traffic and same percentage. In simple terms peak hour distribution is not obviously related to heavy vehicles daily distribution. It is apparent however, 16 peak hours fall on public holidays and four hours fall on school holidays. To examine to what degree the route is recreational and influenced by holiday travellers a further listing for two years 1979 and 1980 were obtained for the first 400 highest hours. This is shown in Tables 13 and 14).

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
Wahroonga to Wallsend. The percentage
volume of slow moving vehicles.

It could be seen that public holidays and school holidays are well presented. This raises the question is the 30th highest hour sufficiently representative of average traffic conditions on this route?

One thing could be said, it is an extremely popular route for holiday travellers.

HOURLY DISTRIBUTION OF HEAVY VEHICLES

There is a need for hour distribution of heavy vehicles. The data shown in Appendix 'A' was obtained from the school holiday period (8th/9th January, 1981).

In 1975 a joint Origin and Destination study as undertaken by D.M.R. and D.M.T. The study was taken at Berowra Check-in Truck Station over 24 hours on 25th June, 1975. The data was sorted out by a computer. The hourly distribution was obtained but additional information was also available as trucks origin and destination were recorded also.

It was suspected that a pattern of hourly distribution for Sydney/Newcastle region might be different to the interstate hourly distribution pattern. For that reason the plotting as shown in Figures 2 and 3, was done separately for these two regions.

It could be seen that:-

1. There is clearly a different pattern of hourly distribution; and
2. A larger amount of traffic exchange exists between regions of Sydney and Newcastle (79% northbound traffic and 75% for southbound traffic).

This data is six years old and it remains to be seen if the similar pattern would exist now. Another Origin and Destination survey is out of the question as it requires major preparation, it is costly and its analysis is very time consuming. Instead traffic classification again at tollgates was arranged. The survey was taken as soon as possible, but away from holidays and also on the same day of the week as in 1975. It was taken on 29th April, 1981 (Wednesday).

/7....

SUBJECT: Freeway No. 3 - Sydney-Newcastle Freeway.
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volume of slow moving vehicles.

To enable a comparison with total traffic of F3 and SH.10 from the 1975 Origin and Destination Survey, the classification count for F3 was corrected (increased for the proportion of SH.10 traffic). The proportion for this year was calculated from the trend of the F3/SH.10 split as shown on D.M.R. Statistical Notebook for 1978/79. From graphs, it is apparent that:-

1. The pattern is similar.
2. There is an overall increase of 53% for northbound and 58% for southbound.
3. There is also a pronounced increase in a peak of the graph:-

NB - 4.00 a.m.-8.00 a.m. and 9.00 a.m.-1.00 p.m.
SB - 4.00 a.m.-6.00 a.m. and 10.00 a.m.-6.00 p.m.

Both increases are indicating a major contribution by Sydney/Newcastle region.

It should be noted that the increase of the heavy traffic is falling into periods where other traffic uses the road.

To relate hourly distribution of slow vehicles of this last survey to the total vehicles, its percentage distribution is shown in Figure 6. The pattern of percentage distribution is very similar to the pattern shown in an earlier report from this Section for the 16th August, 1979. It could be noted that 40% to 65% distribution is between 2.00 a.m. and 6.00 a.m., however a steady 15% to 22% is in the period 9.30 a.m. to 4.30 p.m. that is to say in the same period where the highest flow of slow vehicles occurs.

LANE USAGE

It is always of an interest to know how heavy vehicles as well as slow vehicles behave on the road and what lanes they take. The manual and Trafficomp counts were used to calculate lane usage. The lane usage for northbound traffic is shown in Table 15. It is noticeable that:-

1. On weekdays 88-89% of trucks use kerb lanes while 82-87% of cars with trailers are using it also.
2. On Saturday the number of cars with trailers has increased considerably and its approximately 2.5 times the number of cars and trailers on Wednesday.

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Similar to the above lane usage, the kerb usage obtained by manual count is shown in Table 16. The manual count took place over the long weekend of 23rd to 26th January, 1981. Slow vehicles used the kerb lane extensively in an order of 75 to 85%.

This may indicate:-

1. A reasonably good discipline by slow vehicle drivers.
2. Probably lower speed in kerb lane and hence lane changing might be increased.

It was an opportunity to compare the variability of slow vehicles in school holidays and non-school holidays. This is shown in Table 19. Three days in January, 14.1.81 (Wednesday), 16.1.81 (Friday) and 17.1.81 (Saturday) indicate slow vehicle traffic for school periods for northbound traffic. Slow vehicles were between 1,654 (8.3%) and 2,052 (11.5%) of the total traffic while total traffic was quite high, the minimum being 12,170 vehicles on Wednesday 24th January, 1981 and rising up to 20,037 on Saturday 17th January, 1981.

For non school holidays Wednesday 29th April, 1981 was used. Slow vehicles amounted to 1,906 out of which 1,727 were trucks. This total number of slow vehicles is within the range of slow vehicles in school holidays. However, its composition is different as cars with trailers are less than 10% of total number of slow vehicles in non school period.

FUTURE FLOW - TRAFFIC PREDICTION

There are two major data sources. One is from permanent counting stations that does not give any information on heavy vehicles, and the other is classification counts from the toll collection. Because of an interest in the percentage of heavy vehicles and cars and trailers the latter was used for traffic prediction. Data from the Statistical Notebook 1978-1979 (the table: Dissection of Average Daily Traffic (p 54)) was used as a basic input for existing data for the years 1967-1979. This is shown in Table 20. An additional column was added with total yearly flow.

Several statistical curves were fit. The exponential and power curves excessively increase traffic. Linear regression line appears to be much better fit however, the conservative and more realistic logarithmic curve was used for a prediction of traffic for the years 1980-2010. This is shown in Table 21. The same curve was

used for other classes of vehicles as well as for total vehicle traffic. Results are shown in Table 21. Although conservative, the total flow doubles in 30 years while heavy vehicles increase faster than cars with trailers. The prediction of total traffic is shown in Figure 7. In addition to this, Figure 8 indicates the prediction of traffic from permanent counting station. The corresponding part of existing traffic for cars and trailers and trucks is shown in Figure 9. It could be seen that cars and trailers are steadily increasing but at a smaller rate than trucks. In the same diagram (Figure 9) the slow vehicle percentage over the total is shown. It steadily increases from 7.6% in 1968 to about 13.3% in 1979.

VARIABILITY OF FLOW

A composition of traffic and its change-over hours of day, influences the performance of the traffic flow. However, the traffic volume itself is subject to change for various reasons. The variability of change is an important aspect. Although it appears unpredictable, reasons for the change in many cases could be found. However, the fact remains that the variation in traffic flow is a factor that requires serious consideration to enable the designer to provide a number of lanes that would offer a level of service acceptable by most drivers over a period of years. In Table 22 monthly total, daily average, peak hour and its percentage of daily total is shown for each direction for six months of 1978 and 12 months of 1979.

VARIABILITY OF DAILY FLOW

SEE TABLE 22

<u>1978</u> <u>July-December</u>	<u>NORTHBOUND</u>	<u>SOUTHBOUND</u>
Monthly	285,730 to 428,100	284,430 to 359,480
Average Daily	9,217 to 13,810	9,175 to 11,596
Average Peak Hour	1,489 to 2,150	1,990 to 2,360
<u>1979</u> <u>12 Months</u>		
Monthly	249,480 to 485,780	273,480 to 455,460
Average Daily	8,048 to 15,670	18,822 to 14,692
Average Peak Hour	1,370 to 2,360	2,070 to 2,400

There is a major variation in traffic.

The percentage of heavy vehicles also varies, however, its variation does not give sufficient information as additional quantity should be known: either a total traffic flow or heavy vehicle flow.

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For example, in 1979 the northbound average daily traffic varies from 8,048 vehicles to 15,670 vehicles, nearly twofold.

This further underlines that averages are important, but not sufficient information is given and a range should be considered.

A combination of adverse factor and a variability of flow in some instances may produce a severe restriction.



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2 JUN 1981

TABLE 1
VEHICLE CLASSIFICATION COUNT
AT BEROWRA TOLLGATES
(F3)



NORTHBOUND

THURSDAY 16TH AUGUST, 1979

	Cars etc.	Bus A	L.Tr. B	H.Tr C	(A+B+C)	Others	Total
Night							
6 pm - 6 am	1420	11	206	269	(486) 25.3%	14	1920
Day							
6 am - 6 pm	3885	48	521	547	(1116) 22.3%	6	5007
<u>TOTAL NORTHBOUND</u>	5305	59	727	816	(1602) 23.1%	20	6927

(Per. St. 8660)

SOUTHBOUND

	Cars etc.	Bus A	L.Tr. B	H.Tr C	(A+B+C)	Others	Total
Night							
6 pm - 6 am	1333	7	246	325	(578) 30%	10	1921
Day							
6 am - 6 pm	4482	50	581	437	(1068) 19%	16	5566
<u>TOTAL SOUTHBOUND</u>	5815	57	827	762	(1646) 22%	26	7487

(Per. St. 7650)
(Rem - suspect power failure)

COMBINED
NORTHBOUND &
SOUTHBOUND

24th	11,120	116	1554	1578	(3248) 22.5%	46	14,414
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TABLE 2
F3 - SLOW VEHICLES DAILY AVERAGE (MONDAY-THURSDAY)
FOR "NORMAL" MONTHS

(Mean of Monday-Thursday for each week)

1979 NORTHBOUND					
	<u>Heavy Vehicles</u>	<u>Car & Trailer</u>	<u>Slow Vehicles</u>	<u>%</u>	<u>Total</u>
March, 1979	1235	370	1605	21.3	7529
	1186	347	1533	20.4	7514
	1175	319	1494	20.4	7335
	1129	309	1438	19.4	7401
			(1518)	(20.4)	(7445)
April	(2) 1137	329	1466	19.6	7498
	(1) 1076	756	1832	18.6	9846
	(3) 1415	463	1878	19.7	9521
	(3) 1369	396	1765	21.6	8165
			(1735)	(19.8)	(8758)
May	1292	401	1693	23.3	7274
	1210	482	1692	18.7	9073
	1209	478	1687	16.7	10084
	1250	338	1588	21.4	7428
	1225	338	1563	21.7	7207
			(1645)	(20.2)	(8213)
October	1262	382	1644	20.9	7878
	1298	354	1652	21.6	7643
	1327	356	1683	21.8	7710
	1305	356	1661	21.5	7742
	1294	382	1676	21.6	7778
			(1663)	(21.4)	(7750)
November	1303	425	1728	22.3	7767
	1226	367	1593	20.8	7663
	1314	386	1700	20.5	8292
	1312	388	1700	20.9	8146
	1325	405	1730	20.6	8405
			(1690)	(21.0)	(8055)

TABLE 3
F3 - SLOW VEHICLES DAILY AVERAGE (MONDAY-THURSDAY)
FOR "NORMAL" MONTHS
(Mean of Monday-Thursday for each week)

		1978 NORTHBOUND			AVERAGE DAILY FLOW
	<u>Heavy Vehicles</u>	<u>Car & Trailer</u>	<u>Slow Vehicles</u>	<u>%</u>	<u>Total</u>
March 1978 (\bar{x})	1039	330	1369	20.0	6835
	1040	325	1365	19.4	7056
	1068	298	1366	19.6	6964
			(1367)	(19.7)	(6952)
April (\bar{x})	1038	334	1372	19.3	7107
	1052	306	1358	19.4	7000
	1069	328	1397	19.7	7087
	993	360	1353	16.7	8103
			(1370)	(18.7)	(7340)
May	1113	387	1500	20.6	7278
	1099	520	1619	16.8	9616
	1078	422	1500	15.9	9437
	1053	311	1364	19.2	7113
	1057	302	1359	19.7	6888
			(1468)	(18.2)	(8066)
October	1180	348	1528	20.9	7325
	1178	315	1493	20.8	7170
	1164	312	1476	21.3	6940
	1227	312	1539	24.2	6368
	1209	348	1557	21.2	7337
			(1519)	(21.6)	(7028)
November	1234	321	1551	22.8	6822
	1158	321	1479	20.7	7132
	1144	317	1461	21.6	6753
	1222	359	1581	20.8	7591
	1231	359	1590	20.5	7762
			(1533)	(21.3)	(7212)

F3 - SLOW VEHICLES DAILY AVERAGE (MONDAY-THURSDAY)

1978/1979 COMPARISON

NORTHBOUND

	1978			1979			1978/1979 Change	
	<u>Slow</u> <u>Vehicles</u>	%	<u>Total</u>	<u>Slow</u> <u>Vehicles</u>	%	<u>Total</u>	<u>Slow</u> <u>Vehicles</u>	<u>Total</u>
March	1367	19.7	6952	1518	20.4	7445	+11.1	+ 7.1
April	1370	12.7	7340	1735	19.8	8758	+26.6	+19.9
May	1468	18.2	8066	1645	20.0	8213	+12.1	+ 1.8
October	1519	21.6	7028	1663	21.5	7750	+ 9.5	+10.3
November	1553	21.3	7212	1690	21.0	8055	+10.2	+11.7

TABLE 4

TABLE 5

F3 - HEAVY VEHICLES TREND 1978/1979

(MONDAY-THURSDAY) - NORMAL MONTHS

		Heavy Vehicles				(Mon-Thur) Daily Total		
		n	\bar{x}	(%)	SD	n	\bar{x}	SD
March	1978	21	1055	(14.1)	79	16	7437	1150
	1979	22	1160	(15.7)	49	17	7401	527
April	1978	19	1032	(14.2)	72	15	7286	751
	1979	13	1311	(16.4)	129	14	7993	1496
May	1978	23	1066	(13.1)	53	19	8128	1399
	1979	23	1225	(14.8)	45	19	8265	1350
October	1978	20	1182	(16.9)	50	15	6979	626
	1979	22	1292	(16.7)	54	18	7742	458
November	1978	21	1190	(16.4)	50	18	7250	656
	1979	22	1292	(15.9)	51	17	8100	525
		n	\bar{x}		SD	n	\bar{x}	SD
March	1978	21	1009		84			
	1979	22	1099		167			
April	1978	19	965		65			
	1979	13	1220		152			
May	1978	23	999		49			
	1979	23	1145		58			
October	1978	21	1117		45			
	1979	21	1218		61			
November	1978	22	1106		158			
	1979	22	1232		51			

TABLE 6
F3 - SLOW VEHICLES FRIDAY AVERAGE FOR NORMAL
MONTHS

		<u>1979</u>		<u>NORTHBOUND</u>		
		<u>Heavy</u> <u>Veh.</u>	<u>Car +</u> <u>Trail.</u>	<u>Slow</u> <u>Veh.</u>	<u>%</u>	<u>Friday</u> <u>Total</u>
March, 1979		1149	736	1885	13.9	13607
		1128	781	1909	14.0	13644
		1114	704	1818	13.9	13098
		1132	737	1869	14.6	12790
		1114	651	1765	14.4	12259
April 1979 (omit 6th April)	(Thur East.)	1400	2500	3900	15.0	26035
		1343	617	1960	17.4	11271
		1248	622	1870	16.5	11337
May, 1979		1205	96	1301	9.3	13934
		1171	725	1896	13.3	14274
		1179	797	1976	14.3	13822
		1173	540	1713	15.1	11333
October, 1979		1249	642	1891	15.4	12284
		1250	712	1962	15.3	12852
		1269	801	2070	15.8	13133
		1259	775	2034	15.0	13581
November, 1979		1232	843	2075	15.2	13619
		1308	826	2134	15.1	14127
		1240	880	2120	14.6	14497
		1302	935	2237	15.2	14687
		1317	868	2185	15.4	14174

TABLE 7

F3 - SLOW VEHICLES FRIDAY AVERAGE FOR NORMAL
MONTHS

	<u>1978</u>		<u>NORTHBOUND</u>		<u>Friday Total</u>
	<u>Heavy Veh.</u>	<u>Car + Trail.</u>	<u>Slow Veh.</u>	<u>%</u>	
March, 1978	976	673	1649	13.1	12551
	1013	753	1766	13.6	12970
	962	682	1644	14.1	11660
	(Thur				
	Easter) 1013	2111	3124	12.9	24195
	1019	566	1585	14.8	10708
April, 1978	957	653	1610	13.9	11569
	940	482	1420	13.2	10779
	1040	965	2005	13.9	14400
	1064	582	1646	14.9	11031
May, 1978	1060	1137	2197	15.3	14348
	974	767	1741	12.2	14229
	944	535	1479	11.7	12588
	992	475	1467	13.7	10709
October, 1978	1043	480	1523	15.1	10107
	1214	623	1837	15.1	12188
	1112	721	1833	15.2	12064
	1209	716	1925	15.6	12335
November, 1978	1229	764	1995	15.5	12870
	1122	675	1797	14.3	12559
	1199	745	1944	15.3	12675
	1186	817	2003	15.0	13396

TABLE 8

F3 - SLOW VEHICLES FRIDAY AVERAGE FOR NORMALMONTHS1979SOUTHBOUNDHeavy
Veh.Car +
Trail.Slow
Veh.%Friday
Total

March, 1979

1103	457	1555	15.7	9889
1038	456	1494	15.8	9458
1104	415	1519	15.5	9816
1080	498	1578	16.3	9673
1104	412	1516	16.2	9333

April, 1979 (Thur
(omit 6th) East.)

1302	389	1691	15.8	10678
1311	513	1824	19.2	9503
1220	495	1715	18.6	9228

May, 1979

1175	489	1664	15.9	10480
1154	560	1714	15.1	11353
1132	1211	2343	16.5	14227
1111	493	1604	17.4	9202

October, 1979

1144	494	1638	17.2	9529
1221	432	1653	17.4	9501
1191	463	1654	16.7	9913
1204	412	1616	16.6	9712

November, 1979

1201	488	1689	17.4	9705
1308	549	1857	18.2	10180
1240	459	1699	16.6	10248
1279	541	1820	17.1	10654
1275	579	1854	16.9	10950

TABLE 9

F3 - SLOW VEHICLES FRIDAY AVERAGE FOR MONTH

MONTHS

	<u>1978</u>		<u>SOUTHBOUND</u>		<u>Friday Total</u>
	<u>Heavy Veh.</u>	<u>Car + Trail.</u>	<u>Slow Veh.</u>	<u>%</u>	
March, 1978	1000	466	1466	15.4	9552
	970	414	1384	15.4	8985
	966	503	1469	14.7	10026
(Thur)	1027	490	1517	14.8	10251
	1014	531	1545	16.0	9683
April, 1978	900	419	4319	15.44	8541
	941	403	1344	15.3	8778
	991	396	1337	15.3	9091
	1018	424	1442	16.6	8709
May, 1978	1023	445	1468	16.0	9169
	970	568	1538	13.8	11124
	935	1380	2315	15.9	14526
	962	462	1424	16.1	8841
October, 1978	1024	434	1458	17.0	8582
	1126	441	1567	17.9	8758
	1082	427	1509	17.0	8902
	1129	440	1569	17.9	8760
November, 1978	1178	452	1630	17.9	9104
	1106	476	1582	17.3	9121
	1127	450	1577	16.6	9517
	1172	501	1673	16.2	10345

TABLE 10
F3 - NORTHBOUND

1st - 40th PEAK HOURLY FLOW JULY 1979-JUNE 1980

	<u>Peak Vol.</u>	<u>Hour Ending</u>	<u>Day</u>	<u>Date</u>
	2360	11 a.m.	Wed	26.12.79
	2360	11 a.m.	Fri	4.4.80
	2290	10 a.m.	Fri	4.4.80
	2280	12 noon	Fri	4.4.80
	2260	7 a.m.	Fri	4.4.80
	2260	11 a.m.	Fri	25.4.80
	2260	10 a.m.	Wed	26.12.79
	2250	8 a.m.	Fri	4.4.80
	2220	1 p.m.	Fri	4.4.80
10th	2210	1 p.m.	Wed	26.12.79
	2210	11 a.m.	Sun	6.4.80
	2170	10 a.m.	Fri	25.4.80
	2170	8 p.m.	Thur	3.4.80
	2160	11 a.m.	Sat	29.12.79
	2150	12 noon	Fri	25.4.80
	2140	9 a.m.	Fri	4.4.80
	2130	10 a.m.	Sun	6.4.80
	2130	11 a.m.	Sun	27.1.80
	2120	12 noon	Wed	26.12.79
20th	2110	6 a.m.	Fri	4.4.80
	2110	10 a.m.	Sat	29.12.79
	2100	12 noon	Sun	30.12.79
	2070	11 a.m.	Sun	15.6.80
	2040	10 a.m.	Sun	30.12.79
	2040	11 a.m.	Sun	30.12.79
	2030	11 a.m.	Sat	5.4.80
	2030	9 p.m.	Fri	25.1.80
	2030	10 p.m.	Fri	25.1.80
	2020	7 p.m.	Thur	3.4.80
30th	2020	9 p.m.	Thur	3.4.80
	2010	11 a.m.	Sun	26.8.79
	2010	9 a.m.	Sat	26.1.80
	2010	12 noon	Sat	29.12.79
	2000	1 p.m.	Fri	25.4.80
	1990	10 p.m.	Thur	3.4.80
	1990	11 a.m.	Sun	11.5.80
	1960	11 a.m.	Sat	12.1.80
	1960	10 a.m.	Sun	26.8.79
	1950	12 noon	Sun	6.4.80
40th	1950	10 a.m.	Sat	5.4.80

TABLE 11
F3 - SOUTHBOUND

1st-40th PEAK HOURLY FLOW JULY 1979-JUNE 1980

	<u>Peak Vol.</u>	<u>Hour Ending</u>	<u>Day</u>	<u>Date</u>
	2500	11 a.m.	Mon	7.4.80
	2330	5 p.m.	Sun	26.8.79
	2320	5 p.m.	Sun	2.9.79
	2320	5 p.m.	Sun	14.10.79
	2310	5 p.m.	Sun	29.7.79
	2300	10 p.m.	Mon	1.10.79
	2300	7 p.m.	Sun	20.1.80
	2300	5 p.m.	Sun	20.1.80
	2290	10 p.m.	Mon	28.1.80
10th	2290	4 p.m.	Sun	2.9.79
	2270	6 p.m.	Sun	27.1.80
	2270	4 p.m.	Mon	16.6.80
	2270	9 p.m.	Mon	1.10.80
	2270	5 p.m.	Sun	11.11.79
	2250	8 p.m.	Sun	2.9.80
	2250	6 p.m.	Sun	18.11.79
	2250	5 p.m.	Sun	25.11.79
	2250	6 p.m.	Sun	17.2.80
	2240	5 p.m.	Sun	17.2.80
20th	2230	8 p.m.	Sun	6.4.80
	2230	6 p.m.	Sun	4.11.79
	2220	5 p.m.	Sun	13.1.80
	2220	5 p.m.	Sun	6.4.80
	2220	8 p.m.	Sun	27.4.80
	2210	5 p.m.	Sun	10.2.80
	2200	8 p.m.	Sun	17.2.80
	2200	5 p.m.	Sun	5.8.79
	2200	4 p.m.	Mon	28.1.80
	2190	7 p.m.	Sun	2.9.79
30th	2180	5 p.m.	Sun	4.11.79
	2180	6 p.m.	Sun	6.1.80
	2180	4 p.m.	Sun	27.4.80
	2180	5 p.m.	Sun	27.4.80
	2160	4 p.m.	Sun	13.1.80
	2160	5 p.m.	Sun	27.1.80
	2160	5 p.m.	Sun	16.9.79
	2150	8 p.m.	Mon	1.10.79
	2140	4 p.m.	Mon	7.4.80
	2140	5 p.m.	Sun	9.9.79
40th	2130	2 p.m.	Mon	1.10.79

F3 - HEAVY VEHICLES, CAR AND TRAILER DAILY TRAFFIC FLOW

ON DAYS OF 21ST - 40TH HIGHEST HOUR

JANUARY, 1979 TILL DECEMBER, 1980 - NORTHBOUND TRAFFIC

		<u>Peak Hour</u>	<u>Day</u>	<u>Date</u>	<u>Time</u>	<u>Heavy Vehicles</u>	+	<u>Car & Trailer</u>	=	<u>Slow Vehicles</u>	<u>%</u>	<u>Daily Total</u>
PH	21st	2110	Sat	29.12.79	9-10 am	285		1994		2297	8.9	25635
PH	22nd	2100	Sun	30.12.79	11-12 noon	99		871		970	5.4	17823
PH	23rd	2070	Sun	15. 6.80	10-11 am	121		490		611	4.1	14945
PH	24th	2040	Sun	30.12.79	9-10 am	99		871		970	5.4	17823
PH	25th	2040	Sun	30.12.79	10-11 am	99		871		970	5.4	17823
PH	26th	2030	Sat	5. 4.80	10-11 am	210		780		990	5.6	17717
PH	27th	2030	Fri	25. 1.80	8- 9 pm	1221		1464		2685	12.1	22307
PH	28th	2030	Fri	25. 1.80	9-10 pm	1221		1464		2685	12.1	22307
PH	29th	2020	Thu	3. 4.80	6- 7 pm	1213		2794		4007	14.4	27761
PH	30th	2020	Thu	3. 4.80	8- 9 pm	1213		2794		4007	14.4	27761
SH	31st	2010	Sun	26. 8.79	10-11 am	218		1086		1304	7.6	17229
PH	32nd	2010	Sat	26. 1.80	8- 9 am	411		1585		1996	7.9	25251
PH	33rd	2010	Sat	29.12.79	11-12 noon	285		1994		2279	8.9	25635
PH	34th	2000	Fri	25. 4.80	12- 1 pm	302		1469		1771	8.1	21953
PH	35th	1990	Thu	3. 4.80	9-10 pm	1213		2794		4007	14.4	27761
SH	36th	1990	Sun	11. 5.80	10-11 am	195		739		934	5.2	18051
SH	37th	1960	Sat	12. 1.80	10-11 am	332		1565		1897	9.3	20356
SH	38th	1960	Sun	26. 8.79	9-10 am	218		1086		1304	7.6	17229
PH	39th	1950	Sun	6. 4.80	11-12 noon	152		503		655	3.8	17057
PH	40th	1950	Sat	5. 4.80	9-10 am	210		780		990	5.6	17717

PH Public Holiday
SH School Holiday

TABLE 12

HEAVY AND SLOW VEHICLE DAILY FLOW ON 40TH TO 400TH PEAK HOUR DAY

JANUARY 1979 - DECEMBER 1980 - NORTHBOUND

Ho1.	R.	Peak Hour	Day	Date	Time	Daily Flow		=	Slow Vehicles	%	Daily Total
						Heavy Vehicles	+ Car & Trailer				
WD	40	2130	Wed	3.10.80	8- 9 pm	1309	2157		3466	13.4	25852
WE	50	2110	Sun	15. 6.79	7- 8 pm	1194	1335		2529	13.6	18607
SH	60	2050	Sun	24. 8.80	9-10 am	241	1048		1289	6.9	18799
WE	70	2030	Sat	4.10.80	10-11 am	463	1943		2406	8.4	28612
WD	80	2010	Thu	12. 4.79	4- 5 pm	1400	2500		3900	15.0	26035
PH	90	1980	Thu	25.12.80	9-10 am	51	1528		1579	5.9	26967
SH	100	1960	Sun	26. 8.79	9-10 am	218	1086		1304	7.6	17229
SH	110	1940	Fri	26. 1.79	9-10 pm	1090	1425		2515	11.8	21277
WD	120	1910	Thu	12. 4.79	3- 4 pm	1400	2500		3900	15.0	26035
WD	130	1880	Fri	3.10.80	5- 6 pm	1309	2157		3466	13.4	25852
SH	140	1860	Fri	26. 1.79	8- 9 pm	1090	1425		2515	11.8	21277
PH	150	1840	Sat	14. 4.79	11-12 am	326	782		1108	6.6	16852
SH	160	1820	Thu	27.12.79	1- 2 pm	641	1323		1964	11.0	17895
SH	170	1790	Sun	28.12.80	11-12 pm	190	1145		1335	7.0	19159
SH	180	1780	Sat	25. 8.79	8- 9 am	372	1684		2056	10.2	20250
SH	190	1750	Sun	20. 1.80	10-11 am	222	688		910	6.0	15246
WE	200	1730	Sun	11. 2.79	10-11 am	209	609		818	6.2	15232
SH	210	1710	Sun	14. 1.79	9-10 am	162	780		942	6.4	14771
SH	220	1690	Fri	28.12.79	11-12 am	790	1466		2256	10.4	21646
WD	230	1660	Fri	3.10.80	2- 3 pm	1309	2157		3466	13.4	25852
SH	240	1650	Fri	28.12.79	10-11 am	790	1466		2256	10.4	21646
SH	250	1630	Sat	13. 1.79	9-10 am	309	1512		1821	9.4	19297
WE	260	1620	Sun	3. 8.80	9-10 am	209	601		810	5.8	14023
WE	270	1610	Sat	15.11.80	10-11 am	471	1108		1579	9.4	16803
SH	280	1600	Sun	16.12.79	9-10 am	327	859		1186	8.0	14858
WD	290	1580	Fri	30.11.79	6- 7 pm	1317	868		2185	15.4	14174
WD	300	1570	Fri	23.11.79	6- 7 pm	1302	935		2237	15.2	14687

/ .. 2

TABLE 13

<u>Hol.</u>	<u>R.</u>	<u>Peak Hour</u>	<u>Day</u>	<u>Date</u>	<u>Time</u>	<u>Heavy Vehicles</u>	+	<u>Car & Trailer</u>	=	<u>Slow Vehicles</u>	%	<u>Daily Total</u>
WD	310	1560	Fri	15. 6.79	4- 5 pm	1194		1335		2529	13.6	18607
WE	320	1550	Sat	10. 2.79	9-10 am	395		987		1382	8.9	15450
WE	330	1540	Sat	29.11.80	8- 9 am	856		882		1738	11.1	15658
WE	340	1530	Sat	16. 6.79	1- 2 pm	405		1383		1788	8.0	22334
SH	350	1500	Sun	14. 1.79	8- 9 am	162		780		942	6.4	14771
WD	360	1490	Fri	9. 2.79	6- 7 pm	1144		809		1953	14.3	13638

TABLE 13 (CONT.)

TABLE 14
HEAVY AND SLOW VEHICLE DAILY FLOW ON 40TH TO 400TH PEAK HOUR DAY
JANUARY, 1979 - DECEMBER, 1980 - SOUTHBOUND

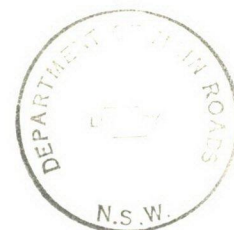
Daily Flow														
<u>Hol.</u>	<u>R.</u>	<u>Peak Hour</u>	<u>Day</u>	<u>Date</u>	<u>Time</u>	<u>Heavy Vehicle</u>	+	<u>Car & Trailer</u>	=	<u>Heavy Vehicle</u>	+	<u>Car & Trailer</u>	%	<u>Daily Total</u>
SH	40	2230	Sun	24.8.80	3-4pm	250		947		1197			5.5	21722
PH	50	2200	Mon	28.1.80	3-4pm	216		2007		2223			8.0	27840
SH	60	2180	Sun	24.8.80	7-8pm	250		947		1197			5.5	21722
SH	70	2160	Sun	27.1.80	4-5pm	175		1461		1636			7.9	20834
SH	80	2140	Sun	13.1.80	6-7pm	211		1571		1782			7.5	23614
WE	90	2120	Sun	2.3.80	4-5pm	268		1211		1479			6.9	21349
WE	100	2120	Sun	2.3.80	7-8pm	268		1211		1479			6.9	21349
PH	110	2100	Mon	29.1.79	2-3pm	207		2121		2328			8.2	28537
PH	120	2090	Mon	18.6.79	3-4pm	251		1687		1938			8.0	24377
WE	130	2080	Sun	18.2.79	6-7pm	222		1110		1332			6.6	20319
PH	140	2050	Mon	28.1.80	4-5pm	216		2007		2223			8.0	27840
PH	150	2030	Mon	16.6.80	2-3pm	265		1457		1722			7.1	24257
WE	160	2020	Sun	25.2.79	6-7pm	238		1220		1458			6.9	21110
WE	170	2010	Sun	21.9.80	5-6pm	288		1013		1301			6.8	19171
SH	180	1990	Sun	6.1.80	6-7pm	220		1313		1533			6.8	22458
WE	190	1990	Sun	4.11.79	6-7pm	254		1093		1347			6.8	19724
WE	200	1970	Sun	24.2.80	4-5pm	259		1051		1310			6.8	19267
WE	210	1970	Sun	5.8.79	6-7pm	262		809		1071			6.1	17697
WE	220	1960	Sun	11.11.79	7-8pm	259		1127		1386			6.9	20061
WD	230	1950	Tue	7.10.79	5-6pm	261		870		1131			6.7	16826
PH	240	1930	Tue	1.1.80	4-5pm	122		1183		1305			5.6	23461
PH	250	1920	Tue	1.1.80	3-4pm	122		1183		1305			5.6	23461
SH	260	1910	Sun	28.12.80	5-6pm	173		908		1081			4.4	24420
SH	270	1890	Sun	4.5.80	5-6pm	289		845		1134			6.8	16686
WE	280	1890	Sun	18.11.79	7-8pm	290		1149		1439			6.9	20789
WE	290	1880	Sun	1.4.79	5-6pm	272		990		1262			6.9	18230
WE	300	1870	Sun	17.8.80	3-4pm	277		865		1142			6.2	18552
PH	310	1860	Mon	18.6.79	5-6pm	251		1687		1938			8.0	24377
WE	320	1840	Sun	8.6.80	5-6pm	249		711		960			6.1	15746
WE	330	1840	Sun	25.2.79	3-4pm	238		1220		1458			6.9	21110
WE	340	1830	Sun	25.11.79	3-4pm	274		1172		1446			6.8	21390
WE	350	1820	Sun	4.2.79	6-7pm	209		1036		1245			6.8	18417
WE	360	1810	Sun	23.11.80	3-4pm	315		1254		1569			7.3	21627

TABLE 15
F3 CLASSIFICATION COUNT AT TOLLS
HOURLY DISTRIBUTION ON
WEDNESDAY 29TH APRIL, 1981

(Compare it to Wednesday 25th June, 1975) Northbound

Time	Heavy Trucks A	Bus & Light Trucks	HV A+B	Cars & Trailer C	A+B+C	%	Others	Total
23-24	24	4	28	5	33	23.7	106	139
0- 1	15	5	20	2	22	31.0	49	71
1- 2	16	5	21	1	22	39.3	34	56
2- 3	32	1	33	1	34	57.6	25	59
3- 4	28	6	34	0	34	64.2	19	53
4- 5	60	13	73	4	77	57.9	56	133
5- 6	71	19	90	4	94	40.3	139	233
6- 7	72	27	99	8	107	32.0	227	334
7- 8	83	30	113	6	119	16.6	598	717
8- 9	57	16	73	8	81	16.4	413	494
9-10	78	55	133	15	148	23.4	484	632
10-11	134	57	191	26	217	22.4	752	969
11-12	92	26	118	12	130	15.2	725	855
Noon								
12-13	68	35	103	11	114	21.4	418	532
13-14	51	23	74	11	85	17.4	403	488
14-15	52	18	70	11	81	17.5	382	463
15-16	62	26	88	14	102	20.0	408	510
16-17	48	25	73	10	83	13.3	543	626
17-18	37	17	54	8	62	11.7	469	531
18-19	49	18	67	6	73	15.3	403	476
19-20	38	15	53	8	61	19.6	251	312
20-21	36	9	45	4	49	17.8	227	276
21-22	37	5	42	3	45	29.0	110	155
22-23	26	6	32	1	33	23.6	107	140
<hr/>								
Total	1,266	461	1,727	179	1,906		7,348	9,254
24 Hrs	13.7%		18.7%		20.6%		79.4%	100%

TABLE 16
F3 CLASSIFICATION COUNT AT TOLLS
HOURLY DISTRIBUTION ON
WEDNESDAY 29TH APRIL, 1981



(Compare it to Wednesday 25th June, 1975) Southbound

	Heavy Trucks A	Bus & Light Trucks	HV A+B	Cars & Trailer C	A+B+C	%	Others	Total
23-24	46	3	49	3	52	39.4	80	132
0- 1	26	4	30	2	32	43.0	43	75
1- 2	39	8	47	2	49	58.0	36	85
2- 3	35	4	39	1	40	62.5	24	64
3- 4	35	13	48	-	48	72.7	18	66
4- 5	82	20	102	1	103	63.2	60	163
5- 6	63	23	86	3	89	34.0	172	261
6- 7	50	15	65	4	69	19.2	291	360
7- 8	51	25	76	12	88	14.2	533	621
8- 9	49	25	74	6	80	16.0	419	499
9-10	49	20	69	7	76	20.1	302	378
10-11	90	23	113	11	124	20.3	488	612
11-12	59	20	79	16	95	19.6	389	484
Noon								
12-13	82	19	101	14	114	25.3	337	451
13-14	82	32	114	7	121	24.2	379	500
14-15	75	36	111	13	124	20.7	475	599
15-16	66	40	106	20	126	17.2	605	731
16-17	71	38	109	17	126	14.9	719	845
17-18	52	31	83	10	93	10.4	804	897
18-19	52	17	69	4	73	12.3	519	592
19-20	29	13	42	10	52	17.5	245	297
20-21	26	7	33	4	37	16.7	185	222
21-22	21	1	22	5	27	12.1	113	140
22-23	34	6	40	2	42	28.0	108	150
Total	1,264	443	1,707	174	1,880	20.4	7,344	9,224
24 Hrs	13.7%	18.5%	39%				79.6%	

TABLE 17
F3 - LANE USAGE - NORTHBOUND

	<u>Trucks</u> A	<u>Car & Trailer</u> B	<u>Slow Vehicles</u> A + B	<u>Cars</u> (Others)	<u>Total</u>
14.1.81 (Wed.)					
Kerb:	1147 (89%)	432 (87%)	1579 (89%)	5348 (51%)	6927 (57%)
Median:	135 (11%)	62 (13%)	197 (11%)	5046 (49%)	5243 (43%)
Total:	1282 (10.5%)	494 (4.1%)	1776 (14.6%)	10394	12170 (100%)
16.1.81 (Fri.)					
Kerb:	1101 (88%)	658 (82%)	1759 (86%)	7121 (45%)	8880 (49.6%)
Median:	148 (12%)	145 (18%)	293 (14%)	8728 (55%)	9021 (50.4%)
Total:	1249 (7.0%)	803 (4.5%)	2052 (11.5%)	14849	17901 (100%)
17.1.81 (Sat.)					
Kerb:	393 (83%)	865 (73%)	1258 (76%)	8808 (48%)	10066 (50%)
Median:	82 (17%)	314 (27%)	396 (24%)	9575 (52%)	9971 (50%)
Total:	475 (2.4%)	1179 (5.9%)	1654 (8.3%)	18383	20037 (100%)

TABLE 18
F3 - CLASSIFICATION TRAFFIC COUNT
AT BEROWRA TOLL BOOTHS
ON LONG WEEKEND, 23RD - 26TH JANUARY, 1981
 (Counts taken by Lane, Manually)

NORTHBOUND

Friday <u>23.1.81</u> <u>4 pm - 7 pm</u>	<u>Kerb Lane</u>	<u>Median Lane</u>
Total	2291	3207
Slow Vehicles	335 (14.6%) (80%)	82 (2.6%)
Saturday <u>24.1.81</u> <u>8 am - 11 am</u>	<u>Kerb Lane</u>	<u>Median Lane</u>
Total	2612	2930
Slow Vehicles	374 (14.3%) (79%)	100 (3.4%)

SOUTHBOUND

Sunday <u>25.1.81</u> <u>4 pm - 7 pm</u>	<u>Kerb Lane</u>	<u>Median Lane</u>
Total	3046	3220
Slow Vehicles	329 (10.8%) (75%)	109 (3.4%)
Monday <u>26.1.81</u> <u>3 pm - 8 pm</u>	<u>Kerb Lane</u>	<u>Median Lane</u>
Total	4557	4550
Slow Vehicles	647 (14.2%) (85%)	114 (2.5%)

TABLE 19
F3 - FREEWAY TRAFFIC ONLY

% HEAVY VEHICLES & SLOW VEHICLES, NORTHBOUND

SCHOOL HOLIDAYS vs NON SCHOOL HOLIDAYS

A. School Holidays - January 1981

	<u>Trucks</u> A	<u>Car & Trailer</u> B	<u>Slow Vehicles</u> A + B	<u>Cars</u> (Others)	<u>Total</u>
14.1.81 (Wed)	1,282 10.5%	494 4.1%	1,776 14.6%	10,394 85.4%	12,170 100%
16.1.81 (Fri)	1,249 7%	803 4.5%	2,052 11.5%	15,849 88.5%	17,901 100%
17.1.81 (Sat)	475 2.4%	1,179 5.9%	1,654 8.3%	18,383 91.7%	20,037 100%

B. Non School Holidays - April, 1981

	<u>Trucks</u> A	<u>Car & Trailer</u> B	<u>Slow Vehicles</u> A + B	<u>Cars</u> (Others)	<u>Total</u>
29.4.81 (Wed)	1,727 18.7%	179	1,906 20.6%	7,348 79.4%	9,254 100%

TABLE 20
PREDICTION OF TRAFFIC
(CURVE FITTING)

EXISTING DATA - (F3 DISSECTION OF AVERAGE DAILY TRAFFIC P 54) (+ P 53)
(NORTHBOUND AND SOUTHBOUND)

Year (X)	Car & Trailer 24 ^H (Y ₁)	Heavy Vehicles 24 ^H (Y ₂)	Slow Vehicles 24 ^H (Y ₃)	Total Vehicles 24 ^H (Y ₄)	Total Yearly Flow (x 1,000)
67	383	149	532	9272	3431
68	453	350	803	10483	3873
69	496	511	1007	11849	4363
70	549	562	1111	13176	4850
71	608	659	1267	14173	5212
72	672	765	1437	15579	5735
73	769	910	1679	16427	6032
74	824	1110	1934	17254	6262
75	886	1206	2092	18095	6642
76	942	1243	2185	18466	6795
77	1008	1381	2389	19089	7011
78	1076	1495	2571	20538	7539
79	1113	1686	2799	20915	7682

TABLE 21
PREDICTION OF TRAFFIC
(CURVE FITTING)

EXPECTED TRAFFIC

(NORTHBOUND AND SOUTHBOUND)

(Logarithmic Curve - $y = a + b \cdot \ln x$)							Is (A+B=C)	Total Yearly Flow (x 1,000)
Year	Car & Trailer 24H (A)	Heavy Vehicles 24H (B)	Slow Vehicles 24H (C)	%	Total Vehicles 24H			
1980	1177	1739	2916	13.1	22285	(2916)		8175
1985	1454	2271	3725	14.0	26537	(3725)		9723
1990	1715	2772	4488	14.7	30547	(4487)		11183
1995	1963	3247	5210	15.2	34339	(5210)		12565
2000	2197	3696	5894	15.5	37937	(5893)		13875
2005	2421	4124	6545	15.8	41359	(6545)		15121
2010	2633	4532	7166	16.1	44622	(7165)		16309
<hr/>								
	r=1.00	r=0.99	r					
	a=16868	a=36692	r=1.00		r=0.99			r=0.99
	a=4574	a=36692	a=55561		a=285081			a=103761
		b=8770	b=13345		b=70142			b=25544

TABLE 22 (From Permanent Station)

1978

	F3 NB TRAFFIC			
	MONTHLY TOTAL	DAILY AVERAGE	PEAK HOUR	Peak % OF DAILY
JUL	285 730	9 217	1 430	16.1
AVG	313 720	10 120	1 910	18.9
SEP	328 940	10 965	2 040	18.6
OCT	291 850	9 728	1 950	20.1
NOV	298 500	9 950	1 660	16.7
DEC	428 100	13 810	2 150	15.6
mean	324 473	10 632		
SD	53 130	1 659		

1979

JAN	407 830	13,156	2 170	16.5
FEB	294 920	10,533	1 730	16.4
MAR	249 480	8,048	1 480	18.4
APR	383 170	12,772	2 230	17.5
MAY	361 060	11,647	1 920	16.5
JUN	303 060	10,102	2 110	20.9
JUL	293 220	9,459	1 370	14.5
AUG	362 770	11,702	2,010	17.2
SEP	342 290	11,410	1 900	16.7
OCT	333 480	10,757	1 510	14.3
NOV	353 530	11,784	1 700	14.4
DEC	485 780	15,670	2 360	15.1
mean	347 549	11 420		
SD	61 795	1 939		

	F3 SB TRAFFIC			
	MONTHLY TOTAL	DAILY AVERAGE	PEAK HOUR	Peak % OF DAILY
JUL	284 430	9 175	2 250	24.5
AVG	296 580	9 567	2 330	24.4
SEP	314 790	10 493	2 170	20.7
OCT	311 990	10 064	2 360	23.4
NOV	288 050	9 602	2 130	22.2
DEC	359 480	11 596	1 990	17.2
mean	309 220	10 083		
SD	27 522	869		

JAN	455 460	14 692	2 280	15.5
FEB	292 490	10 446	2 350	22.5
MAR	305 720	9 862	2 150	21.8
APR	336 850	11 228	2 270	20.2
MAY	327 730	10 572	2 400	22.7
JUN	275 450	9 181	2 120	23.1
JUL	273 480	8 822	2 310	26.2
AUG	313 320	10 107	2 330	23.1
SEP	338 210	11 274	2 320	20.6
OCT	333 300	10 752	2 320	21.6
NOV	324 040	10 801	2 270	21.0
DEC	403 740	13 024	2 070	15.3
mean	331 648	10,897		
SD	52 012	1,609		

	F3 NB + SB TRAFFIC			
	MONTHLY TOTAL			
JUL	570 160			
AVG	610 300			
SEP	643 730			
OCT	603 840			
NOV	586 550			
DEC	787 580			
mean	633 693			
SD	79 346			

JAN	863 290			
FEB	587 410			
MAR	555 200			
APR	720 020			
MAY	628 790			
JUN	578 490			
JUL	566 700			
AUG	676 090			
SEP	680 500			
OCT	666 780			
NOV	677 570			
DEC	889 520			
mean	679 197			
SD	107 302			

F3 - COMPARISON OF 1978 AND 1979
AVERAGE MIDWEEK DAY TRAFFIC (MON-THU)
FOR SLOW VEHICLES
FOR 'NORMAL' MONTHS

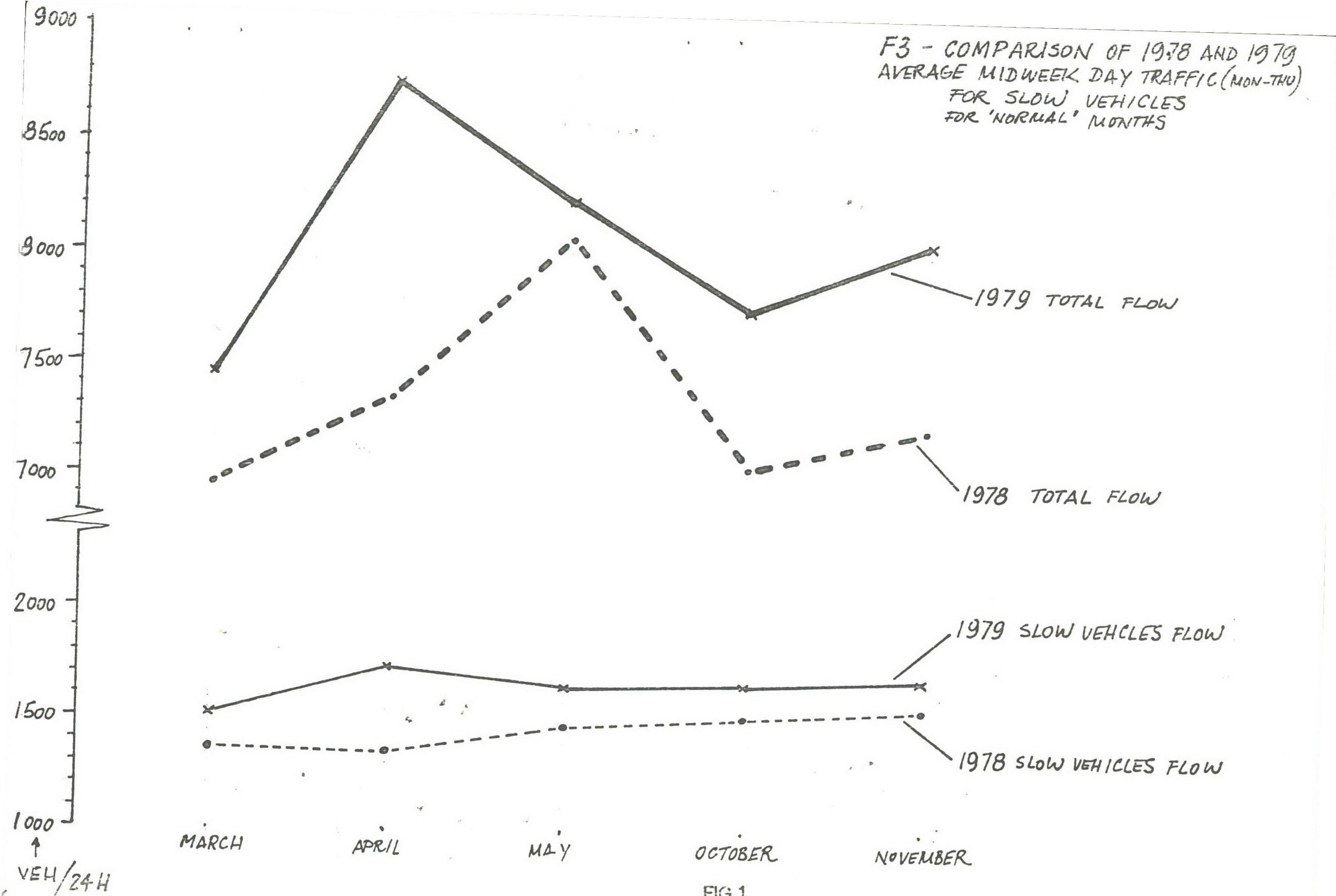


FIG.1

HEAVY VEHICLES HOURLY DISTRIBUTION

SH10, F3 AT BEROWRA (STN 01) ON WED 25 JUNE 1975

NB (DMT)

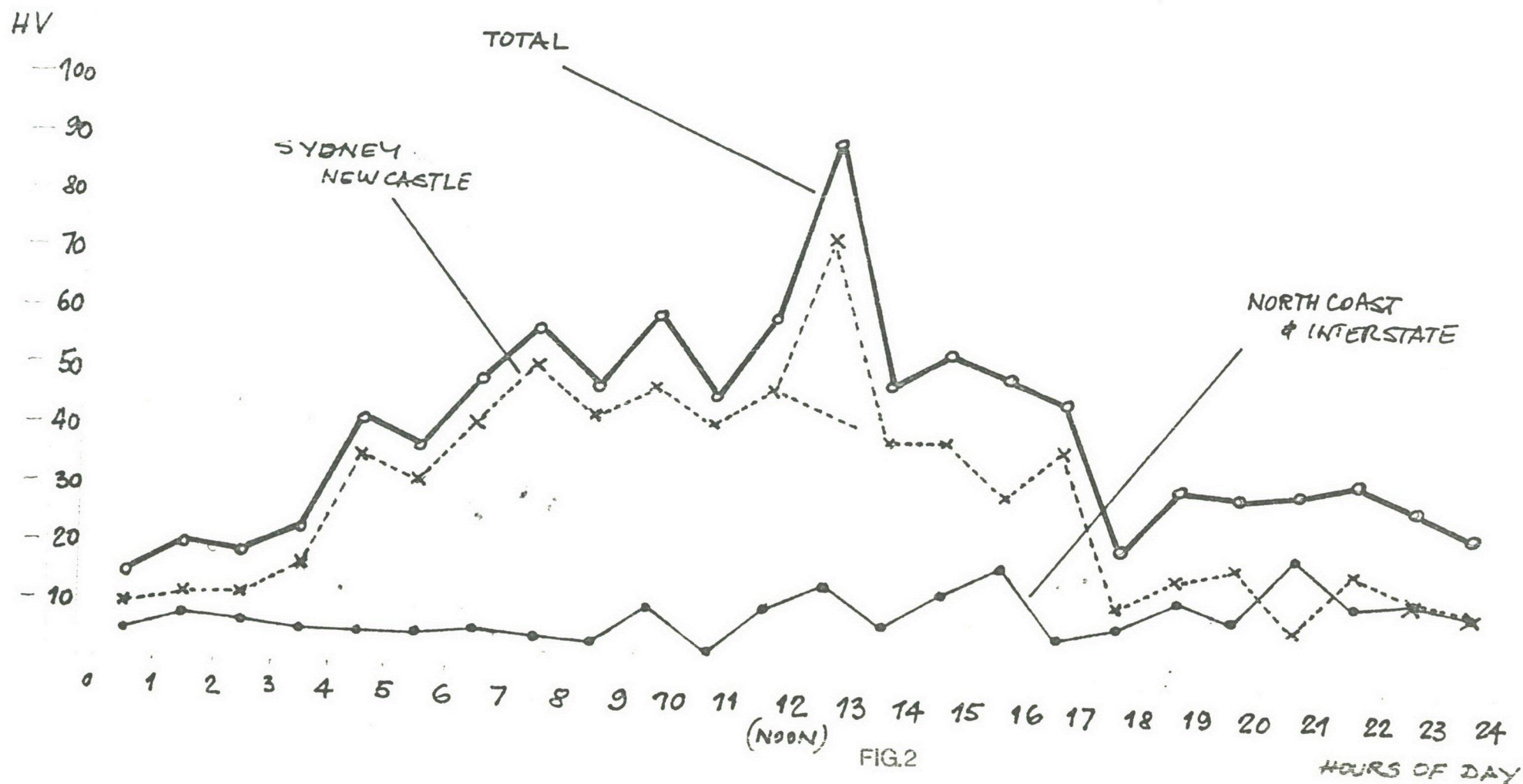


FIG.2

HEAVY VEHICLES HOURLY DISTRIBUTION
 SH.10, F3 AT BEROWRA (STNO1) ON WED 25 JUNE 1975
 SB (DMT)

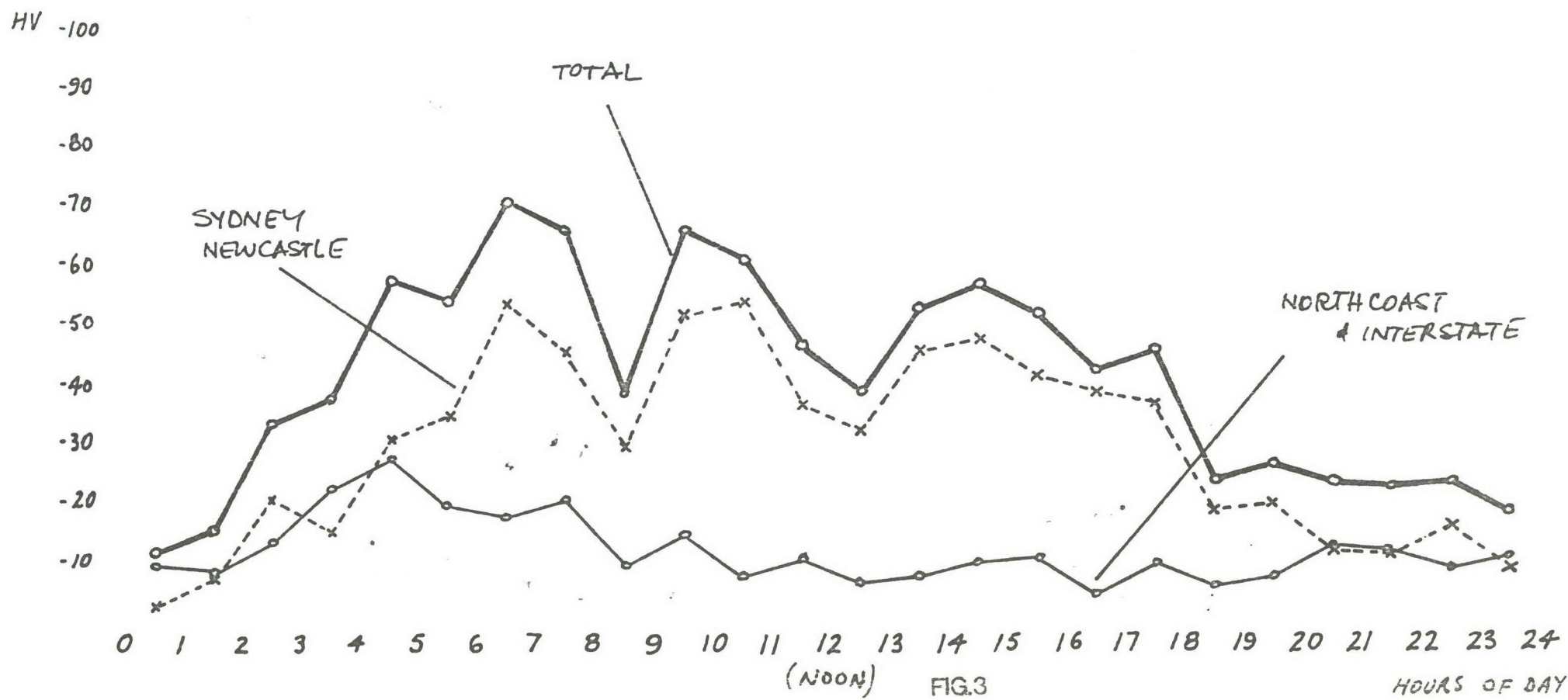
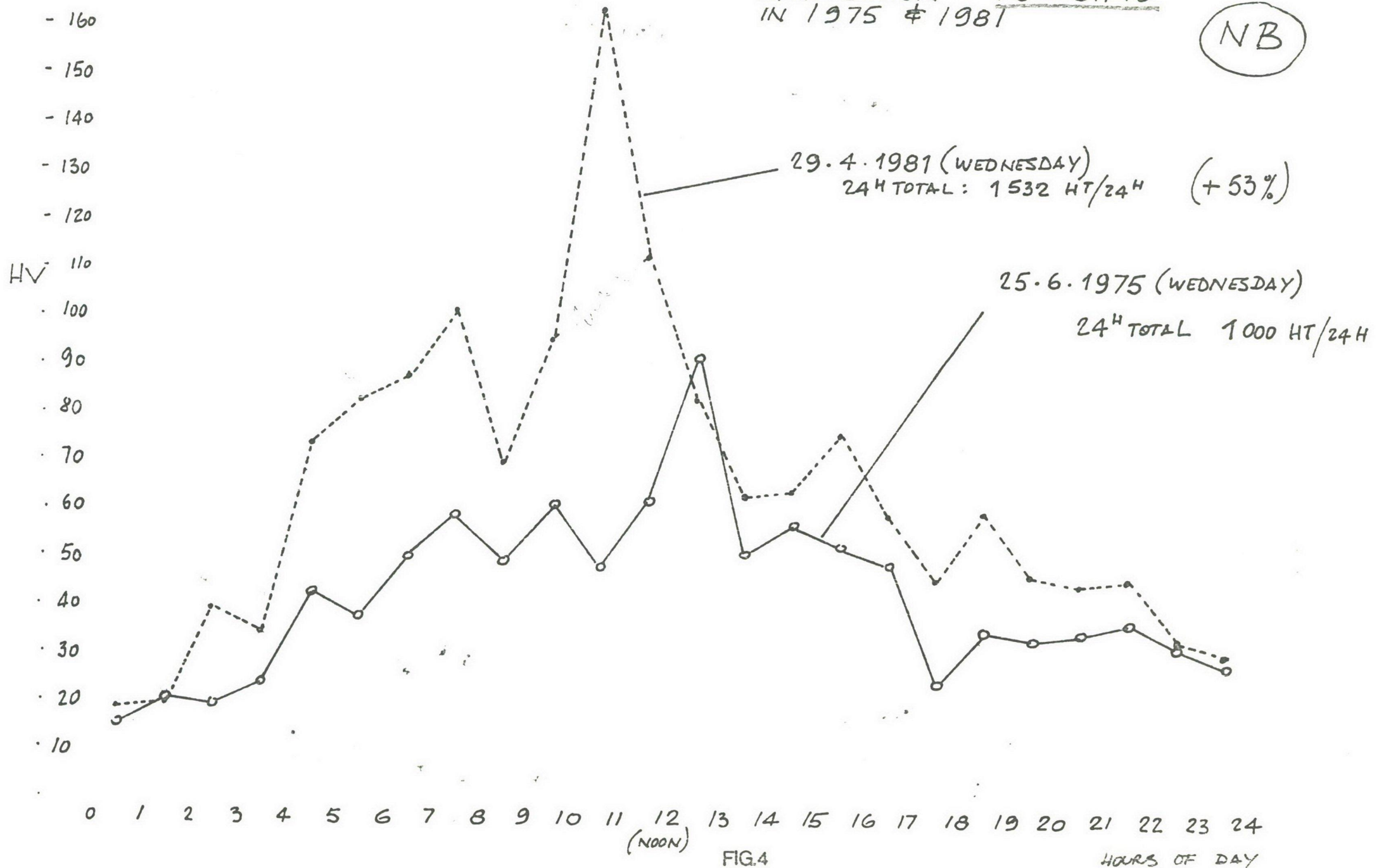


FIG.3

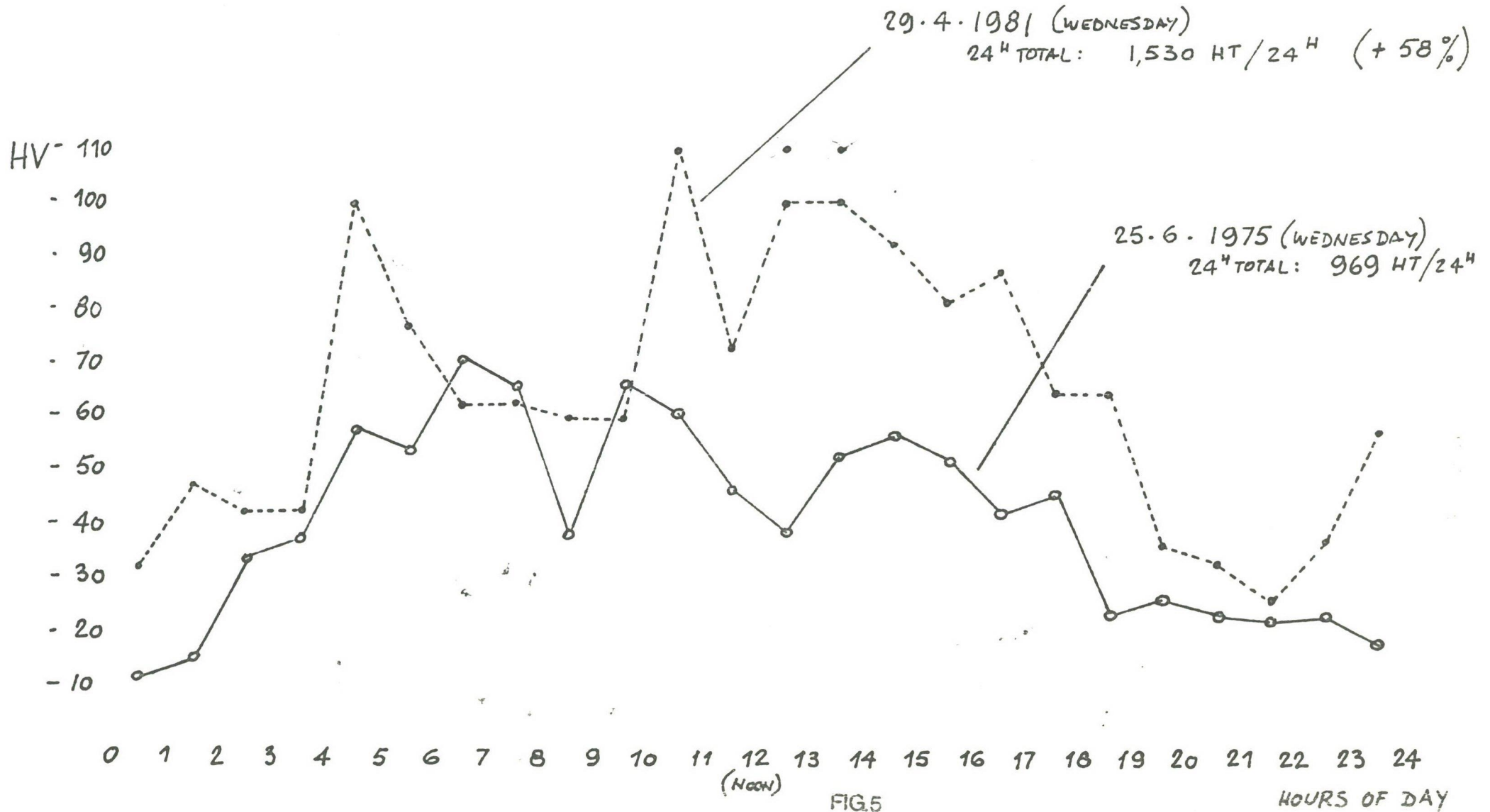
COMPARISON OF HEAVY VEHICLES HOURLY
DISTRIBUTION = F3 + SH 10
IN 1975 & 1981

NB



COMPARISON OF HEAVY VEHICLES
HOURLY DISTRIBUTION ON F3 + SH10
IN 1975 & 1981

(SB)



F3 - PERCENTAGE OF SLOW VEHICLES
AT TOLL GATES ON 29th APRIL 1981
(WED)
NB

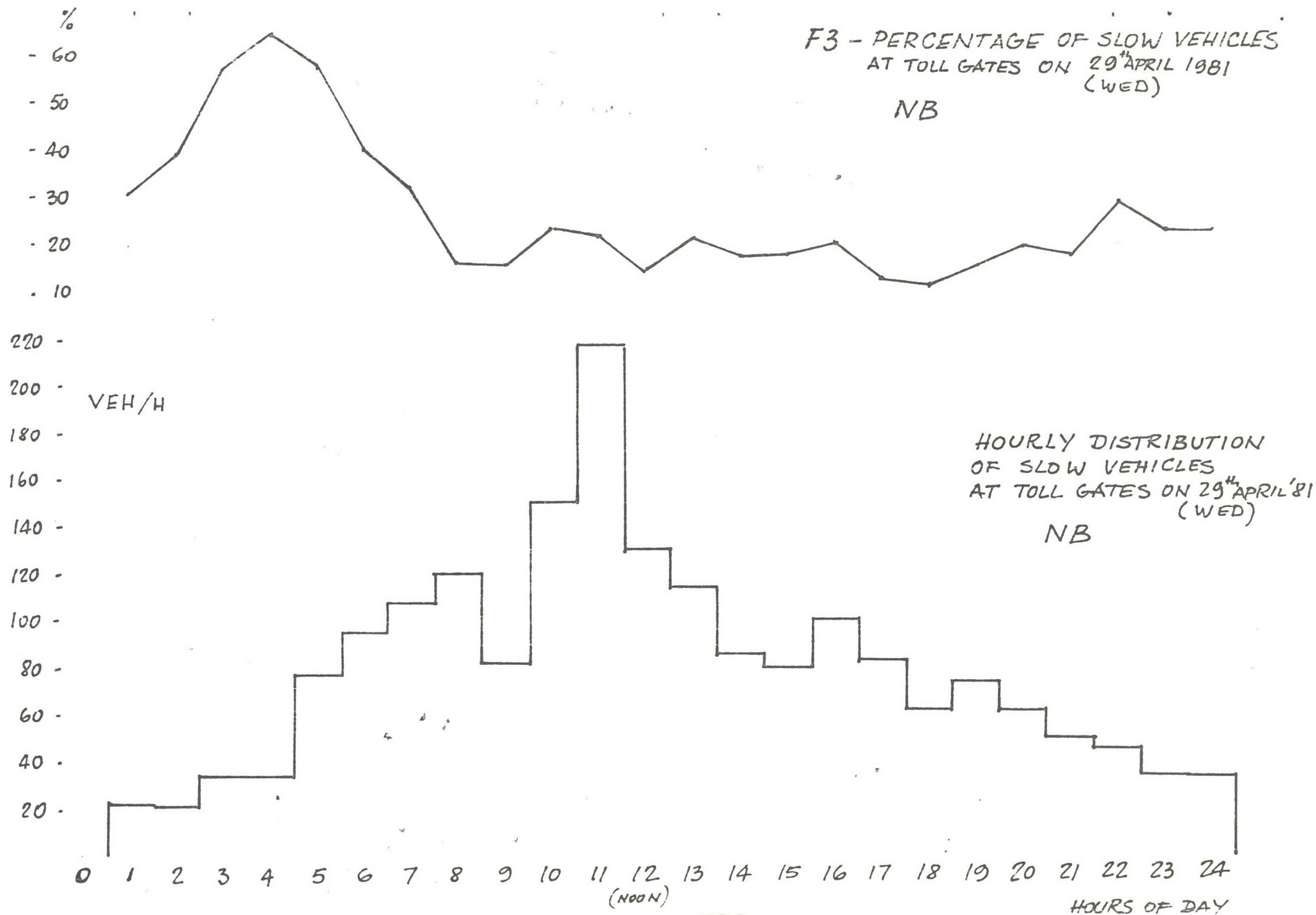


FIG 6

YEARLY
TOTAL
[$\times 10^6$]

32
30 -
28 -
26 -
24 -
22 -
20 -
18 -
16 -
14 -
12 -
10 -
9 -
8 -
7 -
6 -
5 -
4 -
3 -
2 -
1 -

EXPONENTIAL
CURVE

POWER CURVE.

REGRESSION

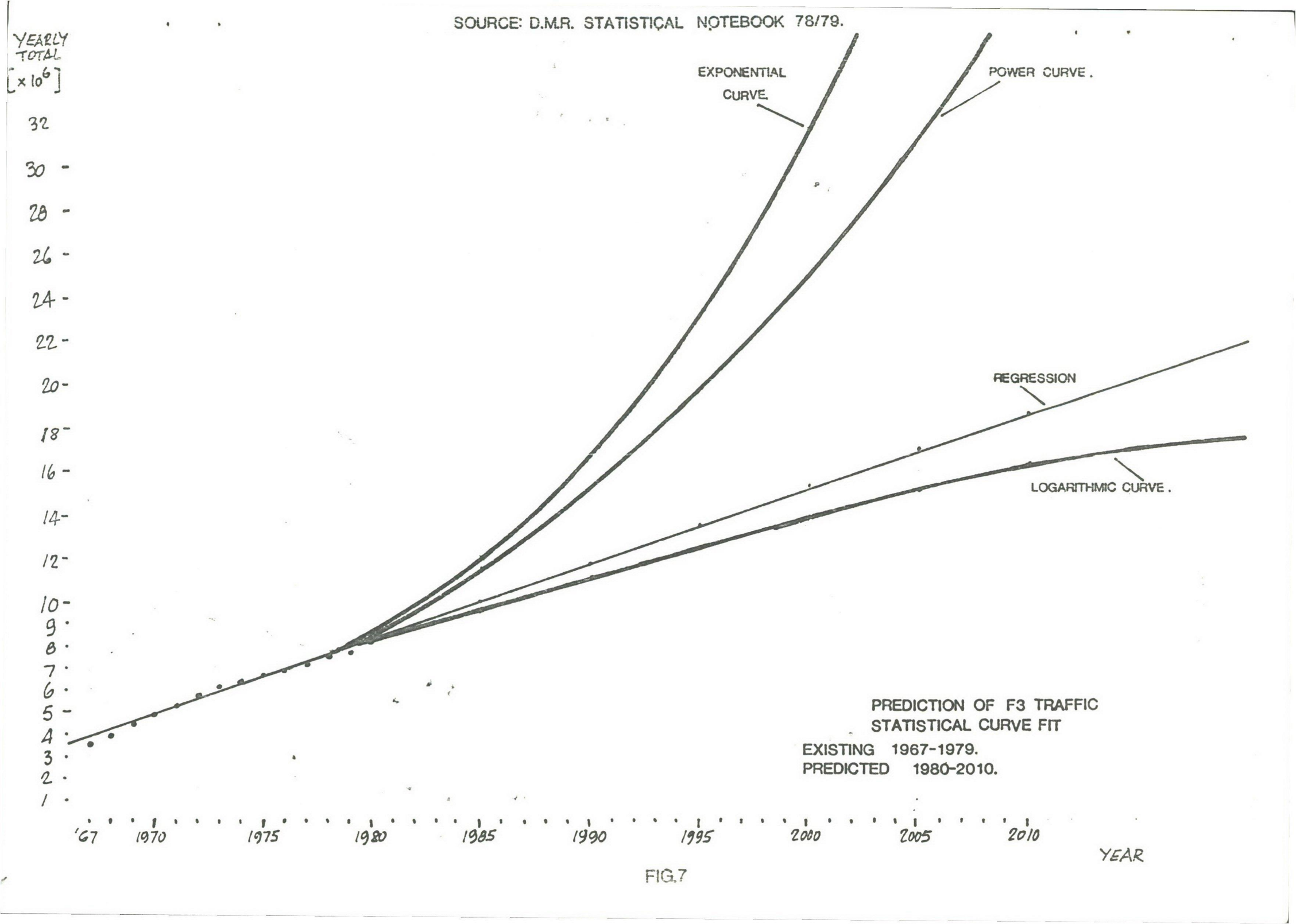
LOGARITHMIC CURVE.

PREDICTION OF F3 TRAFFIC
STATISTICAL CURVE FIT
EXISTING 1967-1979.
PREDICTED 1980-2010.

'67 1970 1975 1980 1985 1990 1995 2000 2005 2010

YEAR

FIG.7



COUNTY OF CUMBERLAND.
 SYDNEY - NEWCASTLE FREEWAY, F3.
 BEROWRA - NORTH OF TOLLGATES.
 YEAR 1979

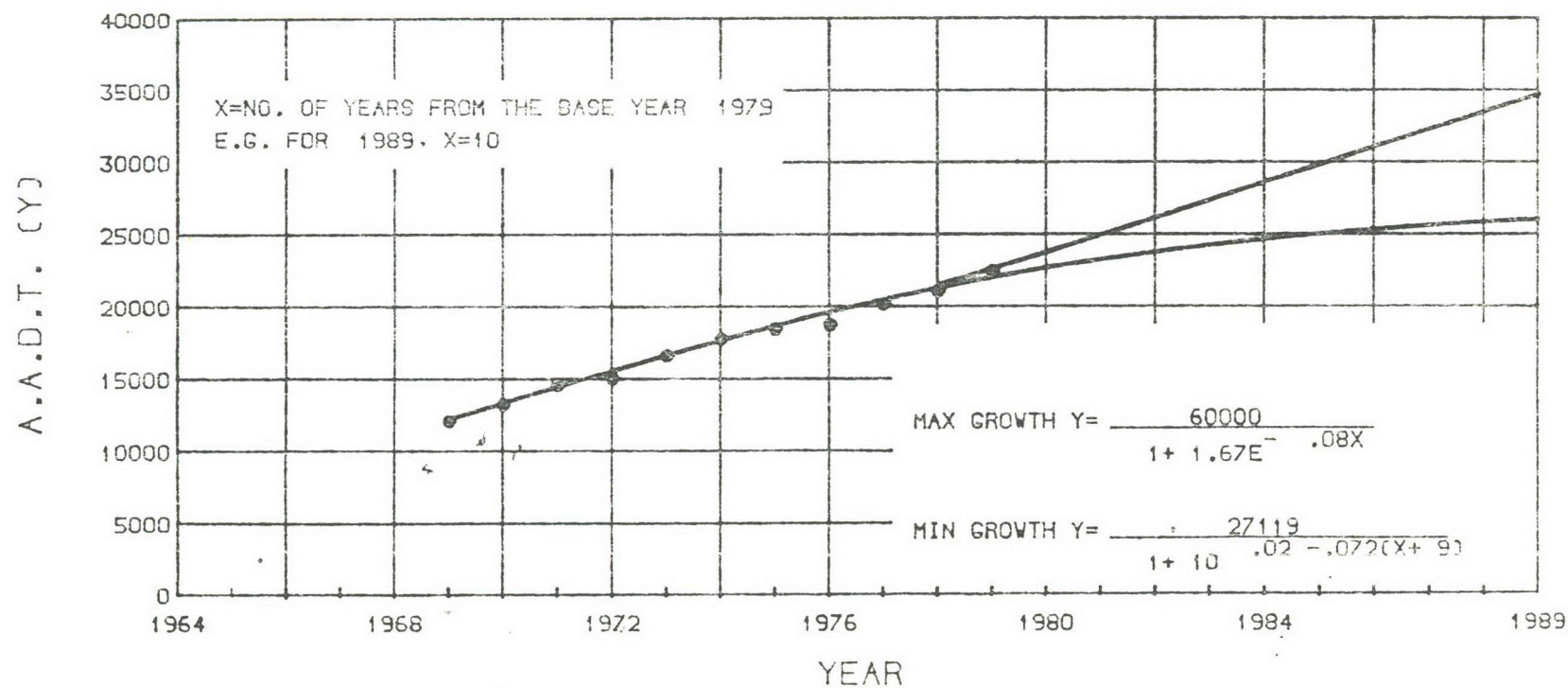


FIG.8

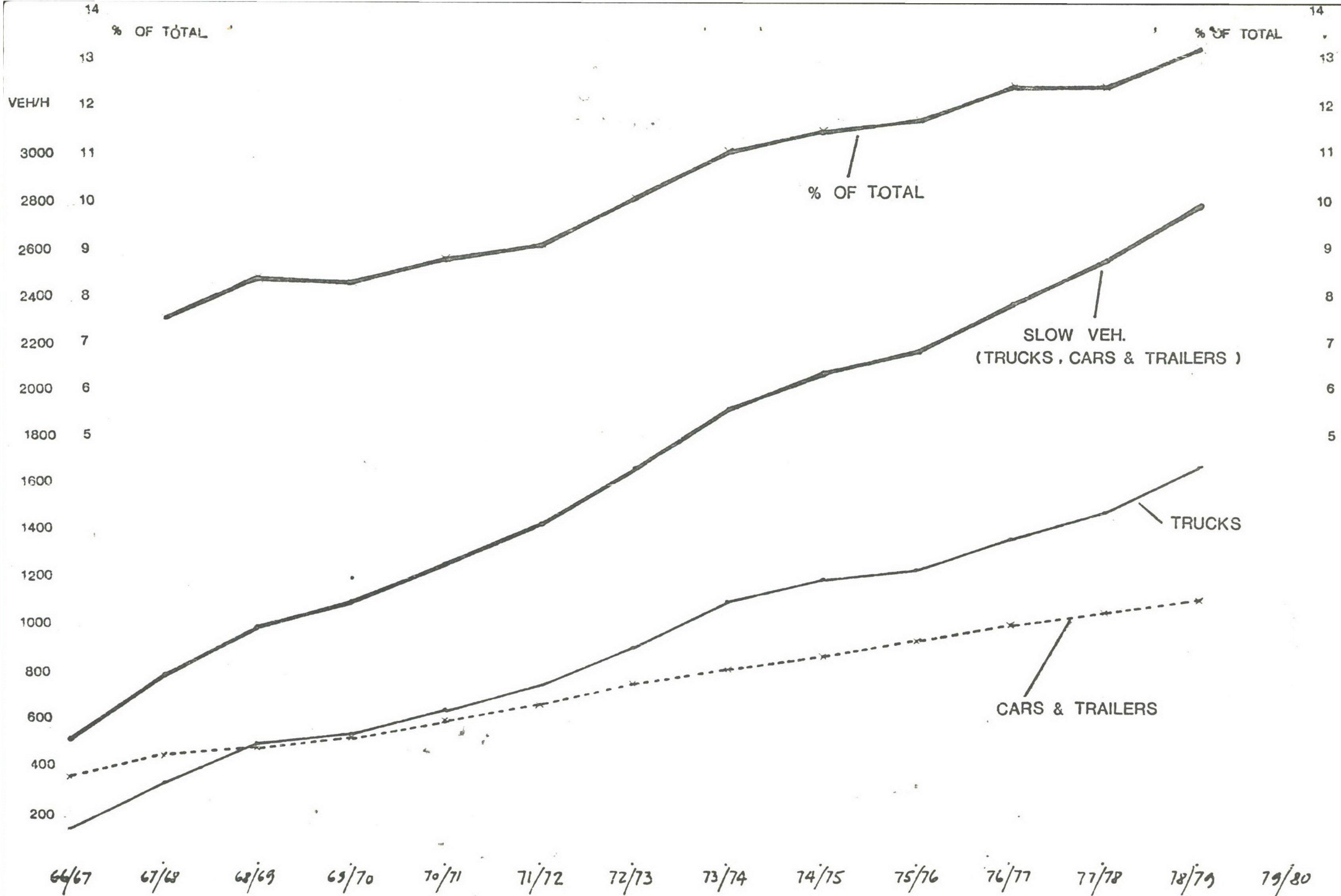


FIG.9

AVERAGE DAILY TRAFFIC FOR HV, C&T. : SLOW VEH.
AND %OF TOTAL.

F3 - HOURLY DISTRIBUTION OF TRAFFIC

BY CLASS - AT BEROWRA
TOLL BOOTHS.

8/9 JANUARY 1981.

NORTHBOUND

CLASSES :

E+F+G+H - OTHER TRAFFIC

A+B+D - HEAVY VEHICLES

C - CAR & TRAILER



TIME

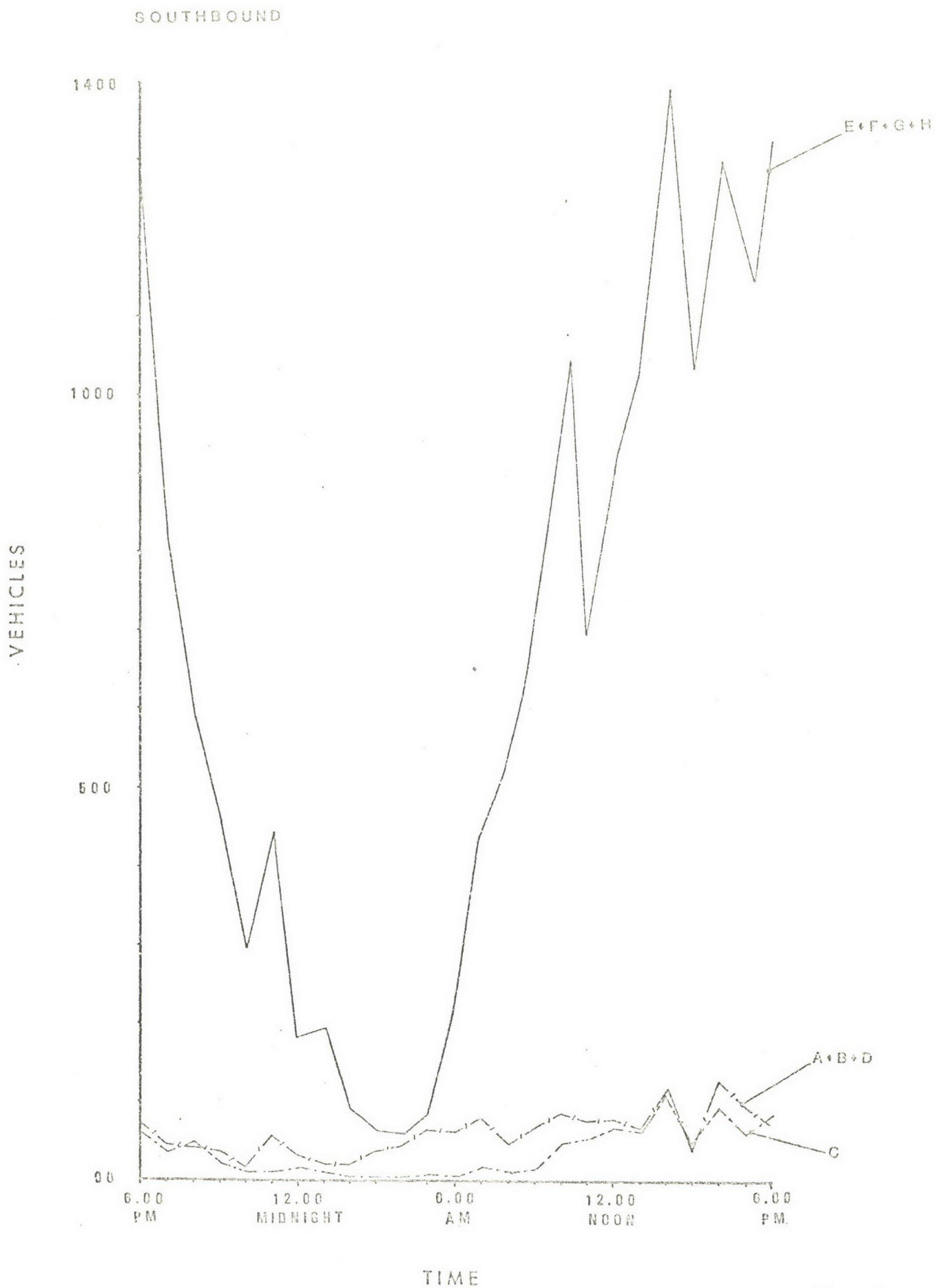
Appendix A

F3 - HOURLY DISTRIBUTION OF TRAFFIC
BY CLASS - AT BEROWHRA
TOLL BOOTHS.

8/9 JANUARY 1981.

CLASSES :

E+F+G+H - OTHER TRAFFIC
A+B+D - HEAVY VEHICLES
C - CAR & TRAILER

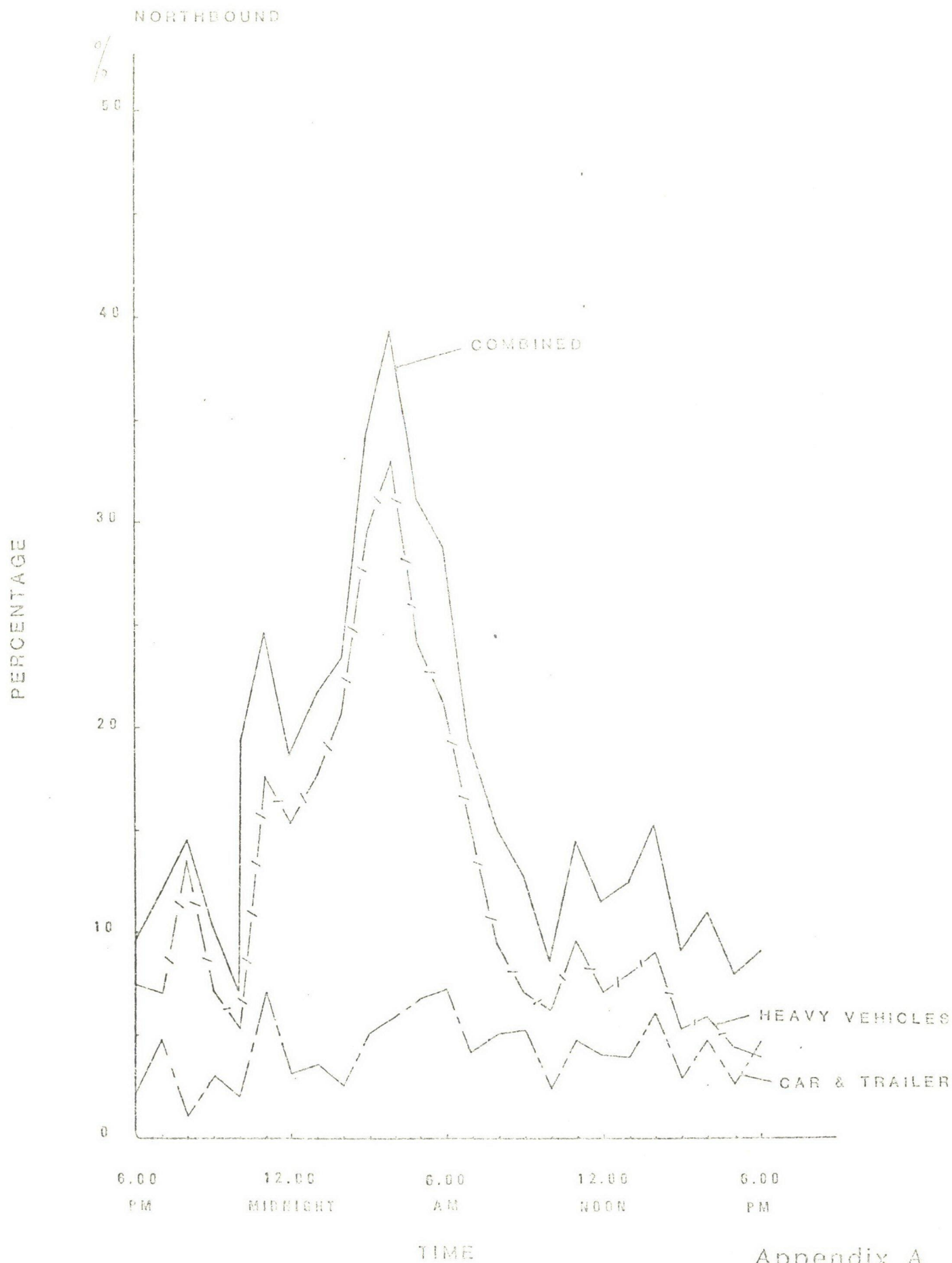


F3 - HOURLY DISTRIBUTION OF TRAFFIC

BY CLASS (BY PERCENTAGES)

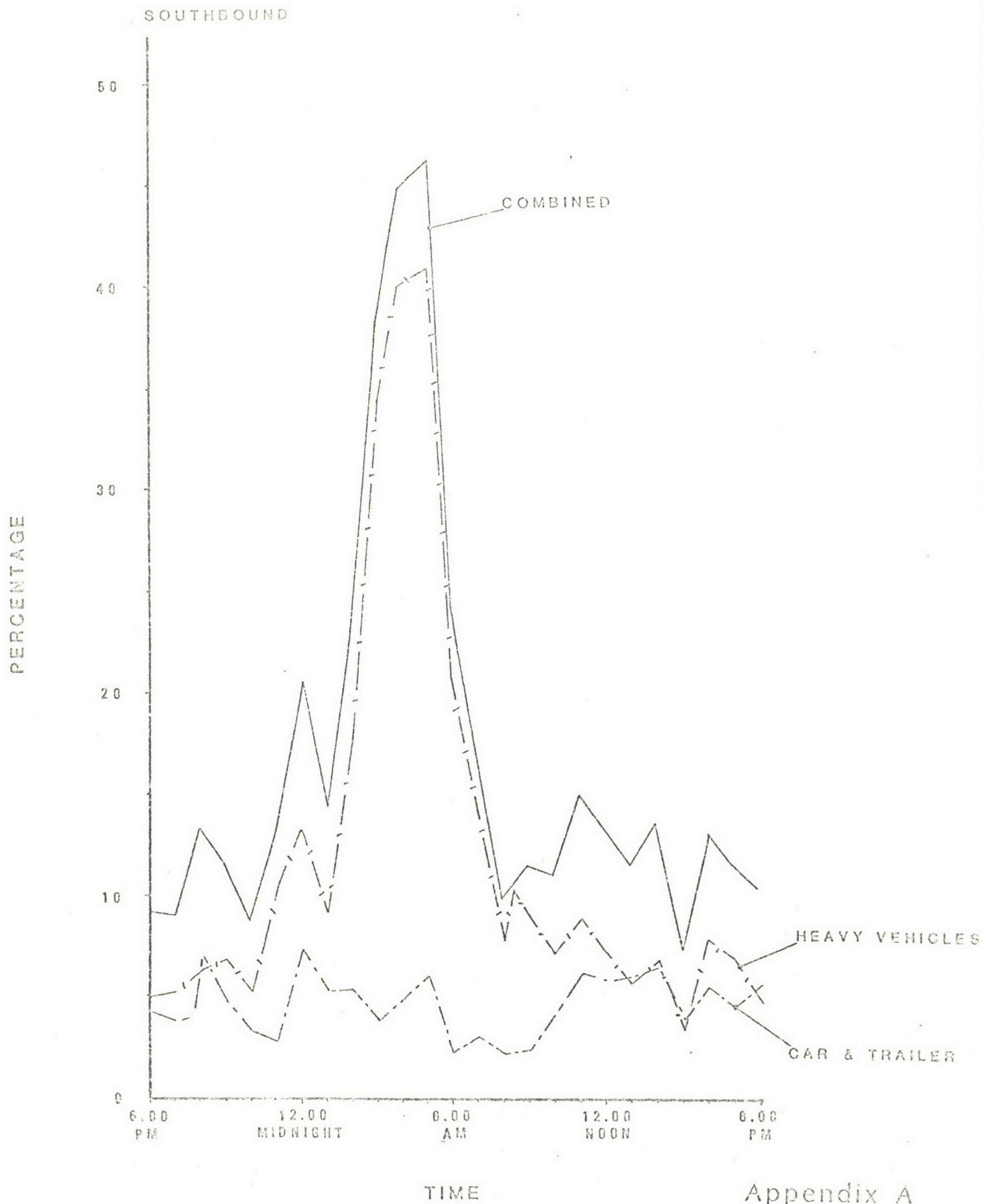
AT DEROWRA TOLL BOOTHS.

8/9 JANUARY 1981.



F3 - HOURLY DISTRIBUTION OF TRAFFIC
BY CLASS (BY PERCENTAGES) - AT BEROWRA
TOLL BOOTHS.

8/9 JANUARY 1981.



Appendix A

TOTAL VEHICLES DURING 24 HR SURVEY PERIOD -

1829 350 1516 565 28983 269 9 170 33691

74T 2-4T C+TR B CARS MC SUND EXM. TOTAL

↑ R J O'BRIEN
TOLLWAY MANAGER

130103 1317

DMRHOF AA21825
DMRM7OL AA22176

NB

DMRHOF AA21825
DMRMTOL AA22176

ETS - ATTENTION MR A DIMITRIC - URGENT.

BEROWRA-CALGA TOLLWAY TRAFFIC FIGURES FOR 24 HOUR PERIOD FROM
1800 HRS 8/1/81 TO 1800 HRS 9/1/81. FIGURES ARE RECORDED
HOURLY, LANE BY LANE AND IN VARIOUS TRAFFIC CLASSIFICATIONS.
(NOTE FOR EASE OF TELEX TRANSMISSION THE CLASSIFICATIONS HAVE
BEEN GIVEN A CODE AS FOLLOWS :

A - TRUCK OVER 4T
B - TRUCK 2-4T
C - CAR AND TRAILER/CARAVAN
D - BUS
E - CAR
F - MOTOR CYCLE
G - SUNDRIES
H - EXEMPTS.

NORTHBOUND

ALL LANES

TIME	A	B	C	D	E	F	G	H	TOTAL
6.00 PM	31	9	16	15	637	5		12	725
7.00	33	3	25	-	438	8		1	508
8.00	27	7	4	21	341	4		1	405
9.00	18	2	10	4	285	-		6	325
10.00	10	1	5	2	230	-		2	250
11.00	42	2	19	3	197	3		1	267
MIDNIGHT	18	-	4	1	96	2		2	123
1.00 AM	12	4	4	2	76	1		3	102
2.00	6	9	2	1	58	1		-	77
3.00	28	1	5	-	65	-		1	98
4.00	30	4	6	-	61	-		1	102
5.00	39	2	12	1	120	1		-	174
6.00	50	10	22	9	225	1		1	318
7.00	50	8	19	14	373	5		1	470
8.00	49	10	35	8	566	9		3	680
9.00	31	8	37	11	531	8		3	679
10.00	64	12	35	12	1289	10		3	1425
11.00	60	12	40	13	714	5		4	848
12.00	47	14	38	11	861	2	1	7	980
1.00 PM	54	11	36	14	812	4	1	7	939
2.00	51	18	57	15	749	12		7	909
3.00	43	5	34	8	888	8		5	991
4.00	49	7	62	16	1042	7		8	1191
5.00	40	5	40	16	1152	16		6	1255
6.00	37	7	64	14	1209	9		7	1347

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	TOTAL
A+D	B	A+B+D %	C %	E+F+G+H %	TOTAL
46	9	55 (7.53)	16 (2.21)	634 (90.21)	725
33	3	36 (7.09)	25 (4.92)	447 (87.99)	508
48	7	55 (13.58)	4 (0.99)	346 (85.45)	405
22	2	24 (7.38)	10 (3.08)	291 (89.54)	325
12	1	13 (5.20)	5 (2.00)	232 (92.80)	250
45	2	47 (17.60)	19 (7.12)	201 (75.28)	267
19	-	19 (5.40)	4 (3.23)	100 (81.30)	123
14	4	18 (7.65)	4 (3.92)	80 (78.43)	102
7	9	16 (20.75)	2 (2.00)	59 (76.62)	77
28	1	29 (29.59)	5 (5.10)	64 (65.31)	98
30	4	34 (33.33)	6 (5.88)	62 (60.78)	102
41	2	43 (24.43)	12 (6.62)	121 (68.75)	176
59	10	69 (21.70)	22 (6.92)	227 (71.38)	318
64	8	72 (15.32)	19 (4.04)	379 (80.64)	470
57	10	67 (9.85)	35 (5.15)	578 (85.00)	680
42	8	50 (7.36)	37 (5.45)	592 (87.19)	679
76	12	88 (6.18)	35 (2.46)	1302 (91.36)	1425
73	12	85 (10.02)	40 (4.72)	723 (85.26)	848
58	14	72 (7.35)	58 (3.88)	870 (88.79)	980
68	11	79 (8.41)	36 (3.88)	824 (87.71)	939
66	18	84 (9.24)	57 (6.17)	768 (84.40)	909
51	5	56 (5.65)	34 (3.43)	901 (90.92)	991
65	7	72 (6.05)	62 (5.21)	1057 (88.75)	1191
36	5	61 (4.36)	40 (3.19)	1154 (91.85)	1255
51	7	58 (4.31)	64 (4.75)	1225 (90.94)	1347
1131	171	1302 (85.7)	63 (4.16)	1325 (87.27)	15150

12/12/74

LANE 6 - NORTHBOUND

TIME	A	B	C	D	E	F	G	H	TOTAL
LANE CLOSED TILL 7.00 AM 9/1/81									
8.00 AM	-	-	1	2	40	2	-	1	46
LANE CLOSED TILL 2.00 PM 9/1/81									
3.00 PM	-	-	-	-	7	-	-	1	8
4.00	-	-	14	2	187	1	-	1	205
5.00	-	-	9	3	287	3	-	1	303
6.00	-	-	12	4	364	2	-	-	382
	-	-	36	11	885	8	-	4	944

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	TOTAL
A+D	B	A+B+D	C	E+F+G+H	
2	-	2 (4.35)	1 (2.17)	43 (93.48)	46
-	-	-	-	8 (100)	8
2	-	2 (0.98)	14 (6.83)	189 (92.20)	205
3	-	3 (0.99)	9 (2.97)	291 (96.04)	303
4	-	4 (1.05)	12 (3.14)	366 (95.81)	382
11	-	11 (1.17)	36 (3.81)	907 (96.08)	944

LANE 7 - NORTHBOUND (AUTOMATIC)

(CARS ONLY LANE)

TIME	E TOTAL
6.00 PM	279
7.00	175
8.00	130
9.00	118
10.00	91
11.00	49
MIDNIGHT TO 5.00 AM - LANE CLOSED	
6.00 AM	118
7.00	165
8.00	208
9.00	176
10.00	410
11.00	249
NOON	346
1.00 PM	350
2.00	290
3.00	349
4.00	335
5.00	336
6.00	334
	<u>4508</u>

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	
A+D	B	A+B+D	C	E+F+G+H	TOTAL
				279	279
				175	175
				130	130
				118	118
				91	91
				49	49
				-	-
				118	118
				165	165
				208	208
				176	176
				410	410
				249	249
				346	346
				350	350
				290	290
				349	349
				335	335
				336	336
				334	334
				4508	4508

LANE 8 - NORTHBOUND (AUTOMATIC)

(CARS ONLY LANE)

TIME	E TOTAL
6.00 PM	227
7.00	156
8.00	135
9.00	112
10.00	113
11.00	91
MIDNIGHT	59
1.00 AM	54
2.00	41
3.00	47
4.00	47
5.00	86
6.00	72
7.00	153
8.00	191
9.00	232
10.00	625
11.00	236
NOON	329
1.00 PM	328
2.00	260
3.00	333
4.00	334
5.00	327
6.00	315
	4903

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	
A+D	B	A+B+D	C	E+F+G+H	TOTAL
				227	227
				156	156
				135	135
				112	112
				113	113
				91	91
				59	59
				54	54
				41	41
				47	47
				47	47
				86	86
				72	72
				153	153
				191	191
				232	232
				625	625
				236	236
				329	329
				328	328
				260	260
				333	333
				334	334
				327	327
				315	315
				4903	4903

LANE 9 - NORTHBOUND

TIME	A	B	C	D	E	F	G	H	TOTAL
6.00 PM	31	9	16	15	131	5	-	12	219
7.00	33	8	25	-	107	8	-	1	177
8.00	27	7	4	21	76	4	-	1	140
9.00	18	2	10	4	55	-	-	6	95
10.00	10	1	5	2	26	-	-	2	46
11.00	32	2	18	2	57	3	-	1	115
MIDNIGHT	18	-	4	1	37	2	-	2	64
1.00 AM	12	4	4	2	22	1	-	3	48
2.00	6	9	2	1	17	1	-	-	36
3.00	28	1	5	-	16	-	-	1	51
4.00	30	4	6	-	14	-	-	1	55
5.00	39	2	12	1	34	1	-	-	89
6.00	50	10	22	9	35	1	-	1	128
7.00	48	7	18	14	55	5	-	1	148
8.00	-	2	25	4	102	7	-	1	141
9.00	-	1	26	8	135	4	-	2	176
10.00	3	3	24	10	228	8	-	1	277
11.00	42	11	35	9	212	3	-	4	316
NOON	34	12	35	11	174	1	-	6	273
1.00 PM	33	7	32	11	129	4	-	6	222
2.00	20	13	49	10	180	11	-	6	289
3.00	-	2	25	7	168	6	-	2	210
4.00	9	2	41	10	155	5	-	4	226
5.00	40	5	31	13	182	13	-	5	289
6.00	37	7	52	10	196	7	-	7	316
	600	126	526	175	2543	100	-	76	4146

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	TOTAL
A+D	B	A+B+D %	C %	E+F+G+H %	TOTAL
46	9	55(25.11)	16(7.31)	148(61.58)	219
33	3	36(20.34)	25(14.12)	116(65.54)	177
48	7	55(39.29)	4(2.86)	81(57.86)	140
22	2	24(25.26)	10(10.53)	61(64.20)	95
12	1	13(28.26)	5(10.87)	28(60.87)	46
34	2	36(31.36)	13(15.65)	61(53.04)	115
19	-	19(29.69)	4(6.25)	41(64.06)	64
14	4	18(37.50)	4(8.33)	26(54.17)	48
7	9	16(44.44)	2(5.56)	18(50.00)	36
28	1	29(56.86)	5(9.80)	17(33.33)	51
30	4	34(61.82)	6(10.91)	15(27.27)	55
40	2	42(47.19)	34(38.20)	35(39.53)	89
59	10	69(53.91)	22(17.19)	37(28.91)	128
62	7	69(46.62)	18(12.16)	61(41.22)	148
4	2	6(4.26)	25(17.73)	110(78.00)	141
8	1	9(5.10)	26(14.77)	141(80.11)	176
13	3	26(9.39)	24(8.66)	237(55.56)	277
51	11	62(19.62)	35(11.08)	219(69.30)	316
45	12	57(26.88)	35(12.82)	181(66.30)	273
44	7	51(22.97)	32(14.41)	139(62.61)	222
30	13	43(14.88)	49(16.36)	197(68.17)	289
7	2	9(4.29)	25(11.96)	176(83.81)	210
19	2	21(9.29)	41(18.14)	164(72.57)	226
53	5	58(20.07)	31(10.73)	200(69.20)	289
47	7	54(17.09)	52(16.46)	210(66.46)	316
775	126	901(21.73)	526(12.69)	2719(65.58)	4146

LANE 10 - NORTHBOUND

TIME	A	B	C	D	E	F	G	H	TOTAL
LANE CLOSED TILL 10.00 PM									
11.00 PM	10	-	1	1	-	-	-	-	12
MIDNIGHT TO 6.00 AM - LANE CLOSED									
7.00 AM	2	1	1	-	-	-	-	-	4
8.00	49	8	9	2	25	-	-	1	94
9.00	31	7	11	3	38	4	-	1	95
10.00	61	9	11	2	26	2	-	2	113
11.00	18	1	5	4	17	2	-	-	47
NOON	13	2	3	-	12	1	1	1	33
1.00 PM	21	4	4	3	5	-	1	-	38
2.00	31	5	8	5	19	1	-	1	70
3.00	43	3	9	1	31	2	-	2	91
4.00	40	5	7	4	31	1	-	3	91
LANE CLOSED TILL AFTER 6.00 PM									
	319	45	69	25	204	13	2	11	688

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	
A+D	B	A+B+D	C	E+F+G+H	TOTAL
		%	%	%	
11	-	11 (91.67)	1 (8.33)	-	12
2	1	3 (75.00)	1 (25.00)	-	4
51	8	59 (62.71)	9 (9.57)	26 (27.66)	94
34	7	41 (43.16)	11 (11.58)	43 (45.26)	95
63	9	72 (63.72)	11 (9.73)	30 (26.59)	113
12	1	23 (43.94)	5 (10.00)	19 (40.43)	47
13	2	15 (45.45)	3 (9.09)	15 (45.45)	33
24	4	28 (73.68)	4 (10.53)	6 (15.79)	38
36	5	41 (58.57)	8 (11.43)	21 (30.00)	70
44	3	47 (51.65)	9 (9.89)	35 (38.46)	91
44	5	49 (53.85)	7 (7.69)	35 (38.46)	91
344	45	389 (56.54)	69 (10.03)	230 (33.82)	688

SB

DMRHOFF AA21825
DMRMTOL AA22176

ETS - ATTENTION MR A DIMITRIC - URGENT.

BEROWRA-CALGA TOLLWAY TRAFFIC FIGURES FOR 24 HOUR PERIOD FROM
1800 HRS 8/1/81 TO 1800 HRS 9/1/81. FIGURES ARE RECORDED
HOURLY, LANE BY LANE AND IN VARIOUS TRAFFIC CLASSIFICATIONS.
(NOTE FOR EASE OF TELEX TRANSMISSION THE CLASSIFICATIONS HAVE
BEEN GIVEN A CODE AS FOLLOWS :

- A - TRUCK OVER 4T
- B - TRUCK 2-4T
- C - CAR AND TRAILER/CARAVAN
- D - BUS
- E - CAR
- F - MOTOR CYCLE
- G - SUNDRIES
- H - EXEMPTS.

SOUTHBOUND

ALL LANES

TIME	A	B	C	D	E	F	G	H	TOTAL	A+D	B	A+B+D	C	E+F+G+H	TOTAL
6.00 PM	38	6	57	24	1224	18	-	2	1369	62	6	68 (4.97)	57 (4.16)	1244 (90.37)	1369
7.00	22	14	34	10	806	3	-	2	891	32	14	46 (5.16)	34 (3.82)	811 (91.02)	891
8.00	30	6	48	6	577	6	2	2	677	36	6	42 (6.26)	48 (7.69)	587 (86.71)	677
9.00	18	8	24	10	461	2	-	2	525	28	8	36 (6.86)	24 (4.57)	465 (88.57)	525
10.00	8	2	11	7	292	3	-	1	324	15	2	17 (5.25)	11 (3.40)	296 (91.36)	324
11.00	30	5	14	19	437	5	-	1	511	49	5	54 (10.57)	14 (2.70)	443 (86.60)	511
MIDNIGHT	23	5	17	4	187	1	-	2	239	27	5	32 (13.39)	17 (7.11)	190 (79.50)	239
1.00 AM	15	3	12	3	185	7	1	4	230	18	3	21 (9.13)	12 (5.22)	197 (85.65)	230
2.00	18	1	6	1	86	-	-	1	113	19	1	20 (17.76)	6 (5.31)	87 (76.99)	113
3.00	25	8	4	3	62	2	-	1	105	28	8	26 (37.29)	4 (3.31)	65 (61.90)	105
4.00	34	7	5	1	58	-	-	-	105	35	7	42 (40.00)	5 (4.76)	58 (55.24)	105
5.00	52	7	8	4	82	-	-	1	154	56	7	63 (40.91)	8 (5.19)	83 (53.90)	154
6.00	51	5	6	4	203	2	-	3	274	55	5	60 (21.90)	6 (2.19)	208 (75.31)	274
7.00	57	11	15	7	410	6	-	11	517	64	11	75 (14.51)	15 (2.90)	427 (82.59)	517
8.00	33	3	12	8	496	5	-	7	564	41	3	44 (7.89)	12 (2.13)	508 (90.07)	564
9.00	45	9	17	10	623	2	-	6	712	55	9	64 (8.99)	17 (2.39)	631 (88.62)	712
10.00	57	9	47	16	1024	10	-	10	1173	73	9	82 (6.99)	47 (4.01)	1044 (89.00)	1173
11.00	45	15	50	13	685	8	-	7	823	58	15	73 (8.87)	50 (6.20)	700 (83.05)	823
NOON	57	8	63	11	919	-	-	5	1063	68	8	76 (7.15)	63 (5.93)	924 (86.92)	1063
1.00 PM	49	4	69	12	1014	11	-	1	1160	61	4	65 (5.60)	69 (5.95)	1026 (88.45)	1160
2.00	68	15	105	29	1379	14	1	2	1613	97	15	112 (6.94)	105 (6.51)	1396 (86.59)	1613
3.00	20	2	42	16	1014	6	1	2	1103	36	2	28 (3.48)	42 (3.81)	1025 (92.75)	1103
4.00	40	13	82	63	1284	14	1	3	1500	103	13	116 (7.73)	82 (5.47)	1302 (86.30)	1500
5.00	38	6	58	46	1133	12	-	1	1294	84	6	90 (6.90)	58 (4.48)	1146 (88.56)	1294
6.00	37	7	79	27	1299	11	1	2	1463	64	7	71 (4.83)	79 (5.40)	1313 (89.78)	1463
	910	179	885	354	15940	148	7	79	18522	1264	179	1443 (7.80)	885 (4.76)	16174 (87.42)	18522

2,323 (12.61)

LANE 1 - SOUTHBOUND

TIME	A	B	C	D	E	F	G	H	TOTAL
6.00 PM	38	4	29	6	106	6	-	1	190
7.00	20	11	14	8	79	1	-	-	133
8.00	12	2	7	1	13	1	-	-	36
9.00	10	4	10	1	24	1	-	1	51
10.00	8	2	11	-	22	2	-	1	46
11.00	29	3	14	4	67	1	-	1	119
MIDNIGHT	12	1	4	-	9	-	-	-	26
1.00 AM	-	-	-	-	-	-	-	-	-
2.00	4	-	-	1	2	-	-	-	7
3.00	-	-	-	-	-	-	-	-	-
4.00	-	-	-	-	-	-	-	-	-
5.00	-	-	-	-	-	-	-	-	-
6.00	-	-	-	-	-	-	-	-	-
7.00	56	10	3	4	24	-	-	5	102
8.00	33	2	8	2	35	2	-	3	85
9.00	43	9	3	6	21	1	-	3	86
10.00	32	2	8	3	23	3	-	4	75
11.00	37	11	24	11	32	3	-	5	173
NOON	40	4	17	4	20	-	-	-	85
1.00 PM	43	4	19	2	35	3	-	-	106
2.00	68	12	73	19	186	9	1	1	369
3.00	20	2	19	3	52	1	1	1	99
4.00	39	13	9	46	85	4	1	-	197
5.00	38	6	39	10	117	5	-	-	215
6.00	37	6	51	7	138	9	1	1	250
	619	108	362	138	1140	52	4	27	2430

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	TOTAL
A+D	B	A+B+D	C	E+F+G+H	TOTAL
		%	%	%	
44	4	42 (25.3)	29 (15.3)	113 (59.5)	190
28	11	39 (29.3)	14 (10.5)	80 (60.2)	133
13	2	15 (41.7)	7 (19.4)	14 (38.9)	36
11	4	15 (29.4)	10 (19.6)	26 (51.0)	51
8	2	10 (21.7)	11 (23.9)	25 (54.3)	46
33	3	36 (30.3)	14 (11.9)	69 (58.0)	119
12	1	13 (50.0)	4 (15.4)	9 (34.6)	26
-	-	-	-	-	-
5	-	5 (71.4)	-	2 (28.6)	7
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
60	10	70 (68.6)	3 (2.9)	29 (28.4)	102
35	2	37 (43.5)	8 (9.4)	40 (47.1)	85
44	9	58 (67.4)	3 (3.5)	25 (29.1)	86
35	2	37 (49.3)	8 (10.7)	30 (40.0)	75
48	11	59 (34.1)	24 (13.9)	90 (52.0)	173
44	4	48 (56.5)	17 (20.0)	20 (23.5)	85
45	4	49 (46.2)	19 (17.9)	38 (35.8)	106
67	12	99 (26.8)	73 (19.8)	197 (53.4)	369
23	2	25 (25.3)	19 (19.2)	55 (55.6)	99
85	13	98 (44.7)	9 (4.6)	90 (45.7)	197
48	6	54 (25.1)	39 (18.1)	122 (56.7)	215
44	6	60 (24.0)	51 (20.4)	149 (59.6)	250
757	108	865 (35.3)	362 (14.8)	1223 (49.9)	2450

LANE 2 - SOUTHBOUND

TIME	A	B	C	D	E	F	G	H	TOTAL
6.00 PM	-	2	28	18	320	12	-	1	381
7.00	2	3	20	2	208	2	-	2	239
8.00	18	4	41	5	148	5	2	2	225
9.00	8	4	14	2	107	1	-	1	144
10.00	-	-	-	7	87	1	-	-	95
11.00	1	2	-	15	215	4	-	-	237
MIDNIGHT	11	4	13	4	86	1	-	2	121
1.00 AM	15	3	12	3	58	7	1	4	103
2.00	14	1	6	-	38	-	-	1	60
3.00	25	8	4	3	25	2	-	1	68
4.00	34	7	5	1	23	-	-	-	70
5.00	52	7	8	4	23	-	-	1	95
6.00	51	5	6	4	25	2	-	3	96
7.00	1	1	12	3	99	6	-	6	128
8.00	-	1	4	6	137	3	-	4	155
9.00	2	-	14	4	134	1	-	3	158
10.00	25	7	39	13	196	7	-	6	293
11.00	8	4	26	2	300	5	-	2	347
NOON	17	4	46	7	196	-	-	5	275
1.00 PM	6	-	50	10	193	8	-	1	268
2.00	-	2	32	4	203	3	-	1	245
3.00	-	-	20	3	102	2	-	-	127
4.00	1	-	70	8	272	7	-	2	360
5.00	-	-	19	36	290	7	-	1	353
6.00	-	1	29	20	355	2	-	1	407
	291	70	517	191	3840	88	3	50	5050

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	TOTAL
A+D	B	A+B+D	C	E+F+G+H	TOTAL
		%	%	%	
18	2	28 (5.25)	28 (7.35)	333 (87.40)	381
4	3	7 (2.93)	20 (8.37)	212 (88.70)	239
23	4	27 (12.00)	41 (18.22)	157 (69.78)	225
17	4	21 (14.55)	14 (9.72)	109 (75.69)	144
7	-	7 (7.37)	-	88 (92.63)	95
16	2	18 (7.59)	-	219 (92.41)	237
15	4	19 (15.70)	13 (10.74)	89 (73.55)	121
18	3	21 (20.39)	12 (11.65)	70 (67.96)	103
14	1	15 (25.00)	6 (10.00)	39 (65.00)	60
28	8	36 (52.94)	4 (5.88)	28 (41.18)	68
35	7	42 (60.00)	5 (7.14)	23 (32.86)	70
56	7	63 (66.32)	8 (8.42)	24 (25.26)	95
55	5	60 (62.50)	6 (6.25)	30 (31.25)	96
4	1	5 (3.91)	12 (9.38)	111 (86.72)	128
6	1	7 (4.52)	4 (2.58)	144 (92.90)	155
6	-	6 (3.80)	14 (8.86)	138 (87.34)	158
38	7	45 (15.30)	39 (13.31)	209 (71.33)	293
10	4	14 (4.03)	26 (7.49)	307 (88.47)	347
24	4	28 (10.18)	46 (16.73)	201 (73.09)	275
16	-	16 (5.97)	50 (18.66)	202 (75.37)	268
4	2	6 (2.45)	32 (13.06)	207 (84.49)	245
3	-	3 (2.36)	20 (15.79)	104 (81.89)	127
9	-	9 (2.50)	70 (19.44)	281 (78.06)	360
36	-	36 (10.29)	19 (5.36)	298 (84.42)	353
20	1	21 (5.16)	28 (6.85)	358 (87.96)	407
482	70	552 (10.93)	517 (10.24)	3981 (78.83)	5050

LANE 3 - SOUTHBOUND (AUTOMATIC)

(CARS ONLY LANE)

TIME	E TOTAL
6.00 PM	401
7.00	266
8.00	225
9.00	152
10.00	2
11.00	56
MIDNIGHT	92
1.00 AM	127
2.00	46
3.00	37
4.00	35
5.00	59
6.00	37
7.00	149
8.00	170
9.00	244
10.00	292
11.00	213
12.00	376
1.00 PM	386
2.00	380
3.00	248
4.00	374
5.00	350
6.00	396
	5113

HEAVY TRUCKS & BUS		TRUCK 2-4 T		HEAVY VEHICLES		SLOW VEHICLES (CAR & TRAILERS)		CARS & OTHERS	
A+D	B	A+B+D	C	E+F+G+H	TOTAL				
				401	401				
				266	266				
				225	225				
				152	152				
				2	2				
				56	56				
				92	92				
				127	127				
				46	46				
				37	37				
				35	35				
				59	59				
				37	37				
				149	149				
				170	170				
				244	244				
				292	292				
				213	213				
				376	376				
				386	386				
				380	380				
				248	248				
				374	374				
				350	350				
				396	396				
				5113	5113				

LANE 4 - SOUTHBOUND (AUTOMATIC)

(CARS ONLY LANE)

TIME	E TOTAL
6.00 PM	397
7.00	253
8.00	191
9.00	178
10.00	181
11.00	99
MIDNIGHT TO 5.00 AM - LANE CLOSED	
6.00 AM	141
7.00	138
8.00	154
9.00	224
10.00	513
11.00	90
NOON	327
1.00 PM	400
2.00	402
3.00	426
4.00	388
5.00	376
6.00	410
	5288

HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	
A+D	B	A+B+D	C	E+F+G+H	TOTAL
				397	397
				253	253
				191	191
				178	178
				181	181
				99	99
				-	-
				141	141
				138	138
				154	154
				224	224
				513	513
				90	90
				327	327
				400	400
				402	402
				426	426
				388	388
				376	376
				410	410
				5288	5288

LANE 5 - SOUTHBOUND

TIME	A	B	C	D	E	F	G	H	TOTAL
LANE CLOSED TILL 2.00 PM 9/1/81									
2.00 PM	-	1	-	6	208	2	-	-	217
3.00	-	-	3	10	186	3	-	1	203
4.00	-	-	3	2	165	3	-	1	181

LANE CLOSED TILL AFTER 6 PM

-	1	6	25	559	8	-	2	601
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HEAVY TRUCKS & BUS	TRUCK 2-4 T	HEAVY VEHICLES	SLOW VEHICLES (CAR & TRAILERS)	CARS & OTHERS	
A+D	B	A+B+D	C	E+F+G+H	TOTAL
		%	%	%	
6	1	7 (3.23)	-	210 (96.77)	217
10	-	10 (4.93)	3 (1.48)	190 (93.60)	203
9	-	9 (4.97)	3 (1.66)	169 (93.37)	181
25	1	26 (4.33)	6 (1.80)	569 (94.63)	601

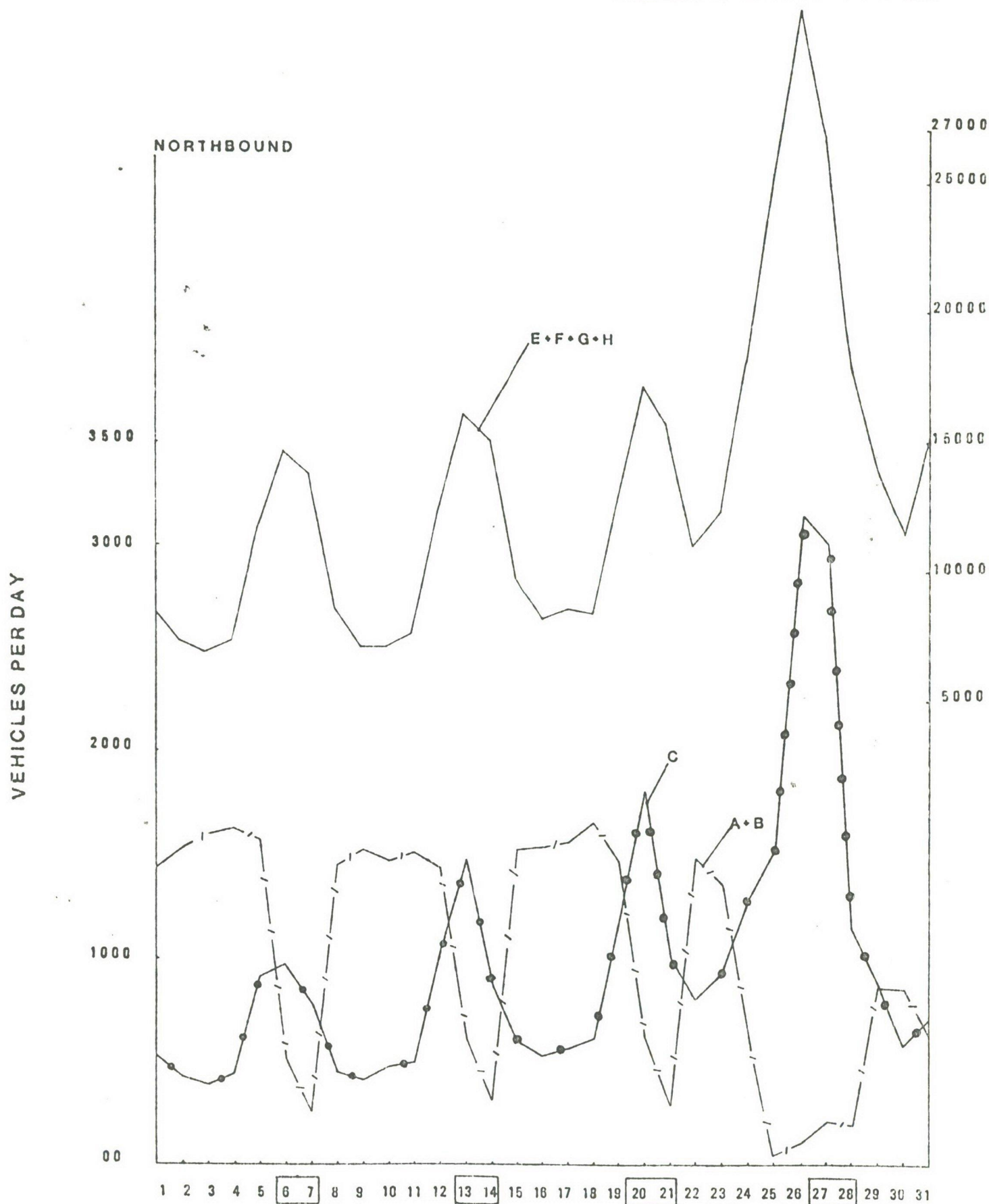
F3 - DAILY DISTRIBUTION OF TRAFFIC
BY CLASS - AT BEROWRA
TOLL BOOTHS.

CLASSES:

E+F+G+H + OTHER TRAFFIC
A+B + HEAVY VEHICLES
C + CAR & TRAILER

DECEMBER 1980.

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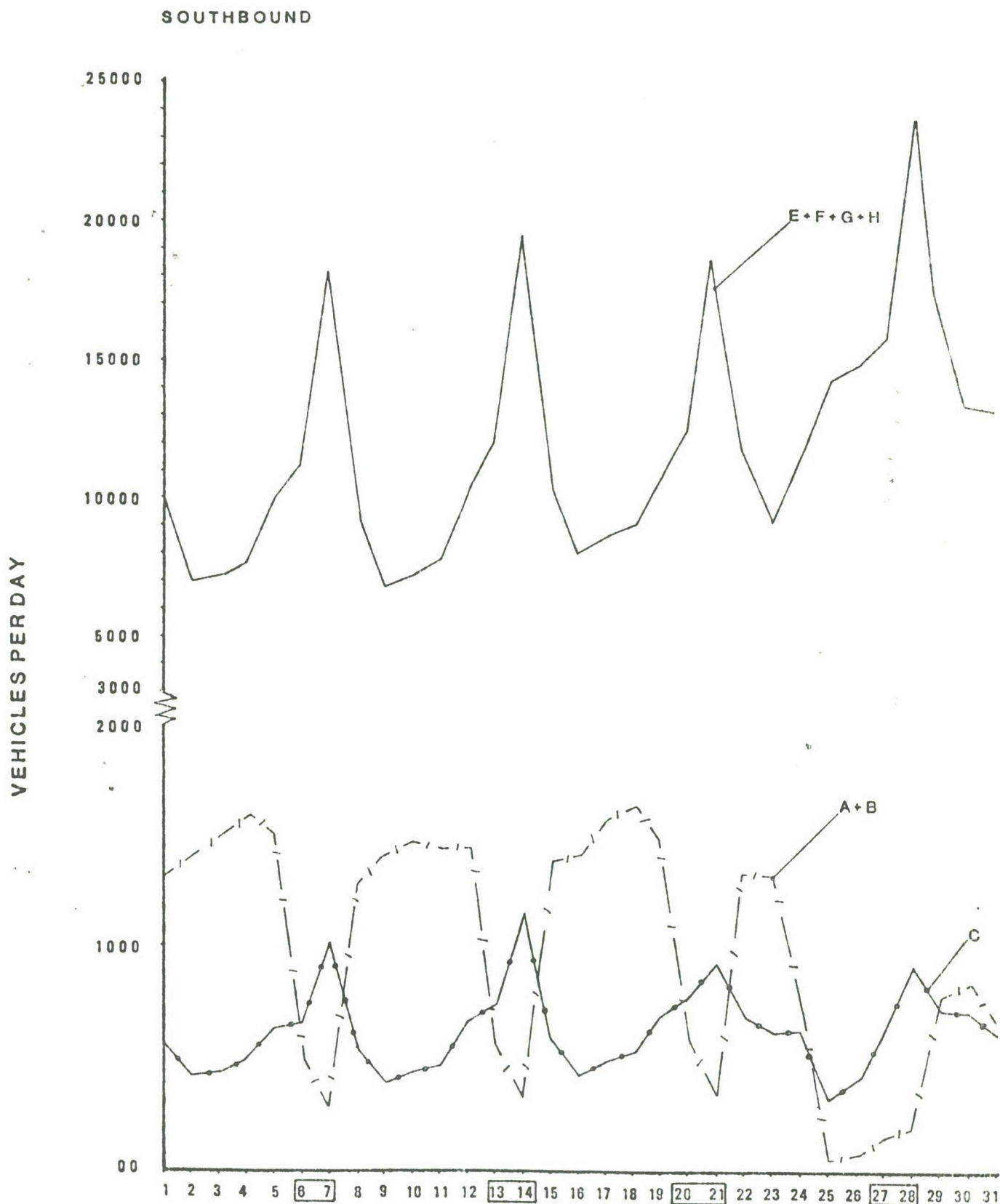
F3 - DAILY DISTRIBUTION OF TRAFFIC
BY CLASS - AT BEROWRA
TOLL BOOTHS.

CLASSES:

E+F+G+H - OTHER TRAFFIC
A+B - HEAVY VEHICLES
C - CAR & TRAILER

DECEMBER 1980

WEEKENDS SHOWN THUS ☐



DECEMBER 1980

Appendix B

**F3 - DAILY DISTRIBUTION OF TRAFFIC
BY CLASS - AT BEROWRA
TOLL BOOTHS**

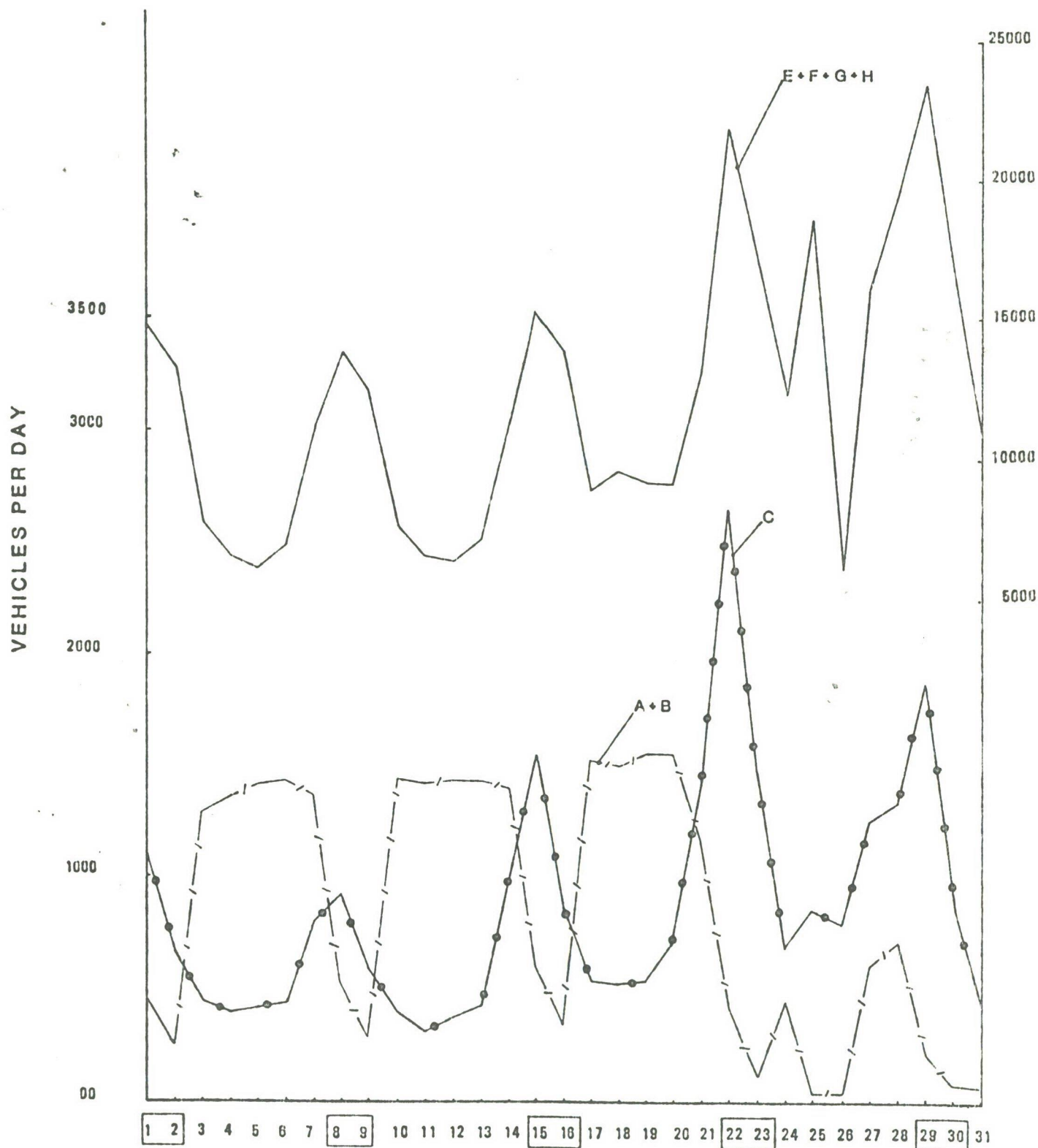
CLASSES:

E-F-G-H - OTHER TRAFFIC
A-B - HEAVY VEHICLES
C - CAR & TRAILER

DECEMBER 1979.

WEEKENDS SHOWN THUS

NORTHBOUND



DECEMBER 1979

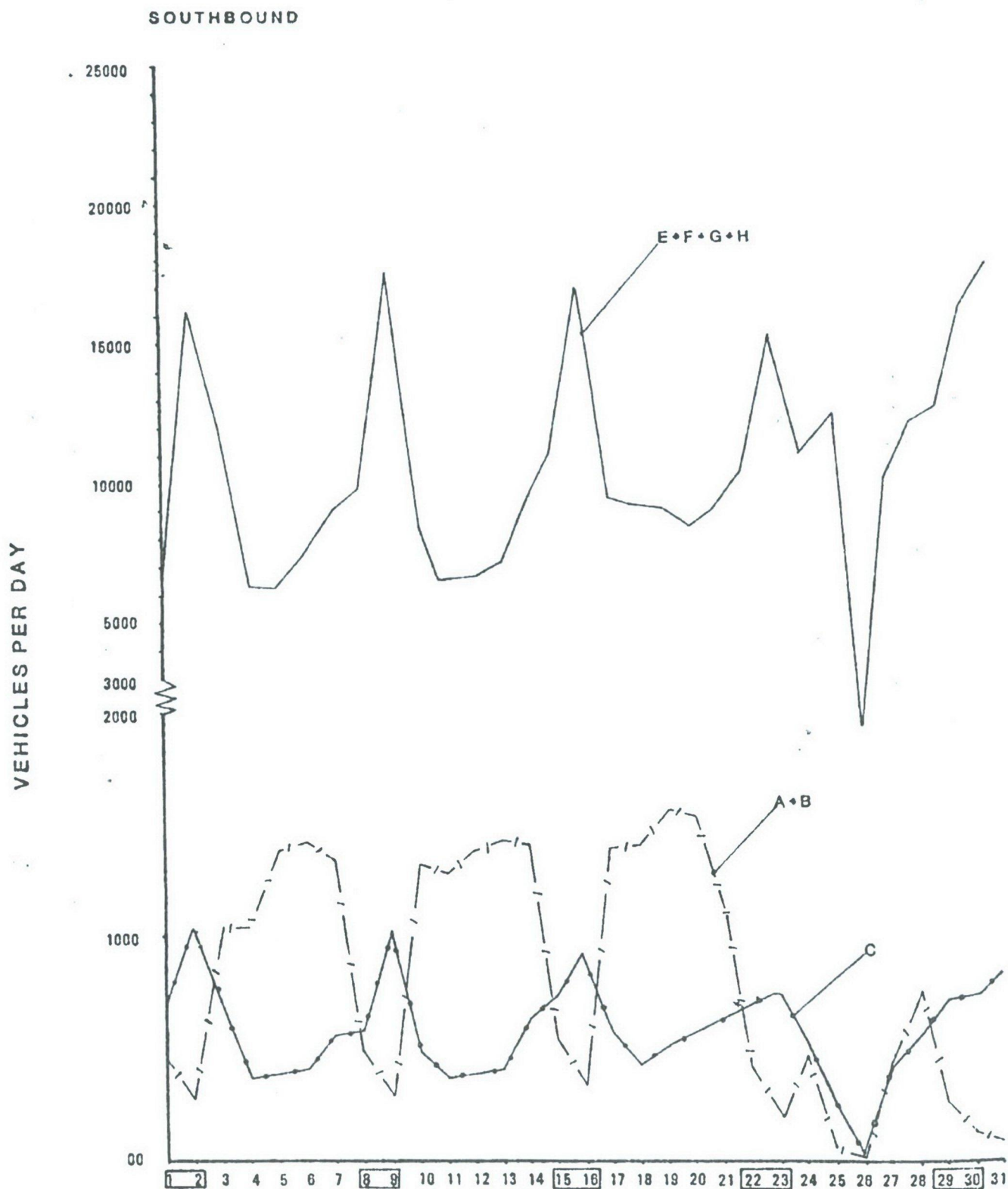
F3 - DAILY DISTRIBUTION OF TRAFFIC
BY CLASS - AT BEROWRA
TOLL BOOTHS.

CLASSES:

E•F•G•H - OTHER TRAFFIC
A•B - HEAVY VEHICLES
C - CAR & TRAILER

DECEMBER 1979.

WEEKENDS SHOWN THUS ☐



DECEMBER 1979

Appendix B