Elizabeth Drive

ENVIRONMENTAL IMPACT STATEMENT

Upgrade of Elizabeth Drive from East of Mamre Road to Luddenham Road

WORKING PAPER No.4 TRAFFIC AND TRANSPORT ASSESSMENT

Prepared by Rust PPK
in association with
RTA Technical Services and TEC Consultants

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Better Roads.Safer Roads.
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AUSTRALIA DEPARTMENT OF Transport

RUST PPK
Environment & Infrastructure

Upgrade of Elizabeth Drive Environmental Impact Statement

Working Paper No. 4 Traffic and Transport Assessment of Western Sydney Orbital and Elizabeth Drive

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1. Introduction

In the preparation of the Environmental Impact Statement for the Upgrade of Elizabeth Drive and the Overview Report on the Western Sydney Orbital, a number of traffic and transport investigations were done. This report presents the wide focus of those technical investigations and puts them into a single volume. This is a collaborative work of separate research tasks undertaken to support the detail of the Environmental Impact Statement and the broad regional scope of the Overview Report. The drawing of conclusions and relationships is generally the province of the final reports, with this material providing the technical base.

As well as traffic engineers and transport planners at Rust PPK, the following specialists prepared sections of this Working Paper:

Traffic and Transport Surveys Pty Ltd	A range of traffic counts were taken to support the traffic modelling and to define the present traffic situation. These were added to other recent traffic data to gain an understanding of traffic volumes, types of vehicles, patterns of use and direction of traffic. The vehicle classifications were carried out manually over 24 hours to ensure accuracy.
RTA-Traffic Services	Using travel information based on employment and residential forecasts, RTA's Traffic Services Branch carried out several runs of their regional traffic model for Sydney's Road Network. Forecasts were for different years and for different road development stages.
TEC	The opportunities for public transport in the Western Sydney Orbital projects and with the development of the Sydney West Airport have been specifically reviewed.

As well as managing the production of these investigations, Rust PPK have made specific investigations of the freight movements at present and in the future and carried out the interpretations found in Chapter 6.

Details of modelling and traffic assignment work using a TRACKS model for the Prestons to Cecil Park section of the Orbital Route, will be included with EIS documents for this section of Motorway.

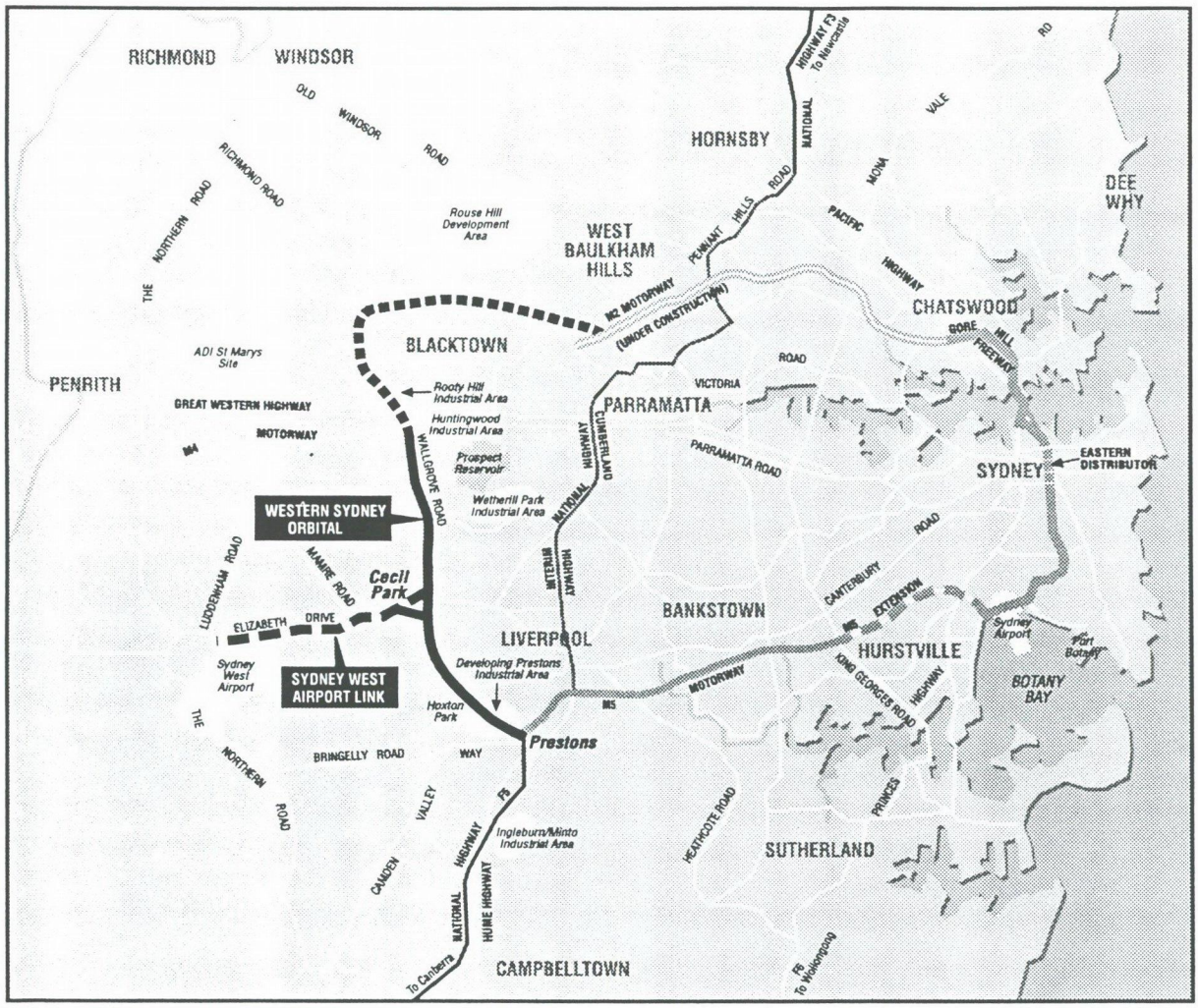


Figure 1.1
Location and Elements of Project

2. Traffic Analysis

Present traffic patterns are of great interest in environmental assessments because they have such a direct bearing on present environmental conditions. They are also relevant in studying what traffic is generated by the present level of development to better understand what traffic might develop from increased development. A series of traffic investigations were carried out to answer the following questions:

1. What type of vehicles are using the roads most likely to experience traffic changes due to the Western Sydney Orbital projects?

2. How does the traffic behave at different times of the day?

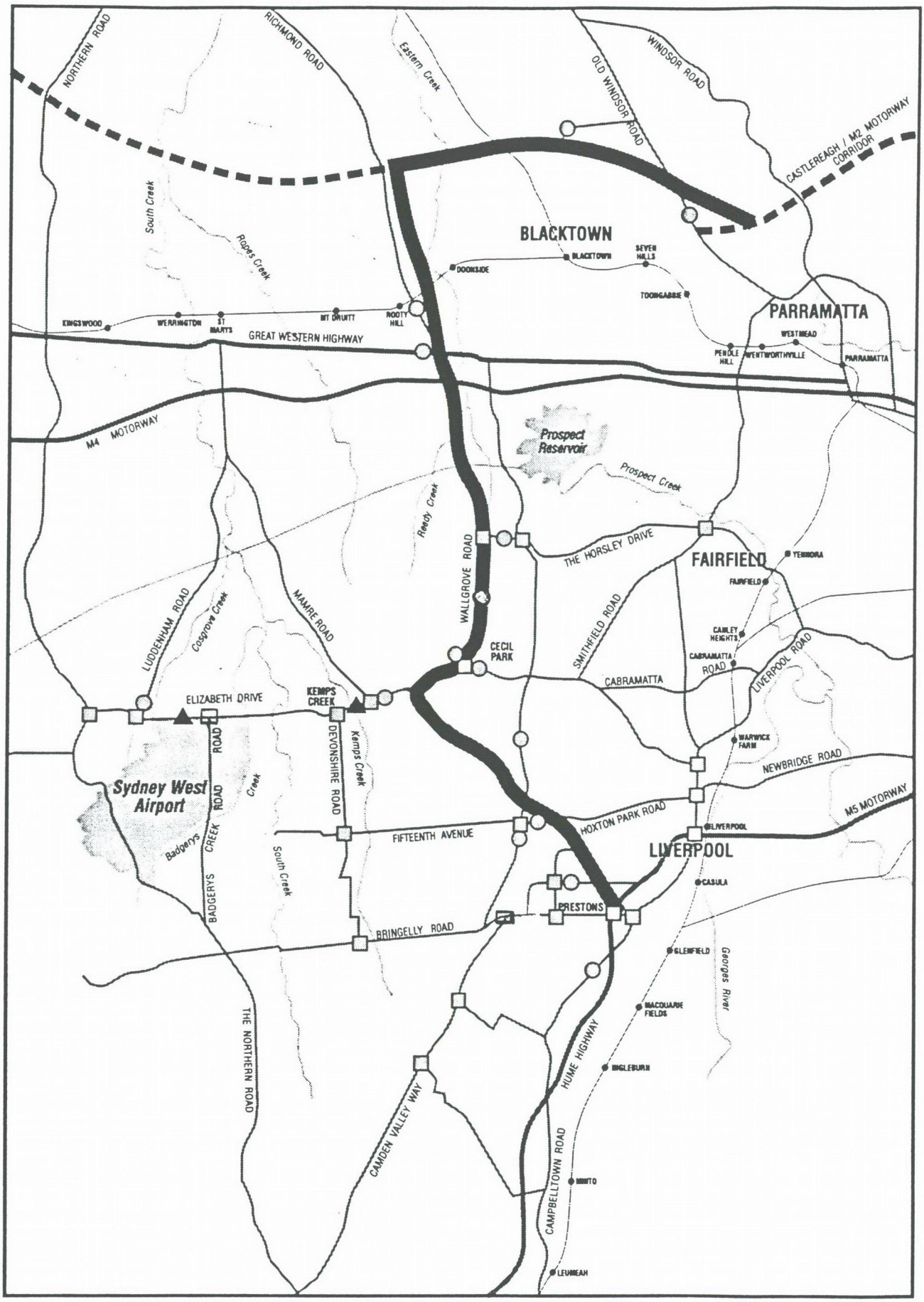
3. At major intersections, how many turns are made and in what direction?

4. The regional traffic model uses a window of time from 7am through 9am on weekdays, and extensive information along boundaries called screen lines, that collect almost all north/south and east/west traffic, is needed to look at traffic level adjustments for non-work based travel. What traffic crosses the screen lines?

5. How do present traffic levels compare to traffic levels recorded in the past?

Two types of traffic counting were carried out. 24 hour manual classified counts which collect traffic flow, vehicle type and time of day information. The second were intersection counts, collected manually, which counted traffic during the morning peak recording turning behaviour at the intersection. One automatic counting machine survey was done in Elizabeth Drive, east of Taylor Road, to record several weeks traffic patterns adjacent to an air quality monitoring station. Surveys were carried out in June 1995. With those counts, sketches were done to describe the layout of the intersection on the day. Figure 2.1 shows the location of the counts carried out for Study and which of the two types of survey it was.

The detailed results are shown in Appendix A. Table 2.1 is a summary of the 24 hour Classification Counts by Location.



○ 24Hr classified counts

□ AM Peak intersection counts

▲ Elizabeth Drive classified counts

N

0 10 Km

Figure 2.1
Traffic Count Locations

Table 2.1
Summary of 24 Hour Classification Counts

Summary of 24 Hour Classification Counts					
: The Horsley Drive near Wallgrove Road					
	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	15704	1939	17643	10.99%	
Daytime	14498	1788	16286	10.98%	92.31%
Nighttime	1206	151	1357	11.13%	7.69%
AM Peak Hour	1379	155	1523	10.18%	8.63%
AM Peak 2Hr	2747	286	3033	9.43%	17.19%
PM Peak Hour	1900	132	1991	6.63%	11.28%
PM Peak 2Hr	3484	223	3707	6.02%	21.01%
: Wallgrove Road - North of Elizabeth Dr					
	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	11087	2319	13406	17.30%	
Daytime	10305	2172	12477	17.41%	93.07%
Nighttime	782	147	929	15.82%	6.93%
AM Peak Hour	972	196	1142	17.16%	8.52%
AM Peak 2Hr	1791	366	2157	16.97%	16.09%
PM Peak Hour	980	175	1076	16.26%	8.03%
PM Peak 2Hr	1862	243	2105	11.54%	15.70%
: Elizabeth Dr - at Duff Road					
	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	12786	2777	15563	17.84%	
Daytime	12125	2705	14830	18.24%	95.29%
Nighttime	661	72	733	9.82%	4.71%
AM Peak Hour	1312	236	1544	15.28%	9.92%
AM Peak 2Hr	2481	468	2949	15.87%	18.95%
PM Peak Hour	1350	279	1477	18.89%	9.49%
PM Peak 2Hr	2603	334	2937	11.37%	18.87%
: Elizabeth Drive - East of Wallgrove Road					
	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	20694	3407	24101	14.14%	
Daytime	18858	3143	22001	14.29%	91.29%
Nighttime	1836	264	2100	12.57%	8.71%
AM Peak Hour	1732	262	1980	13.23%	8.22%
AM Peak 2Hr	3292	468	3760	12.45%	15.60%
PM Peak Hour	1931	259	2108	12.29%	8.75%
PM Peak 2Hr	3759	431	4190	10.29%	17.39%

: Cowpasture Road - South of Hoxton Park Road

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	8722	2056	10778	19.08%	
Daytime	8022	1904	9926	19.18%	92.10%
Nighttime	700	152	852	17.84%	7.90%
AM Peak Hour	859	274	1133	24.18%	10.51%
AM Peak 2Hr	1630	443	2073	21.37%	19.23%
PM Peak Hour	913	130	978	13.29%	9.07%
PM Peak 2Hr	1510	191	1701	11.23%	15.78%

: Cowpasture Road - South of Green Valley Road

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	14981	3382	18363	18.42%	
Daytime	13743	3136	16879	18.58%	91.92%
Nighttime	1238	246	1484	16.58%	8.08%
AM Peak Hour	1246	314	1560	20.13%	8.50%
AM Peak 2Hr	2403	574	2977	19.28%	16.21%
PM Peak Hour	1488	246	1655	14.86%	9.01%
PM Peak 2Hr	2801	359	3160	11.36%	17.21%

: Kurrajong Rd - East of Bernera Road

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	4485	360	4845	7.43%	
Daytime	4351	330	4681	7.05%	96.62%
Nighttime	134	30	164	18.29%	3.38%
AM Peak Hour	346	41	387	10.59%	7.99%
AM Peak 2Hr	657	52	709	7.33%	14.63%
PM Peak Hour	432	30	462	6.49%	9.54%
PM Peak 2Hr	856	51	907	5.62%	18.72%

: Luddenham Road - North of Elizabeth Drive

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	1697	100	1797	5.56%	
Daytime	1604	99	1703	5.81%	94.77%
Nighttime	93	1	94	1.06%	5.23%
AM Peak Hour	161	12	173	6.94%	9.63%
AM Peak 2Hr	303	15	318	4.72%	17.70%
PM Peak Hour	174	14	188	7.45%	10.46%
PM Peak 2Hr	341	23	364	6.32%	20.26%

: Campbelltown Road - North of Lawson Rd

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	11468	1096	12564	8.72%	
Daytime	10597	987	11584	8.52%	92.20%
Nighttime	871	109	980	11.12%	7.80%
AM Peak Hour	1179	93	1250	7.44%	9.95%
AM Peak 2Hr	2065	154	2219	6.94%	17.66%
PM Peak Hour	1099	76	1129	6.73%	8.99%
PM Peak 2Hr	2032	106	2138	4.96%	17.02%

: Great Western Highway - West of Rooty Hill Road

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	36974	2483	39457	6.29%	
Daytime	33727	2293	36020	6.37%	91.29%
Nighttime	3247	190	3437	5.53%	8.71%
AM Peak Hour	3050	198	3244	6.10%	8.22%
AM Peak 2Hr	5550	370	5920	6.25%	15.00%
PM Peak Hour	3559	210	3731	5.63%	9.46%
PM Peak 2Hr	6971	288	7259	3.97%	18.40%

: Richmond Road - East of Rooty Hill Road North

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	27877	3069	30946	9.92%	
Daytime	25372	2798	28170	9.93%	91.03%
Nighttime	2505	271	2776	9.76%	8.97%
AM Peak Hour	2242	251	2493	10.07%	8.06%
AM Peak 2Hr	4247	487	4734	10.29%	15.30%
PM Peak Hour	2735	243	2865	8.48%	9.26%
PM Peak 2Hr	5215	311	5526	5.63%	17.86%

: Sunnyholt Road - near Meurants Lane

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	25844	1551	27395	5.66%	
Daytime	24627	1466	26093	5.62%	95.25%
Nighttime	1217	85	1302	6.53%	4.75%
AM Peak Hour	1966	137	2086	6.57%	7.61%
AM Peak 2Hr	3915	208	4123	5.04%	15.05%
PM Peak Hour	2422	110	2478	4.44%	9.05%
PM Peak 2Hr	4400	155	4555	3.40%	16.63%

: Old Windsor Road - North of Seven Hills Road					
	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	14300	877	15177	5.78%	
Daytime	12975	774	13749	5.63%	90.59%
Nighttime	1325	103	1428	7.21%	9.41%
AM Peak Hour	1079	75	1152	6.51%	7.59%
AM Peak 2Hr	2043	123	2166	5.68%	14.27%
PM Peak Hour	1209	67	1251	5.36%	8.24%
PM Peak 2Hr	2382	109	2491	4.38%	16.41%

: Fifteenth Ave/Hoxton Park Rd - East of Cowpasture Road					
	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	12212	1564	13776	11.35%	
Daytime	10739	1441	12180	11.83%	88.41%
Nighttime	1473	123	1596	7.71%	11.59%
AM Peak Hour	875	120	995	12.06%	7.22%
AM Peak 2Hr	1746	221	1967	11.24%	14.28%
PM Peak Hour	1078	114	1188	9.60%	8.62%
PM Peak 2Hr	2079	174	2253	7.72%	16.35%

: **Summary of 24 Hour Classification Counts**

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	218831	26980	245811	10.98%	
Daytime	201543	25036	226579	11.05%	92.18%
Nighttime	17288	1944	19232	10.11%	7.82%
AM Peak Hour	18398	2364	20662	11.44%	8.41%
AM Peak 2Hr	34870	4235	39105	10.83%	15.91%
PM Peak Hour	21270	2085	22577	9.24%	9.18%
PM Peak 2Hr	40295	2998	43293	6.92%	17.61%

: **Summary of Selected "A" 24 Hour Classification Counts**

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	171255	16446	187701	8.76%	
Daytime	157348	15119	172467	8.77%	91.88%
Nighttime	13907	1327	15234	8.71%	8.12%
AM Peak Hour	14009	1344	15283	8.79%	8.14%
AM Peak 2Hr	26565	2384	28949	8.24%	15.42%
PM Peak Hour	16539	1255	17391	7.22%	9.27%
PM Peak 2Hr	31519	1871	33390	5.60%	17.79%

: **Summary of Selected "B" 24 Hour Classification Counts**

	Lights	Heavies	Total	% CVs	% Total
Total Vehicles	47576	10534	58110	18.13%	
Daytime	44195	9917	54112	18.33%	93.12%
Nighttime	3381	617	3998	15.43%	6.88%
AM Peak Hour	4389	1020	5379	18.96%	9.26%
AM Peak 2Hr	8305	1851	10156	18.23%	17.48%
PM Peak Hour	4731	830	5186	16.00%	8.92%
PM Peak 2Hr	8776	1127	9903	11.38%	17.04%

3. Traffic Forecasting

Two stages of traffic forecasting were done. Firstly, a regional traffic model was run for a variety of scenarios after a review of the land use and population projections of the State's Metropolitan Plan for the Sydney Region. A window was then defined within the regional traffic model to provide flows for a local traffic model that was more sensitive to local changes to aspects of the network such as intersections design and signal timing. Because there were not many route choices to be made along Elizabeth Drive, where the works are largely within the confines of the present road reserve, the local traffic modelling is most relevant to the Environmental Impact Statement for the Western Sydney Orbital between Prestons and Cecil Park.

3.1 Introduction to Strategic Traffic Modelling

This section of the working paper reports strategic transport modelling carried out for the National Highway Sydney Orbital Route, from the M5 (South Western Motorway) at Prestons to the Castlereagh Motorway at West Baulkham Hills. A connection to the Sydney West Airport site at Badgerys Creek is also included, running from the National Highway route via Elizabeth Drive.

The purpose of the strategic modelling was to estimate future traffic demands on the route and its effects on the future overall efficiency of the Sydney road network. It also provided input to local modelling work used to evaluate traffic impacts at a more detailed level. The local TRACKS model has mainly been used to look at traffic aspects of the Western Sydney Orbital between Prestons and Cecil Park.

Section 3.2 describes the methods used in strategic modelling. Section 3.3 defines the methods used to forecast future travel demand on the Sydney road network, and the alternative demand scenarios developed. Section 3.4 sets out the stages of route development which were modelled, and Sections 3.5 and 3.6 set out the results and conclusions.

3.2 Methodology

3.2.1 Overview

The strategic modelling involved two distinct stages. The first was to use a range of forecasts of future population and employment distribution, together with forecast characteristics of the future Sydney transport system, to arrive at a range of estimates of future road travel in terms of numbers of vehicle trips between specific origin and destination points.

The second was to assign each of the forecast trips to its best route through the road network, allowing for the delaying effect of all the other traffic on the network. This process produces forecast traffic volumes and travel speeds on every link in the road network. These can be aggregated to provide estimates of overall network efficiency in terms of vehicle kilometres

and hours of travel. They may also be used to estimate traffic noise, fuel consumption, and emissions.

The strategic model covers a geographical area bounded by the Hawkesbury/Nepean river system to the north and west, and extends south to Picton, Appin and Waterfall. It represents a two-hour morning peak period, the results of which can be factored to produce estimates of daily and annual totals.

Two years were modelled. 1996 was selected as a base year, producing estimates of the effects if the project were to be opened in the very near future. There is, of course, no prospect of the project being completed in 1996, but being close to the present, it gives a clear indication of the level of precision of the model, and provides a useful base-line for predicting the impacts of opening the project in later years.

A future year of 2016 was selected, representing the year at which the population of the greater Sydney Region (including the Newcastle, Wollongong and Blue Mountains areas) is expected to reach 5 million.

3.2.2 Demand Forecasting

Demand forecasts used in this study were based on work by the NSW Department of Transport Study Group, and the transport consultant Long Technical Pty Ltd.

The Transport Study Group developed a transport model of the traditional *four step* type, which estimates future travel by road and public transport. Input data, as outlined above consists of forecasts of the geographical distribution and other characteristics of population and employment, together with the form and capacity of the transport network. The four steps of the process consist of:

- Estimating the total number of trips to be made on the transport network;
- Determining the origin and destination of each trip;
- Predicting which transport mode (e.g. car driver, car passenger, bus, train) will be used for each trip;
- Assigning each trip to a route through the network.

For road planning purposes, the first three stages are used to develop a *trip table* of vehicle origins and destinations, which are then *assigned* to alternative road networks.

Ideally, the entire four-step process would be repeated for each alternative road network, since the characteristics of the road network have some influence on people's decisions to make trips, and their choice of travel mode. In practice, however, the decision to travel by car is determined mainly by the availability of a car at the starting point, and of parking at the destination. Furthermore, the route under investigation is *Orbital* in form, and is unlikely to have a serious impact on the mainly radial public transport network.

At the time this study was initiated the Department of Transport Study group was committed to a recalibration of their models. It was therefore judged to be impractical to apply the full

four-step model to evaluating the project. Where mode choice is an important issue, concerning the proposed rail connection to Sydney West Airport, specific allowance has been made for its effects.

It was necessary to adjust the future trip table to reflect the latest forecasts of population and employment distribution, as described in detail in Section 3.3.

3.2.3 Traffic Assignment

The traffic assignment process was carried out using the EMME/2 software package, developed by INRO Consultants of Montreal, Canada.

The road network data was the standard data set maintained up to date by Roads and Traffic Authority Traffic Technology Branch. Future network data was developed in consultation with Roads and Traffic Authority Sydney Region, incorporating the Region's current forward plans.

Traffic assignment was performed using the equilibrium algorithm incorporated in the EMME/2 package. The algorithm performs an iterative procedure, seeking a pattern of traffic flows such that no single trip is able to improve its travel time by changing to another route. This is a reasonable approximation to actual driver behaviour, particularly in peak periods when most drivers are familiar with alternative routes and prevailing traffic conditions.

3.3 Travel Demand Forecasts

3.3.1 Basic Future Scenarios

Three future travel scenarios were developed to represent a range of probable levels and patterns of road travel demand in 2016. These were generated by varying forecasts of population and employment distribution, and levels of activity at Sydney West Airport. Population and employment forecasts used two sources - a scenario developed by transport consultants Long Technical for the Roads and Traffic Authority Sydney Region in 1994, and a scenario prepared for this study by urban planning consultants Devine Erby Mazlin. Both were based on a population of 5 million in the greater Sydney region, including the Central Coast, Lower Hunter, Blue Mountains and Illawarra areas.

The Long Technical scenario represents a continuation of growth and development in the Sydney region as envisaged in 1993/1994, with a degree of urban consolidation limiting the decline of population and employment in the inner areas of Sydney, and major new population centres being developed in the South Creek and Rouse Hill areas. It was supplied in the form of listings of population and employment for 701 zones representing the Sydney area, together with a *trip table* of forecast trips (in this case, road trips in the two-hour morning peak period) between each of the 490,000 possible zone pairs.

The Devine Erby Mazlin scenario represents the most recent planning proposals, with limits being placed on development in the Hawkesbury Nepean basin for environmental reasons, and new population growth being focussed on the Central Coast and Lower Hunter. Other important features, compared with the Long Technical scenario, are a small decline of the population and employment in the inner suburbs and a stronger growth of employment in

major outer suburban centres (principally Liverpool, Campbelltown, Penrith and Blacktown). It was supplied as a listing of revised population and employment figures for the same 701 zones as used by the Long Technical model. To derive a trip table from these, it as not feasible to re-run a full four-step model. A simpler method, based on adjustment of the Long Technical trip table, was required.

One alternative was the Fratar method, factoring trip ends and iteratively adjusting attractions and productions until the two are equal. This method does not attempt to preserve the basic rationale of trip distribution used in the four-step model - that shorter (hence cheaper) trips are more attractive, and therefore more likely to occur than longer (i.e. more expensive) trips. While the problem is not serious for small adjustments, a large adjustment may distort the basic rationale, and produce an unacceptable trip distribution.

A better alternative, which retains the basic relationship between trip length and trip numbers, is to develop a gravity model reflecting the sensitivity to trip cost implicit in the base trip table. The gravity model is co called because it defines the level of interaction between two centres in terms of their size and the distance between them, similar in form to the law of gravitation -

$$F = g.\frac{M_1.M_2}{d^2}$$

Where	F	=	the gravitational force between two bodies
	M_1, M_2	=	the masses of the bodies
	d	=	the distance between them
	g	=	a constant

In practice, trip cost rather than trip distance is used as the measure of impedance. It is calculated as a composite of the trip time and distance, plus a *terminal cost* representing the cost of parking the vehicle. The relationship takes the form:

$$T_{ij} = a.\ O_i.\ D_j.\ f(c_{ij})$$

Where	T_{ji}	=	the number of trips from zone i to zone j
	O_i	=	the total number of trips with origins in zone i
	D_j	=	the total number of trips with destinations in zone j
	$f(c_{ij})$	=	a function of the cost of a trip from zone i to zone j
	a	=	a constant

The trip cost function implied in the Long Technical trip table was analysed, and a gravity model set up to replicate it, using a series of power functions. Figure 3.1 compares the trip cost distribution derived from the Long Technical trip table with the distribution set up in the gravity model. Visually, the correspondence is extremely close. Statistically, the Long Technical trip table gave a mean trip cost of 82.245 and a standard deviation of 31.692 (in arbitrary units of cost). The gravity model gave a mean of 82.232 and a standard deviation of 31.605. For modelling purposes, this is a most satisfactory result.

The gravity model was validated by applying it to the Long Technical trip ends, effectively attempting to re-synthesise the original trip table. When the assignment of the re-synthesised

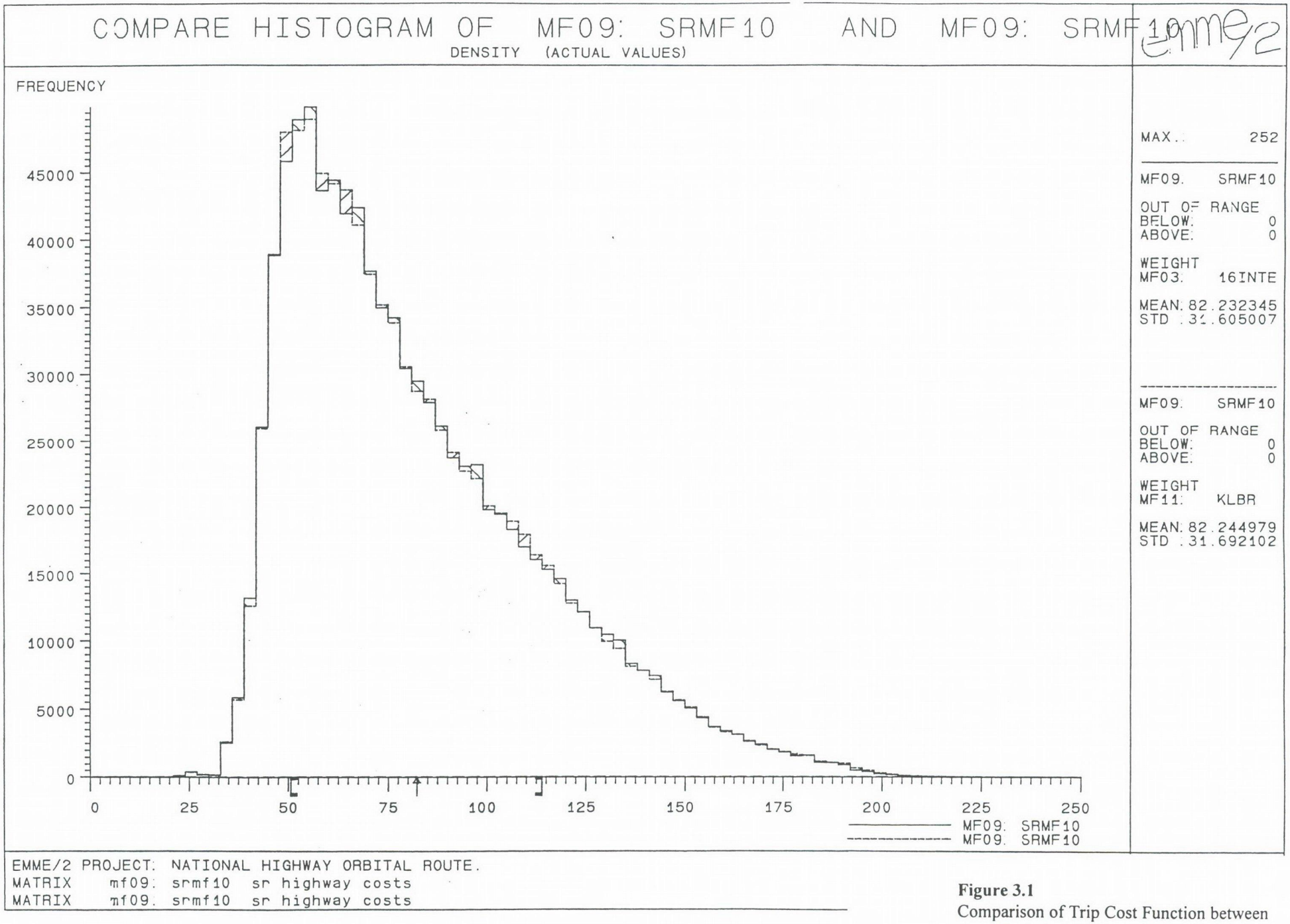


Figure 3.1
Comparison of Trip Cost Function between Long Technical Model and Gravity Model

tmet Trip

trip table was compared with the original, it was found that the differences in modelled traffic volumes were small (mostly below 100 trips per two hours in each direction, and nowhere over 300) and did not show any significant systematic bias across the network.

Trip productions were estimated for each zone by factoring the productions in the Long Technical trip table pro-rata to the zonal population in the Devine Erby Mazlin land use scenario. Trip attractions were likewise estimated using zonal employment. Trip ends were then expanded, using the gravity model, into a full road trip table.

The population and employment distributions for the two basic scenarios are listed in Table 3.1, and compared with the corresponding data for 1996.

Table 3.1
Comparison of Population and Employment Distribution

Local Government Area	1996		2016			
	Long Technical		Long Technical		Devine Erby Mazlin	
	Population	Employment	Population	Employment	Population	Employment
Sydney	17034	225801	36902	245903	29851	207035
N Sydney	52391	60958	55357	61059	56436	52246
S Sydney	72756	93209	75180	120234	60814	101230
Woollahra	51483	21542	50874	20814	50747	13358
Randwick	118739	33882	122556	34654	117277	32679
Botany	36684	44213	37261	57159	35238	32561
Marrickville	80222	25995	78563	29240	79286	33277
Leichhardt	62359	26624	68129	26368	61024	19919
Drummoyne	32268	8249	33628	8000	32302	6188
Ashfield	41497	12800	40994	12006	39551	7656
Burwood	29647	13398	29905	13622	31476	14032
Concord	23737	12444	23649	15696	24318	8873
Strathfield	27274	16416	28550	18168	27897	11295
Canterbury	134485	26154	134520	29146	127371	25604
Rockdale	87902	15502	89131	18058	84333	17043
Kogarah	49474	13010	52072	12624	51205	11736
Hurstville	68263	20302	70698	24944	65705	22225
Sutherland	207483	47162	239815	63669	188855	67774
Bankstown	164089	55102	172433	73594	157104	60943
Auburn	49841	32643	50663	41131	52398	36057
Holroyd	86221	26253	97112	41054	87361	35589
Fairfield	187369	32635	195753	62915	180000	50000
Liverpool	132917	43505	221244	69768	216608	75953
Camden	37991	10779	84423	22173	82409	24042
Campbelltown	155288	30149	169979	56450	170000	76000

Local Government Area	1996		2016			
	Long Technical		Long Technical		Devine Erby Mazlin	
	Population	Employment	Population	Employment	Population	Employment
Penrith	168865	40863	212462	56928	205983	70800
Windsor	49943	17121	69653	23298	65000	15000
Blacktown	248778	59675	321819	91104	331111	98288
Parramatta	140148	78675	149685	104691	140402	97856
Baulkham Hills	136491	37109	168260	55178	183891	57366
Hornsby	146316	39531	174340	54457	140000	44000
Ryde	95507	47998	98903	62625	95804	33514
Hunters Hill	12798	3274	12727	3041	12297	4038
Lane Cove	30365	15226	30915	18726	30558	9565
Willoughby	54508	45977	55428	51089	52949	53635
Ku-ring-gai	106836	27499	106788	30398	106265	28188
Warringah	187541	58669	197418	75380	178393	59290
Manly	36928	11456	38848	11711	36431	11963
Mosman	27047	8694	27989	8359	28539	5747
Wollondilly	4207	747	12790	3500	5000	1000
Total (Million)	**3.51**	**1.46**	**4.00**	**1.85**	**3.78**	**1.65**

3.3.2 Sydney West Airport

The National Highway proposal includes a connection to Sydney West Airport (SWA) site at Badgerys Creek, via Elizabeth Drive. The traffic generated by SWA will be an important component of traffic demand on the route. The actual level of road traffic generation will be determined by the passenger activity and employment at SWA, and by the provision or otherwise of a rail service.

The Federal Government is proposing to lease Sydney Airport (KSA) and Sydney West Airport (SWA) to a private sector operator as a single business enterprise, requiring a first stage of SWA to be operational by 1999.

The travel generated by an airport depends on the range of activities it supports - air passenger travel, air freight, aircraft maintenance and fuelling operations, and other businesses carried on at the airport. A review of overseas studies of ground traffic generated by airports showed a wide range of possible functions for airports, including:

- Primary passenger destinations, generating high volumes of ground traffic from high passenger throughput and high employment;
- Regional interchange hubs, with passenger throughput consisting mainly of transit movements (i.e. changing planes), generating comparatively low volumes of ground traffic; and

- Centres for freight, passenger charter and aircraft maintenance, with low passenger movement but significant freight movement and high employment, generating moderate levels of ground traffic.

The future role of SWA in specific years will be driven by government policy, market forces and commercial decisions by the lessees, and is difficult to predict. Consideration was given to developing a likely set of activity levels (air passenger, air freight and service activities) for SWA, and estimating traffic generation from those. A recent FAC Draft Planning Strategy for Sydney Airport (Sinclair Knight/Bechtel Aviation, 1993) incorporated a study of current and future road traffic generation from KSA, which might have provided a basis for such forecasts for SWA. However, it was not possible to utilise the data from that study directly, for two main reasons:

- KSA does not have a single road access point. Many trips were double-counted as they visited both the International and Domestic terminals. In the worst case, the UTA Route 300 and 350 Airport Express buses were counted eight times for each return run through the airport complex. It was therefore not possible to arrive at a reliable estimate of the total number of trips generated by the airport.

- The study was not able to distinguish between passenger carrying cars and small service vehicles such as courier vans. It was not possible to separate the component of road traffic generated by air passenger travel from small freight and service vehicles generated by airport employment and air freight activity.

It was therefore decided to adopt the Draft Environmental Impact Statement for the Second Sydney Airport Site Selection Programme (Kinhill Stearns, 1985) as the basis for forecasting. This document proposed a maximum likely activity level at SWA of 13.1 million passenger movements per year, associated with a forecast employment of 10,500, and it presented forecasts of road traffic based on those figures - a total of 69,000 road trips per day were predicted to and from the airport, without a rail service. With a rail service available, the figure was 57,000.

Forecasts of air passenger movement at SWA have been derived from the most recent work of the Federal Department of Transport and the Federal Airports Corporation. Employment and road traffic generation have then been estimated in the same proportions relative to passenger traffic as are implicit in Kinhill Stearns (1985).

The Kinhill Stearns forecasts are for average daily traffic. The two hour morning peak period will carry a proportion of this total traffic, depending on the *peakiness* of travel demand. In the Sydney Airport Planning Strategy Ground Access Study Working Paper No. 1 (Sinclair Knight, 1989) reported 14.4% of daily air passenger movements during the two hour morning peak, and a graph of total vehicle generation indicated a similar proportion. It is likely that SWA air traffic will be dominated by peak period overspill from KSA. Based on experience with roads performing a similar function, SWA can be expected to have a *peakier* pattern, with 20% of trips during the two hour peak. This gives total vehicle trip numbers of 11,400 and 13,800 with and without a rail service.

Sinclair Knight (1989) also reported that 90% of employees at KSA travelled to work as car drivers. Many airport employees work shifts which do not correspond to normal peak periods

of commuter travel. Allowing for 50% of the employees travelling to work in the morning peak, 4,275 peak period road trips would be generated by an employment level of 10,500. Where a rail service is provided to the airport, it is estimated that the proportion of workers driving to the airport will be reduced to 70%, giving a total of peak period 3,675 road trips. The geographical distribution of these trips will be as determined by the standard Sydney travel model for employment at the airport location.

The remainder of road trips will consist of air passengers, meeter/greeters, buses and service vehicles carrying air freight, fuel, aircraft maintenance supplies and general freight to the many businesses operating on the airport. A geographical distribution of these trips has been estimated, based on a distribution of air passenger trips report for KSA in Sinclair Knight (1989), with adjustments to allow for SWA serving a greater proportion of passengers based in the outer western and south western suburbs, a smaller proportion of businesses and tourist travel directed to central Sydney, and a component of freight movements to industrial areas.

A particular issue for consideration is the volume of traffic between KSA and SWA. The Sydney Airport Planning Strategy Ground Access Study (Sinclair Knight, 1990) estimated a maximum of 1,215 passengers per day transferring between the two airports in 2010, which would occur if all KSA international operations were transferred to SWA. These transfer passengers would travel mainly by dedicated inter-airport express bus or train. It is probable that other inter-airport traffic will be at a similarly low level, and in any event much of it will avoid travelling during the commuter peak.

For the purposes of this study, with SWA operating at capacity, allowance has been made for 2% of the non-employment-generated traffic during the morning peak period being directed to KSA. The estimated geographical distribution of non-employment generated traffic is shown in Table 3.2. This has been spilt 50-50 between trips to and from the airport.

Table 3.2
Geographical Distribution of Airport Generated Trips

LGA	Proportion
Sydney	12.0%
N Sydney	2.0%
S Sydney	3.0%
Woollahra	2.5%
Waverley	2.5%
Randwick	5.0%
Botany	1.0%
Kingsford Smith Airport	2.0%
Marrickville	3.0%
Leichhardt	1.0%
Drummoyne	1.0%
Ashfield	0.5%
Burwood	0.5%
Concord	1.0%
Strathfield	1.0%

LGA	Proportion
Canterbury	2.0%
Rockdale	1.0%
Kogarah	1.0%
Hurstville	1.0%
Sutherland	3.0%
Bankstown	2.0%
Auburn	0.5%
Holroyd	2.0%
Fairfield	2.0%
Liverpool	2.0%
Camden	0.5%
Campbelltown	4.0%
Penrith	4.0%
Windsor	4.0%
Blacktown	4.0%
Parramatta	8.0%
Baulkham Hills	4.0%
Hornsby	0.5%
Ryde	1.0%
Hunters Hill	1.0%
Lane Cove	2.0%
Willoughby	2.0%
Ku-ring-gai	0.5%
Warringah	6.0%
Manly	2.0%
Mosman	2.0%
Wollondilly	0.0%

3.3.2.1 *Most Likely* Scenario

The *Most Likely* estimate of 2016 road traffic is derived from forecasts prepared by the Federal Department of Transport for submission to a Senate Inquiry into air transport. These estimated a practical capacity for Sydney Airport (KSA) of 28 M passenger movements per annum, with a total of 34 M movements through the Sydney Region in 2010. At that year, SWA would carry the balance of 6 M movements.

Allowing for a somewhat slower growth of total air traffic after 2010, approximately 40 million movements are expected in 2016. It is probable that there will be some increase in the practical passenger capacity of KSA over that period, due to increasing use of larger aircraft, and improvements in passenger and aircraft handling facilities. With a capacity of 33 million movements at KSA by 2016, SWA will be carrying 7 M passenger movements per year. Employment, using the proportion stated above, is estimated as 5,610. Allowance is also made for the completion of a railway to SWA by the year 2016.

Two hour morning peak road travel is estimated as:

	Without Rail	With Rail
Trips to Work	2,520	1,964
Trips to and from KSA	97	83
Other Air Passenger and Service Trips	4,757	4,044
Total	**7,374**	**6,091**

3.3.2.2 *High* Scenario

The *High* estimate of road traffic is based on the forecast of 40 M passenger movements through the Sydney region in 2016, as per the *Most Likely* estimate. However, the scenario allows for the capacity of KSA being capped at 30 M passenger movements per year. SWA is therefore required to carry 10 M passenger movements, with a corresponding employment level of 8,000.

To provide a worst case for road traffic, this scenario allows for the construction of a railway to SWA has been deferred to a date beyond 2016.

Two hour morning peak travel road travel is estimated as:

Trips to Work	3,263
Trips to and from KSA	145
Other Air Passenger and Service Trips	7,126
Total	**10,534**

3.3.2.3 *Low* Scenario

The *Low* estimate of road traffic is based on the Federal Airports Corporation Sydney Airport Draft Planning Strategy Supplement (Sinclair Knight /Bechtel Aviation, 1993). This document estimates the SWA will be carrying 2 M passenger movements per year in 2010. The same level of activity was identified in the FAC Proposed Third Runway Draft Environmental Impact Statement (Kinhill, 1990) as the minimum economically viable level for SWA.

Allowance is made for this traffic then growing to 4 M passenger movements in 2016, with a corresponding employment of 3,200, and also for a railway having been constructed to SWA by 2016.

Trips to Work	1,122
Trips to and from KSA	47
Other Air Passenger and Service Trips	2,311
Total	**3,480**

3.3.3 Additional Development near the Study Route

It is probable that the construction of the proposed route will attract additional development in its vicinity. On advice from Devine Erby Mazlin, a scenario was set up in which approximately 37,000 jobs are relocated from the inner industrial areas and from Silverwater to portions of the Baulkham Hills, Blacktown, Fairfield, Holroyd, Liverpool, Penrith and Ryde local government areas, close to the Western Sydney Orbital.

3.3.4 Complete Scenarios

Three complete future travel scenarios were developed from the elements described above. The aim was to produce three levels of future traffic demand on the study route in 2016, representing a likely range of outcomes, and allowing sensitivity testing of the principal constructions of the study. The three scenarios were:

Low Scenario	-	Devine Erby Mazlin base land use Low activity level at SWA with rail service provided.
Medium Scenario	-	Devine Erby Mazlin base land use Additional development near the study route Medium activity level at SWA, with rail service provided.
High Scenario	-	Long Technical base land use Additional development near the study route High activity level at SWA, with rail service deferred beyond 2016.

3.4 Project Stages

The project was modelled at four stages of development, to test the likely effects of staged construction, and to investigate the relative performance of the stages in meeting travel demand. These are shown diagrammatically on Figure 3.2.

The stages of development were:

- Stage 1 - From the M5 at Prestons to Elizabeth Drive at Cecil Park, with a connection to SWA at Badgerys Creek via Elizabeth Drive.
- Stage 2 - Extends Stage 1 to the M4 at Eastern Creek, via Wallgrove Road. The existing Wallgrove Road is retained as a local service road between Cecil Park and Horsley Park.
- Stage 3 - Completes the project, from the M4 at Eastern Creek to the Castlereagh Motorway corridor at Quakers Hill, and eastward along this corridor to Old Windsor Road.

The project was modelled as a four-lane divided arterial, with access at interchanges only, and with a travel speed in uncongested conditions of 90 km/h. The connection to SWA was

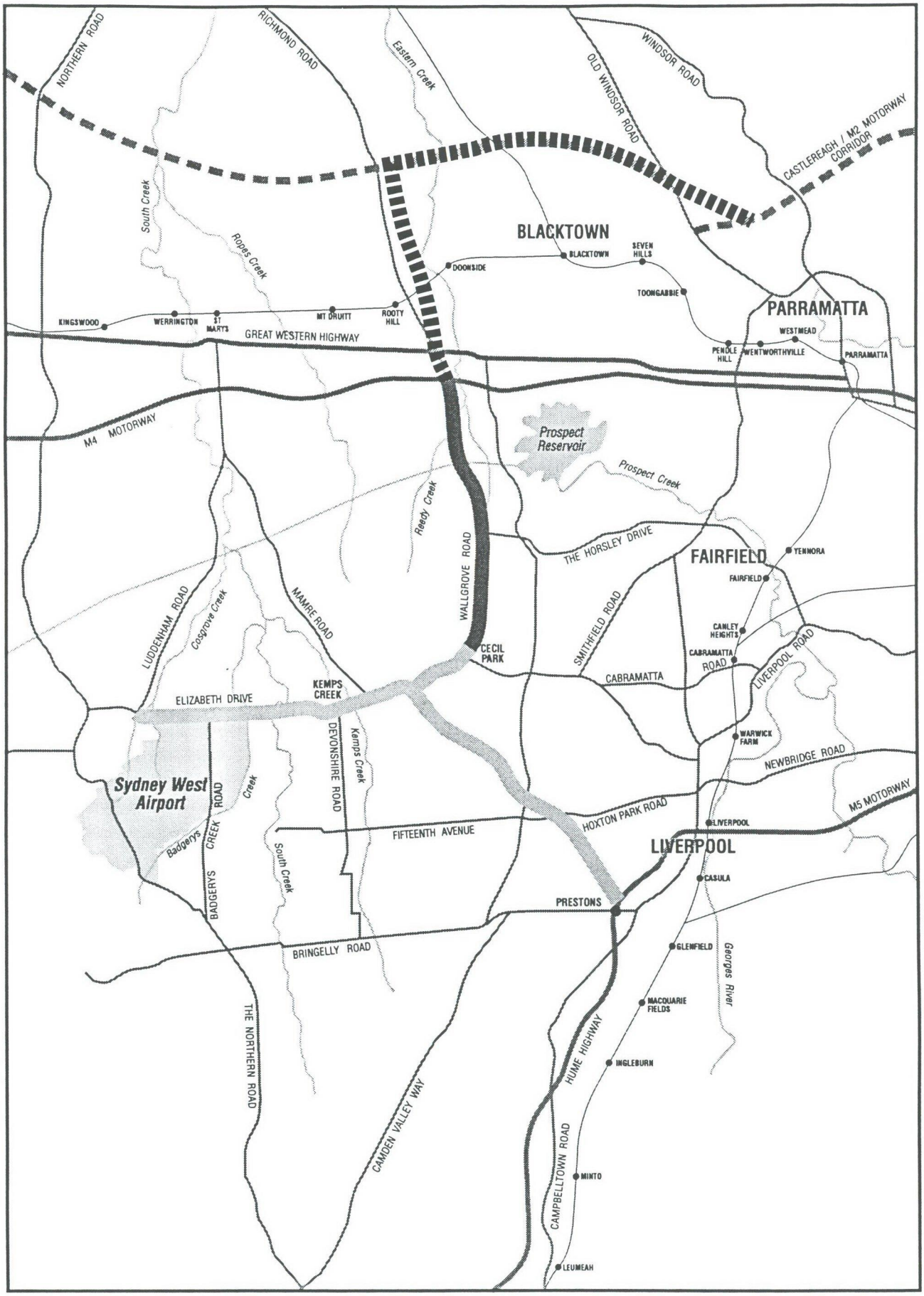


Figure 3.2
Project Stages

modelled as an upgrade of Elizabeth Drive to four lane divided standard, with free speed of 80 km/h, and a climbing lane provided for eastbound traffic east of Mamre Road.

Full four-way interchanges were modelled at the following sites:

- Bernera Road, Prestons
- Prospect Arterial (Cowpasture Road), West Hoxton
- Elizabeth Drive, Cecil Park
- The Horsley Drive, Horsley Park
- M4, Eastern Creek
- Great Western Highway, Eastern Creek
- Eastern Road, Rooty Hill
- Power Street, Doonside
- Richmond Road, Dean Park
- Station Road, Quakers Hill
- Sunnyholt Road, Parklea
- Old Windsor Road, Parklea.

All stages were modelled for the base year of 1996, and for 2016 using the medium travel demand scenario. Additional model runs were made assigning the high and low travel demand scenarios to the Stage 3 (completed project network).

3.5 Results of Strategic Modelling

This Section presents results extracted from the model runs described above. In interpreting these results, two points should be kept in mind.

Firstly, 1996 is merely a convenient base line for forecasting. There is no likelihood of any portion of the route being opened in 1996.

Secondly, and more importantly, traffic forecasting is not an exact science. The modelling processes used in this study have been developed to given an indication of the changes in road traffic which might be expected in response to change in land use patterns, and in the road network. The model has been calibrated against the total numbers of trips crossing major screen lines in the network, but not against traffic volumes on individual links.

It is possible to use adjustment techniques to force the model to replicate observed flows on any set of road links, but that would give a misleading impression of the model's precision, and may actually degrade its forecasting capabilities. The present model has been found able to replicate observed flows on individual links with an average error of about 30%. The error is normally less on major roads with high volumes, but may be greater on minor roads. When modelled link volumes are quoted in this report, a possible variation of plus or minus 30% should be considered.

A series of extracts from this regional model were taken and refined further as described in Section 6, to be used specifically for Elizabeth Drive forecasts and impact assessments.

3.5.1 Traffic Flows

Figures 3.3 and 3.4 show traffic flows in the vicinity of the route for all the model runs, for the two hour morning peak period. Tables 3.3 to 3.5 summarise the modelled flows on the route under each scenario.

Table 3.3
Modelled Two Hour Morning Peak Volumes - 1996

Location	Direction	1996		
		Stage 1	Stage 2	Stage 3
Western Sydney Orbital south of Elizabeth Drive, Cecil Park	North	1421	2204	2361
	South	996	1310	1314
Elizabeth Drive, west of Wallgrove Road	East	3953	3537	3267
	West	965	423	438
Western Sydney Orbital, north of Elizabeth Drive, Horsley Park	North	-	3035	3397
	South	-	1786	2037
Western Sydney Orbital, north of Eastern Road, Rooty Hill	North	-	-	2887
	South	-	-	3379
Western Sydney Orbital, west of Sunnyholt Road, Quakers Hill	East	-	-	5279
	West	-	-	1576

Table 3.4
Modelled Two Hour Morning Peak Volumes - 2016 Medium Scenario

Location	Direction	1996		
		Stage 1	Stage 2	Stage 3
Western Sydney Orbital, south of Elizabeth Drive, Cecil Park	North	1975	2722	2787
	South	3365	3945	4065
Elizabeth Drive, West of Wallgrove Road	East	6427	6023	5891
	West	4178	3766	3783
Western Sydney Orbital, north of Elizabeth Drive, Horsley Park	North	-	4140	4363
	South	-	3704	3899
Western Sydney Orbital, north of Eastern Road, Rooty Hill	North	-	-	3469
	South	-	-	5513
Western Sydney Orbital, west of Sunnyholt Road, Quakers Hill	East	-	-	4670
	West	-	-	4003

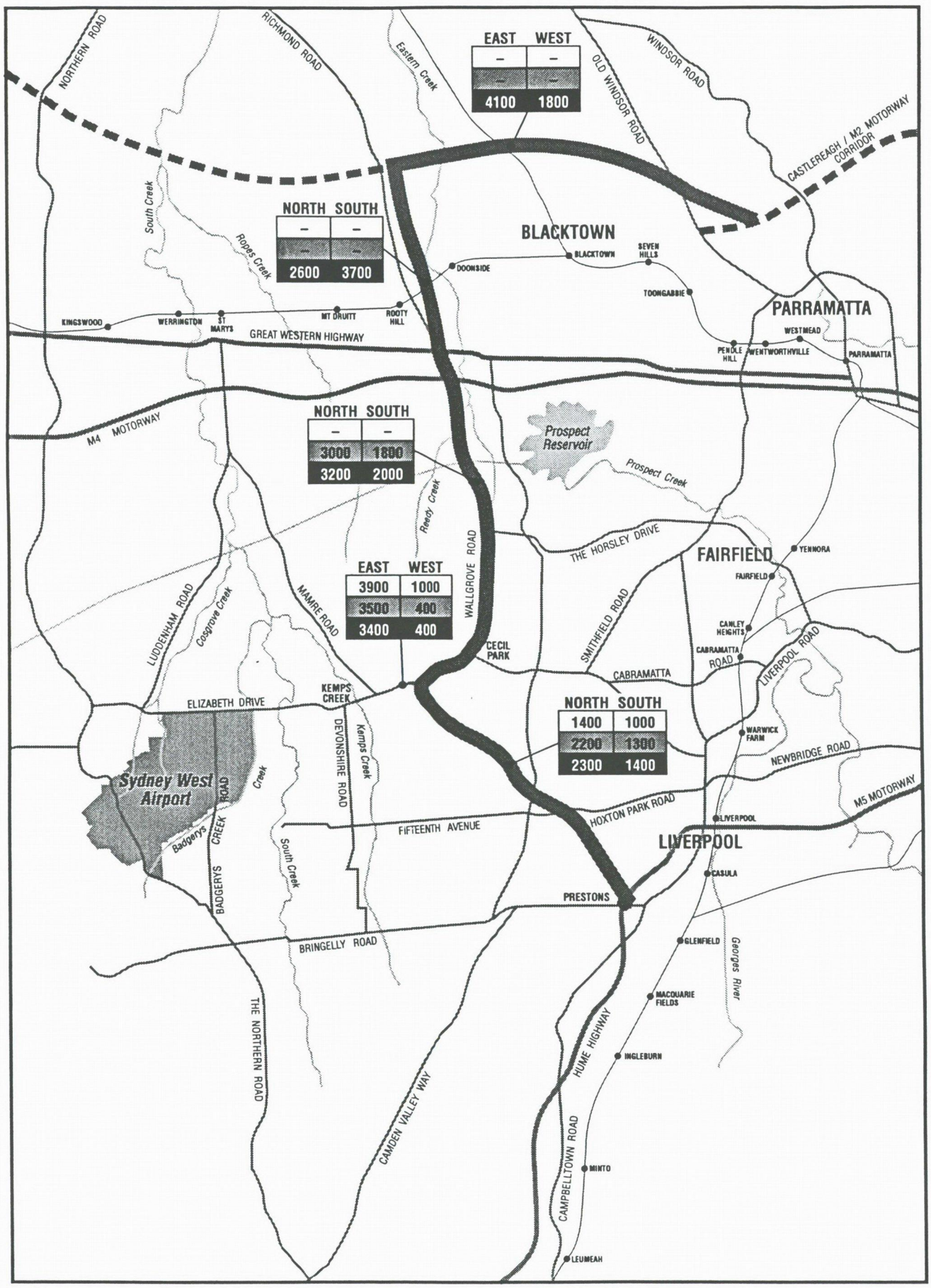


Figure 3.3
Modelled Two Hour Morning Peak Volumes - 1996

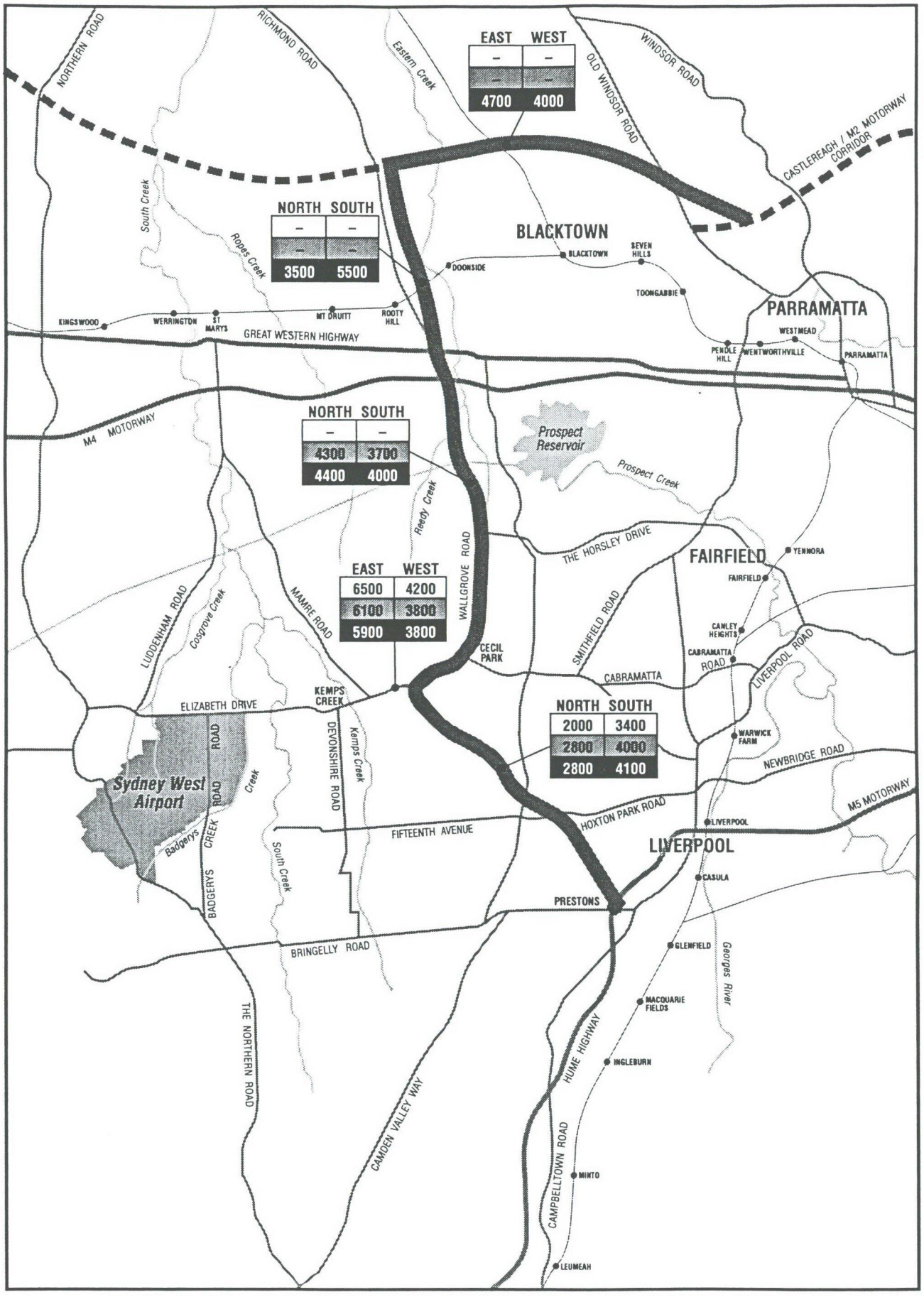


Figure 3.4
Modelled Two Hour Morning Peak Volumes - 2016 Medium Scenario

Table 3.5
Modelled Two Hour Morning Peak Volumes -
Project Completed - 2016 Scenario Comparison

Location	Direction	2016		
		Low Scenario	Medium Scenario	High Scenario
Western Sydney Orbital, south of Elizabeth Drive, Cecil Park	North	2431	2787	4194
	South	3864	4065	3065
Elizabeth Drive, West of Wallgrove Road	East	5122	5891	8248
	West	2836	3783	4888
Western Sydney Orbital, north of Elizabeth Drive, Horsley Park	North	4104	4363	5283
	South	3843	3899	3134
Western Sydney Orbital, north of Eastern Road, Rooty Hill	North	3193	3469	3976
	South	5415	5513	5612
Western Sydney Orbital, west of Sunnyholt Road, Quakers Hill	East	4570	4670	6625
	West	3697	4003	2545

Two points are immediately apparent from the above tables. First, and most importantly, there are marked differences between the traffic volumes and overall traffic flow patterns in the High scenario (based on Long Technical's land use forecasts) and the Medium and Low scenarios (based on Devine Erby Mazlin land use forecasts). These reflect the limitations on overall growth, and the different distribution of growth in the Devine Erby Mazlin land use forecasts. The High scenario produces substantially higher traffic volumes than the other two, particularly in the city bound direction (the traditional morning peak direction of travel). The Medium and Low scenarios reverse the traditional peak flow direction in the section south of Cecil Park, due to the high employment growth these scenarios take place in the Campbelltown area.

Second, the development of the National Highway route reduces traffic volumes on Elizabeth Drive west of Wallgrove Road. This is due to changing route choices for north-south movements between Liverpool/Campbelltown and St Marys/Penrith, which in the base case use Elizabeth Drive and Mamre Road. As the National Highway route is developed, these trips are progressively diverted onto it.

Looking at traffic flows in the region, there is generally a trend to attract traffic to the Orbital with most key traffic routes having reduced traffic levels forecast for 2016 unless they are the sole interchange point for a large trip catchment, for example, The Horsley Drive.

Table 3.6 summarises the modelling results for key traffic routes by Local Government Area. It shows the growth predicted from 1996 to 2016 if there were no Orbital constructed in the comparison between the first column labelled *1996 Est* and the second column labelled *2016 Est. Without Orbital*. However, other programmed roadworks are included and may explain some changes. By comparing the second column with the third one, labelled *2016 Est. With Orbital*, the impact of the fully constructed Orbital is apparent.

Columns 2 and 3 are based on the *Medium Car Travel Scenario*, but column 4 shows the estimated traffic on the road link described if the Orbital were built and the *High Car Travel Scenario* were reached.

Column 5 shows the traffic predicted for the road links if the *Low Car Travel Scenario* is achieved.

Table 3.6
Results of the Regional Traffic Modelling by Local Government Area and Link Location - Peak Period Factored to Average Annual Daily Traffic

Location of Link in Model	1996 Est.	2016 Est. without Orbital	2016 Est.[1] With Orbital	2016 Est. High Scenario	2016 Est. Low Scenario
Camden					
Bringelly Rd, W of Cowpasture	6000	12600	9600	14400	9000
The Northern Rd, S of Bringelly Rd	5400	23400	21600	23100	20400
Allenby Rd	900	3600	1800	3000	1500
Campbelltown					
Campbelltown Rd, N of Denham Court Rd.	14400	12600	15000	18000	14400
Glenfield Rd, E of Hume Hwy	11700	14400	14700	17400	14400
Liverpool					
Camden Valley Way, W of Hume Hwy	12000	30600	22800	27600	22200
Devonshire Rd, S of Elizabeth Dr	4200	20400	16500	17400	15000
Fifteenth Ave, W of Cowpasture Rd	4800	21000	10800	15000	10200
Newbridge Rd, E of Heathcote Rd	33600	32400	32700	47400	31800
Fairfield					
Cowpasture Rd, N of Elizabeth Drive	12900	19200	18000	20400	15600
The Horsley Dr, E of Wallgrove Rd	11400	14700	16500	24300	15600
Smithfield Rd, S of Polding St	17400	24000	23100	27600	21600
Gipps St, N of the Horsley Dr	18600	19500	17400	20100	16200
Penrith					
The Northern Rd, N of Elizabeth Dr	5400	15600	13800	18600	13200
Luddenham Rd, N of Elizabeth Dr	2100	8400	5400	7200	4200
Mamre Rd, N of Elizabeth Dr	15600	21900	18600	19800	17400
Erskine Rd, S of M4	19200	23400	21300	23400	19200
Blacktown					
Ferrers Rd, S of M4	12900	16800	12300	15000	11400
Bungaribee Rd, W of Doonside Rd	8400	16200	11400	15600	10200
Richmond Rd, W of Hill End Rd	24000	35400	22200	27600	23400
Sunnyholt Rd, N of Proposed Orbital	22800	37800	44400	43800	42300

Location of Link in Model	1996 Est.	2016 Est. without Orbital	2016 Est.[1] With Orbital	2016 Est. High Scenario	2016 Est. Low Scenario
Holroyd					
Jersey Rd, S of M4	38400	48900	47400	51000	45000
Burnett St, S of M4	34200[2]	21600	21300	23400	19800
Parramatta					
Old Windsor Rd, W of Hart Dr	55800	55200	52800	60600	51600
Pennant Hills Rd, N of James Ruse Dr	34200	39600	39000	46200	39000
Baulkham Hills					
Windsor Rd, N of M2	14400	25200	31800	26400	21600
Old Northern Rd, N of Windsor Rd	30000	30600	30000	34200	28200
Jenkins Rd, N of Pennant Hills Rd.	15600	20100	19200	22500	19500

(1) The estimate is for the moderate, and most likely, car use format
(2) This link was affected by other roadworks than just the Orbital.

3.5.2 Network Performance Measures

As a basis for economic analysis of the project, statistics were extracted from each model run giving an overall indication of the efficiency of the Sydney road network. These were the overall numbers of vehicle kilometres and vehicle hours of travel in the modelled two-hour morning peak period, broken down by link type. Dividing total kilometres by total hours gives the average speed of travel across the modelled network. The results are listed in Tables 3.6 to 3.8.

Table 3.7
1996 Network Performance

1996	Base Network	Stage 1 Network	Stage 2 Network	Stage 3 Network
Total Vehicle Kilometres	10, 409,678	10,429,923	10,434,786	10,445,749
Total Vehicle Hours	285,885	285,364	284,860	283,499
Average Speed	36.4 km/h	36.5 km/h	36.6 km/h	36.8 km/h
Local Roads	22.8 km/h	22.8 km/h	22.8 km/h	22.8 km/h
Sub Arterials	39.1 km/h	39.2 km/h	39.3 km/h	39.2 km/h
Surface Arterials	38.0 km/h	38.0 km/h	37.8 km/h	38.0 km/h
Controlled Access	45.0 km/h	45.8 km/h	46.5 km/h	47.6 km/h

Table 3.8
2016 Network Performance - Medium Scenario

2016 Medium Scenario	Base Network	Stage 1 Network	Stage 2 Network	Stage 3 Network
Total Vehicle Kilometres	12,321,851	12,332,356	12,342,448	12,341,777
Total Vehicle Hours	327,235	325,866	324,920	321,460
Average Speed	37.7 km/h	37.8 km/h	38.0 km/h	38.4 km/h
Local Roads	22.3 km/h	22.3 km/h	22.3 km/h	22.3 km/h
Sub Arterials	38.8 km/h	38.8 km/h	38.8 km/h	39.3 km/h
Surface Arterials	40.2 km/h	40.3 km/h	40.4 km/h	40.6 km/h
Controlled Access	52.0 km/h	52.7 km/h	53.1 km/h	53.6 km/h

Table 3.9
Network Performance - 2016 Scenario Comparison

2016 Stage 3 Network	Low Scenario	Medium Scenario	High Scenario
Total Vehicle Kilometres	12,277,813	12,341,777	14,657,352
Total Vehicle Hours	319,442	321,460	426,102
Average Speed	38.4 km/h	38.4 km/h	34.4 km/h
Local Roads	22.3 km/h	22.3 km/h	22.4 km/h
Sub Arterials	39.5 km/h	39.3 km/h	36.0 km/h
Surface Arterials	40.7 km/h	40.6 km/h	34.9 km/h
Controlled Access	53.1 km/h	53.6 km/h	43.1 km/h

The marked differences between the High (Long Technical based) scenario and the Medium and Low (Define Erby Mazlin based) scenarios are again apparent. The greater overall population (and particularly the higher population and employment in the inner areas of Sydney) in the High scenario result in substantially higher levels of road travel, and degraded road network performance as commuters from western Sydney travel a longer than average distance to reach employment.

4. Public Transport Considerations in Western Sydney Orbital and Upgrade of Elizabeth Drive

4.1 Introduction

This report, prepared by TEC Consulting Pty Ltd provides an overview of public transport characteristics in Western Sydney. The focus of the report is on the areas of Western Sydney within the sphere of influence of the Orbital route.

The overview addresses trip patterns and the role of different modes, considers trends in trip making and the future role of public transport. The opportunities presented by the Orbital to enhance public transport usage are also addressed.

4.2 Public Transport in Western Sydney

4.2.1 Characteristics

The public transport environment in Western Sydney is dominated by low density development and infrastructure focused on the requirements of the private motor vehicle. The system is fundamentally based on a bus system feeding to the rail network.

Urban development has traditionally extended along the rail corridors with the major town centres growing up around railway stations. Bus services are based on radial routes feeding railway stations and town centres, with some cross regional services. One of the limiting features of the bus network has been the focus on exclusive areas of operation, protected by *grandfather rights*. The resultant service structure tends to provide few opportunities for travel outside these areas without a change of operator or mode.

As urban development has extended to areas away from the rail network it has become increasingly difficult to deliver attractive bus services. People using these services experience long travel times and uncertain rail connections because of traffic congestion.

Urban form in Western Sydney has compromised the development of efficient bus services. The resultant road network results in convoluted and inefficient bus services.

In more recent times, improvements have come through the rationalisation of operations. Larger bus companies have subsumed smaller operators, thereby providing a more efficient and comprehensive operational structure. Blacktown Town Centre and Interchange provides a good example, here the number of bus companies has reduced from five to two over the last ten years. Larger bus companies are more able to offer higher standards of service while taking a longer term view of market development. The introduction of the Passenger Transport Act in 1990 introduced the Level of Service Policy, a system of operator accreditation and set standards for bus fleets.

The rail system serving Western Sydney is focused on the Main Western and Main Southern railway lines which feed radially towards the Sydney CBD. Major network improvements in the last decade have included the extension of the East Hills Line to Glenfield to provide additional capacity for trips from Campbelltown and the quadruplication of the Main Western Line from Granville. Other initiatives have included the electrification of the Richmond Railway Line. Service provision on the network is influenced by capacity constraints on the lines to the east of Lidcombe.

The radial nature of the rail network restricts the ability of the system to conveniently serve cross regional trips. Hence the increased dispersion of employment away from the traditional areas served by rail (the Sydney CBD and eastern employment areas) means that rail is an unattractive mode for many trips.

4.2.2 Trends in Travel

4.2.2.1 Public Transport Use

The low levels of public transport usage in Western Sydney is a product of low density development, urban form which acts to reduce public transport accessibility and efficiency, dispersed employment destinations, lack of cross-regional public transport travel opportunities, and lag in the provision of public transport to new areas requiring the purchase of the second car.

The 1991 Travel Survey (Akers, 1993) showed that travel from Western Sydney to traditional public transport destinations such as the Sydney CBD and other eastern employment destinations is comparatively low and has declined over the past ten years. For example, in Liverpool only 6% of workers travelled to the Sydney CBD in 1991 while 10% travelled in 1981 (ABS, 1991), Blacktown exhibits a similar trend, with 10% in 1991 against 12.9% in 1981.

The dispersed nature of trips is also a key factor. The relocation of jobs to the western suburbs has seen a shift in travel from traditional dependence on public transport to almost total use of the private car. The 1991 Census Data for the Liverpool LGA shows that around 13% and 9% of work trips are made to Bankstown/Canterbury and Fairfield respectively while around 36% are made within the Liverpool LGA itself.

These results are parallelled by those from surveys in the Hills District which showed that 29% of trips were within the study area, 11% were focused on the Sydney CBD, and around 15% of people travelled to the west.

Table 4.1 below shows mode share for public transport from a selection of local government areas within the area served by the proposed Orbital route, for journey-to-work and other purposes, based on the 1991 Travel Survey. It is relevant to note that one of the key outcomes of the Survey was to highlight that trips such as shopping and personal business each numerically exceed the trips to work, and together represent a significant proportion of all travel.

Table 4.1
Mode Share for Western Sydney Local Government Areas

SLA	Mode of Travel							
	Car		Public Transport		Walk		Other	
	Work	Non work	Work	Non work	Work	Non work	Work	Non work
Bankstown	68.9	66.4	25.1	9.4	5.1	23.1	0.5	1.0
Baulkham Hills	85.7	89.1	12.4	2.6	1.6	8.3	0.4	0
Blacktown	73.5	72.6	23.8	6.9	1.9	20.5	0.9	0
Fairfield	69.6	71.1	27.0	8.3	2.4	19.5	0.9	1.2
Holroyd	83.8	71.2	10.3	10.6	4.9	18.2	1.0	0
Liverpool	71.4	60.8	21.9	12.9	5.4	23.6	1.3	2.8
Penrith	75.4	75.9	22.0	5.4	2.6	17.2	0	1.0

Source: 1991 Travel Survey, NSW Dept of Transport Study Group

It is worth noting that mode share for journey-to-work varies considerably for different trip destinations. An example can be drawn from 1991 Census Journey-to-work results for Liverpool LGA which shows that the mode share to destinations which are well served by public transport are much higher than the average of 16%. It should be noted that the journey-to-work figures are based on a 100% sample while the Household Interview Survey was a much smaller sample so modal split figures for work may not correspond exactly. The following are mode shares to public transport to such destinations from Liverpool:

Sydney (Inner)	80%
North Sydney	66%
Willoughby/Lane Cove	35%
Burwood	28%

Table 4.2 shows the declining trend in mode share to public transport for journey-to-work over the last ten years.

Table 4.2
Public Transport Mode Share Journey-to-Work 1981 - 1991

SLA	1981	1991
Bankstown	30%	25.1%
Baulkham Hills	16%	12.4%
Blacktown	36%	23.8%
Fairfield	29%	27.0%
Holroyd	23%	10.3%
Liverpool	23%	21.9%
Penrith	23%	22.0%

4.2.2.2 Service and Infrastructure Provision

Government has recognised the need to improve public transport services and increase usage in order to address the future transport requirements of Sydney as identified in policy documents such as the Integrated Transport Strategy. There has also been an increasing focus on the development of transport services and facilities. For example, in Blacktown a new $25 million interchange facility catering for all modes is nearing completion, ahead of demand. In addition, the first stage of the Sunnyholt Road Transit corridor is nearing completion, designed to cater for expected bus demands from the Rouse Hill Development Area. Private bus operators are also introducing services to the new residential areas in line with the construction of the first homes.

At the local level, the delivery of efficient and effective bus services is compromised by the urban form associated with residential development in Western Sydney. There is evidence (Fleming, 1994) that these *dead worm* subdivisions featuring convoluted road patterns and *island* residential areas act to reduce accessibility to bus services, increase running times, reduce frequencies and generally reduce public transport use. In many cases these problems are directly related to, and have been exacerbated by the dissection of residential areas by major roads and expressways which limit access and crossing opportunities.

In recent times there has been a trend to consideration of alternative urban forms designed to provide permeability for public transport within residential areas and town centres. These concepts are being embraced by local government and developers such as Landcom, and will result in more direct and attractive bus services.

Bus operators have for some time now approached service provision in new areas on the basis of early introduction of bus service designed to prevent the purchase of the second car. Another trend involves the supply of bus services in low density areas through the introduction of mini buses, the Nepean Nipper being the most notable.

4.2.2.3 New Technologies

Advances in technology have opened up opportunities to implement real improvements to public transport particularly with regard to the provision of information and the operation of services.

The technology to deliver *real time* (second by second updates of train arrivals) information on bus and train services is available and being applied in Sydney. SRA has a program to provide real time information at stations while a trial system for the Airport Bus is in place. This form of information has the potential to increase confidence in the public transport system and to encourage use.

Personal Public Transport (PPT) is a concept receiving attention in some areas of Sydney. It is designed to make public transport more accessible, flexible and affordable, by packaging and applying a number of related technologies in telecommunications and computing (Glazebrook, 1995). It aims to:

- Introduce new affordable on-demand services to supplement fixed route services;
- Integrate all public transport options in real time;
- Increase the convenience of public transport by providing accessible real-time information and two-way communication systems linking the individual passenger with the transport system.

4.2.3 Public Transport Modes

The rail system will remain the prime focus of line haul mass transit in Western Sydney. Trips to Parramatta and the Sydney CBD along the Western Line are well served by express services now and the importance of these services will increase with the population growth expected in areas such as the Rouse Hill Development Area. CityRail has recognised this and will continue to increase the number of express services in line with demand.

The effectiveness of rail in satisfying cross regional travel demands will increase with the completion of the Harris Park "Y" Link when, for the first time, trains will travel between the Main Southern and Main Western Lines. The link will increase the attractiveness of rail travel to Parramatta from the south western suburbs and also to Blacktown and employment areas west of Parramatta.

4.2.3.1 Bus

The low density, dispersed nature of development in Western Sydney means that buses will remain the most appropriate means of local public transport access. The bus has the flexibility to provide public transport within walking distance in residential areas with good levels of service.

With new development areas extending to areas relatively remote from the rail network (eg Rouse Hill and Liverpool release areas) an increasing emphasis is required on the provision of priority measures to ensure reliability and efficiency. The RTA is responding to this need through the introduction of measures such the Sunnyholt Road Transit Corridor, Windsor Road T2 Transit Lane, M2 Busway, and the installation of priority measures such a "B" phases at problem intersections.

There is a trend towards the introduction of mini buses in low density areas, but this will not see the removal of higher capacity buses, since there are areas such as Mt Druitt, Blacktown and Liverpool where large buses are carrying near capacity loads at high frequencies. Large buses will play an important role in long haul travel from the newer, more remote residential areas.

4.2.3.2 Light Rail

While urban densities remain relatively low, Light Rail can be expected to have limited application in Western Sydney. This should not preclude consideration of light rail opportunities since increasing employment in centres such as Parramatta and new urban form, with increased densities, could enable light rail to become viable.

In a discussion paper on *Light Rail, Its Evolution and Potential for NSW* (Department of Transport, 1992), it is noted that for a light rail system to be successful it must represent an "appropriate solution to a particular urban area's unique transport and land use requirements". The paper also notes that "it is clear that there may be environmental and safety advantages associated with light rail. However, the operating circumstances and specific demographic and topographic features of the area in which it is being applied will affect capital and operating costs. If the wrong circumstances exist the economic costs can prove onerous and, even on the most generous social cost benefit analysis, systems can become nonviable when compared with their heavy rail or road based counterparts".

The ability of Light Rail to meet the needs of Western Sydney residents, particularly those whose trip requires transfer to rail, will be directly influenced by the low density urban form. Under such conditions the majority of people will be outside walking distance of the light rail line and will require another mode to gain access to the system, thereby introducing another mode change into the journey.

4.2.3.3 Taxis

Taxis play a relatively small part in the overall transport task. However, they are very important in after hours travel and providing accessibility to shopping areas for people without access to cars. There is clear evidence that people without cars will use taxis to transport the weekly shopping home when their load would make bus travel impractical.

4.2.3.4 Personal Public Transport (PPT)

This technology could beneficially be applied in Western Sydney, since it is well suited to low density areas. Such initiatives as the provision of real time information at bus stops and in interchanges would overcome many of the problems associated with low frequency services.

The application of this form of technology in interchanges to provide bus drivers with real time information on train arrivals will enhance the coordination between modes and increase reliability for passengers.

PPT also seeks to introduce new affordable on-demand services to supplement fixed-route scheduled services, using the principle of continuous multi-hiring. These will be cheaper than current single hire services provided by taxis (Glazebrook, 1995) and particularly suited to low density areas. Recent research and development funding will assist in further refinements of the technology and local demonstrations are expected in the near future.

4.3 Issues of Transport Integration

4.3.1 State Rail Strategic Plan 1994 - 2016 (CityRail)

The *State Rail Strategic Plan (CityRail)* sets out CityRail's response to the demand/travel patterns expected in the Sydney region for long haul passenger travel to the year 2011. The plan includes a number of significant infrastructure investments to meet corridors identified in the ITS, including the link between Glenfield and SWA at Badgerys Creek.

The south west region is one of the main expected growth areas for CityRail providing the immediate challenge for infrastructure and operational enhancements. The Strategic Plan identifies the following existing constraints on the network to meeting the expected demand:

- need for increased station capacity at Liverpool
- need for additional track capacity between Riverwood and Turrella on the East Hills Line to cope with growth from the south west
- alleviation of the bottleneck at Sydenham to cope with additional south west traffic
- access to Sydney West Airport.

In relation to employment centres, the Strategic Plan aims to ensure appropriate rail capacity is available for medium to high density residential and employment centres, and to increase rail's mode share to the key employment centres nominated by *Cities for the 21st Century* and the *ITS*.

The following goals of the Strategic Plan are of importance:

- utilise opportunities to make additions or improvements to existing infrastructure to service new release areas;
- re-orientate infrastructure to cater for increased demand for direct services to Parramatta, including the Harris Park Y Link from the south;
- develop and improve interchanges, including passenger information and integrated ticketing to increase patronage from feeder bus and taxi services, and improve integration with other modes;
- examine and monitor opportunities for new or relocated stations on existing lines.

Short Term Strategies (to 2000)

The immediate challenges to CityRail are related to the forecast growth in patronage expected from the south west. As a result, the following capital works projects for this period include:

- interchange development and improvement at Blacktown, Parramatta and Liverpool;
- the Harris Park Y Link enabling direct access to Parramatta from the south;
- New Southern Railway, which responds to the existing bottleneck at Sydenham, and will enable direct access between Sydney's two airports;
- a new turn-back facility at Glenfield to enable additional trains to run between Liverpool and Parramatta from 1996;
- upgrading of the Cabramatta Junction to increase speed and line capacity between Liverpool and Parramatta;
- amplification of the East Hills line to provide increased track capacity to cater for growth from the south-west;
- proposed Lidcombe and Homebush turn-backs will provide additional trains paths for the main Western Line;

- Blacktown to Riverstone Amplification;
- Upgrading of the Carlingford Line with connections to Epping and Parramatta.

Medium Term Strategies (beyond 2000)

Beyond the year 2000, CityRail's vision includes the expansion of the network into areas not currently served by rail including the potential link to Sydney Airport from Glenfield.

The link to Sydney Airport is considered to offer opportunities for the development of *urban villages* at selected station sites, maximising the potential for land use and transport integration.

Another relevant initiative is the Macquarie Rail Link, from Epping to Chatswood which in conjunction with the Carlingford upgrading will provide tow rail lines between Parramatta and Sydney's CBD.

4.4 Public Transport Opportunities

There are a number of possible public transport initiatives which may influence the Orbital route and travel patterns in Western Sydney. The main elements are summarised below.

4.4.1 Rail

Harris Park "Y" Link:
This facility is committed and is currently under construction. As discussed above it will open up opportunities for travel by rail between the southern and western suburbs and enhance the role of Parramatta as Sydney's second CBD.

Western Sydney Airport Rail Link:
In addition to access to the Airport this proposal will provide the option for people living in the new release areas to the west of Liverpool to access the rail system, avoiding the need to travel to Liverpool. It could also improve the efficiency of bus routes in the area by providing the opportunity for routes to carry people in both directions between Liverpool and the new stations. This is shown in the State Rail Strategic Plan as a medium term initiative, beyond 2000.

Parramatta - Epping:
This proposal, based on the Carlingford Line is designed to provide a cross-regional link between the Main Northern Line and Parramatta thereby opening up the option for rail travel between the Northern Suburbs and Central Coast and the Western Suburbs. The draft State Rail Strategic Plan identifies the link between Epping and Parramatta as the first section to be constructed, before 2000.

Epping - Chatswood:
This line connects Epping and Chatswood and is currently identified for implementation post 2000.

Blacktown to Riverstone amplification:
This is designed to allow higher frequency rail services to and from the North West Sector.

4.4.2 Transit Facilities

Sunnyholt Road Transit Corridor:
The first stage of this facility is under construction and is designed to provide the main connection to rail from the Rouse Hill Development Area of the North West Sector. The corridor will be operated by buses but has been planned to suit Light Rail should densities and urban form make this viable.

Blacktown Interchange:
This facility is nearing completion and is designed to cater for Rouse Hill growth and to enhance the connection between bus and rail.

M2 Express Bus Way:
The M2 between North Ryde and the Hills District includes provision for a busway designed to feed buses from the Hills District and the Rouse Hill Development Area to the rail network at Epping and for travel to the Macquarie Centre and University.

Liverpool Release Areas:
A current study is developing a strategy to serve the Liverpool LGA and in particular the new release areas to the west of the CBD which will eventually house about 80,000 people. While the study has not been finalised or any recommendations adopted the initial findings have highlighted the potential for three routes including Elizabeth Drive and Hoxton Park Road to serve as important transit corridors. In the short to medium term these are likely to be best served by a bus system. The main role of public transport in this area will be to convey people to Liverpool Town Centre and the Rail Interchange. The study includes the development of plans for a major upgrading of Liverpool Interchange.

Hoxton Park to Parramatta:
This corridor has the potential to satisfy trips between areas west of Liverpool and Fairfield to trips destinations along the route an to Parramatta. While this corridor has been identified for a number of years there are currently no specific proposals for its development.

Parramatta to Mungerie Park:
Originally planned as an extension of the Hoxton Park to Parramatta Corridor as far as Castle Hill it was extended to the proposed Mungerie Park centre in 1992. This is designed to serve trips between the Rouse Hill Development Area and Parramatta. There is no schedule proposed for the development of this facility.

4.5 The Orbital - Options for Public Transport

4.5.1 Opportunities for Public Transport Use

The potential for the Orbital route to cater for public transport travel should be seen the context of its capability to satisfy trip requirements and any opportunities preserved.

Relevant issues include:

- The dispersed nature of trips has been illustrated above, underlining the need for transit routes that pass close to employment and residential areas.
- The proposed access points to the Orbital are spaced between 3km and 6km apart with no pedestrian access to the sections in between. Limited access roads provide a poor environment for the collection and local distribution of passengers.
- The requirements for travel between centres such as Blacktown and Liverpool is relatively small. Existing cross-regional bus services, which commenced operations on a limited stops basis, have long since changed to all stops services providing access to various destinations along the route.
- Given the alignment of the Orbital and the low density of development along the route it is unlikely that there will be a warrant for the establishment of stops along the route.

However, there will be opportunities for the Orbital to serve some trip purposes, such as travel from Blacktown and areas to the north, to the West Sydney Airport and the employment which is projected to develop in its vicinity. As a general rule these services will be successful if they can collect their full passenger loads prior to joining the Orbital. The M2 Busway has been planned on this principle.

It is feasible that a number of bus routes could be established to serve the airport, especially from major centres such as Parramatta, Blacktown and Liverpool. Public transport trips to the airport from these centres will rely on cross-regional bus links, since they cannot be conveniently served by rail. Airport Express bus services would take advantage of the Orbital to provide high quality services to the Airport. Each centre already serves as a major interchange point on the public transport network and so provides a logical focus point for Airport Express bus services.

The northern sections of the Orbital will provide access for people from the northern and north western suburbs to western suburb employment areas. As the Rouse Hill - Wetherill Park - Liverpool spine develops, there will emerge further opportunities for trunk bus routes to serve journeys to work in those growing industrial centres along the spine. The key to the Orbital successfully serving this role will be the ability of buses to take-up economic passenger loads prior to joining the expressway, together with opportunities along the route to stop and to interchange with local services.

4.5.2 Associated Public Transport Issues

The construction of the Orbital will redirect traffic from existing routes creating the opportunity to consider public transport improvements in areas where traffic congestion currently inhibits the provision of attractive bus services. The following examples illustrate these opportunities:

Sunnyholt Road Transit Corridor:

Studies undertaken to establish this public transport facility identified the need to develop an alternative north/south traffic route. The Orbital could fulfil this role thereby relieving pressure on the transit route and allowing the full development of the facility.

Liverpool Release Areas:

The current public transport study has identified potentially high bus travel on three routes feeding into Liverpool Town Centre and Interchange. Each of these routes must cross the Hume Highway to reach the Centre and in doing so will encounter high levels of traffic congestion. The solution to this problem includes the provision of priority on the approaches to the Highway or the use of the Brickmakers Creek Deviation road reserve as means of drawing all buses onto one route before crossing the Highway.

The development of the Orbital route can be expected to remove some traffic from the Highway at this point and to also reduce the requirement to construct the Brickmakers Creek deviation for general traffic. This then creates the opportunity to dedicate some road space to public transport use.

The Orbital route will also remove traffic pressures on Cowpasture Road which will be an important route within the release areas both for local bus service and intra-regional services.

4.5.3 Local Bus Services

One of the main operational problems for bus services in Western Sydney comes as a result of the dissection of residential areas by limited access roads. The result is low patronage on indirect, convoluted, inefficient and unattractive bus routes. Campbelltown is an example of an area where bus operations are severely constrained in the quality of service they can offer due to this problem. Buses on some routes serving public housing areas take over twice the distance to serve the same population as do equivalent services in Mt Druitt and Blacktown. They also carry less than half the passengers (Fleming, 1994).

The construction of the Orbital through the Liverpool Release Areas needs to be considered so that residential areas are not created which are too small to support their own bus service.

If sizes are restricted then it may be necessary to construct links across the Orbital (in addition to those already planned for major roads), designed to join residential areas and so meet the needs of coherent and efficient bus routes.

It is recognised that planning for some of the release areas may not have progressed to the point where road layouts have been defined and therefore, it will not be possible to make precise recommendations on the location of links. Advance planning for the releases areas should determine the optimum bus route network and then define the location of links to be constructed as part of the Orbital.

Local bus network planning should be undertaken in conjunction with Councils, the relevant bus operator/s and the Department of Transport. The implementation of the resultant links should be timed to coincide with the residential development and become fixed points to which the future local road network will connect. If concerns arise with regard to the creation of *rat runs* for cars then the links could be designated for buses only.

4.6 Airport Access Road - Options for Public Transport

The section of Elizabeth Drive linking to the Airport will serve as a public transport route. The eastern section of Elizabeth Drive is currently an important public transport route, a role which will increase as residential development expands on the Liverpool Release Areas. Current planning has identified this eastern section as a transit priority corridor requiring measures to ensure service reliability.

Western Elizabeth Drive is presently used as a local bus route (routes 836 and 835) by Westbus. The 835 was introduced to link between Liverpool Interchange and Penrith, serving the Western Sydney University, Nepean Campus. It travels on Elizabeth Drive between Cowpasture Road and Mamre Road. These weekday services operate six times from Liverpool to Penrith and five on the return journey.

The 836 operates to Badgerys Creek Post Office from Liverpool Interchange nine times on a weekday and eight times on the return journey, travelling on Elizabeth Drive between Cowpasture Road and Badgeries Creek Road.

Westbus estimates that it has around thirteen school services operating in each direction on some part of Elizabeth Drive, between The Northern Road and Cowpasture Road.

The use of Elizabeth Drive by buses will increase as a result of the employment growth associated with the Airport and the need to provide connections to residential areas and the Liverpool Town Centre and Interchange. Access from other areas will be facilitated by the construction of the Orbital and Elizabeth Drive.

As discussed above, the Airport can also be expected to generate bus trips from other parts of the Metropolitan area, especially those which will not be well served by the proposed railway extension. There is also a potential for buses to provide for tourist activity as the airport grows.

5. Freight

5.1 Introduction

This Chapter of the Working Paper has been prepared to provide background information on commercial vehicles for the Western Sydney Orbital Project. When preparing the Paper, it became apparent that specific references to commercial vehicle movements and characteristics within Western Sydney are scarce. The documents listed in the attached References provided some guidance, but the principal sources of data for this Paper were:

- 24 hour classification traffic counts undertaken for the Overview Study (TTS, 1995);
- 1991/92 Commercial Vehicle Surveys (DOT, 1994); and
- Liverpool - Hornsby Highway Strategy Study (RTA/DOTC, 1994).

It is recognised that commercial vehicles include both light and heavy vehicles but for the purposes of this Paper, the focus is on freight movements, and freight is principally moved by heavy vehicles.

5.2 Freight Vehicle Movements in Western Sydney Today

An average of the total of all the vehicle movements classified by Hour of Day is shown in Table 5.1. It is the classification for the *average* count of the sites set out in Table 2.1. Because the counts range widely as shown in Figure 2.1, the figures could be said to generally represent the network proportions of heavy and light vehicles for Western Sydney.

Some interesting points to note from the table are:

- heavy vehicle flow is balanced East and West bound even on the basis of a single day's count;
- while overall heavy vehicles represented 11% of all traffic, the portion falls dramatically between 5pm and 1am. On the average, it reaches a peak at 4 am and at midday;
- slightly more heavy vehicles (53%) are over 4 tonnes than between 2 and 4 tonnes;
- traffic patterns for light and heavy vehicles are very different, and the number of heavy vehicles on the road is much more consistent over time of day than light vehicles.

The percentage of heavy vehicles on some of the key roads within Western Sydney are shown in Table 5.2 below. In the absence of detailed data on the proportion of commercial and non-commercial heavy vehicles, a conservative upper bound scenario has been adopted considering **all** heavy vehicle movements to be freight movements.

The vehicle numbers in Table 5.2 are taken from 24 hour classified traffic counts in Appendix A.

Table 5.1: Cumulative Classification over all Counts by Hour on the Day

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : 24 Hour Classified Counts in Study Area
Suburb : Western Suburbs
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies Under 4 tonnes	Heavies Over 4 tonnes	Total Heavies	Total	Lights	Heavies Under 4 tonnes	Heavies Over 4 tonnes	Total Heavies	Total	*Lights*	*Heavies*	*Total*
0:00 - 1:00	56.50	1.86	2.14	4.00	61	43.14	1.36	1.79	3.14	46	100	7	107
1:00 - 2:00	31.43	1.50	2.21	3.71	35	29.00	1.29	2.07	3.36	32	60	7	68
2:00 - 3:00	23.86	1.07	3.93	5.00	29	27.93	2.50	3.79	6.29	34	52	11	63
3:00 - 4:00	23.14	1.71	3.79	5.50	29	32.50	4.50	3.93	8.43	41	56	14	70
4:00 - 5:00	38.93	3.29	6.50	9.79	49	73.07	6.29	7.50	13.79	87	112	24	136
5:00 - 6:00	119.50	5.93	14.79	20.71	140	259.86	17.21	16.57	33.79	294	379	55	434
6:00 - 7:00	400.71	30.57	32.71	63.29	464	635.29	42.14	37.29	79.43	715	1,036	143	1,179
7:00 - 8:00	497.93	39.43	37.93	77.36	575	804.14	36.57	40.57	77.14	881	1,302	155	1,457
8:00 - 9:00	490.29	33.79	41.36	75.14	565	698.36	30.07	42.79	72.86	771	1,189	148	1,337
9:00 - 10:00	359.43	28.50	38.57	67.07	427	435.00	31.00	41.79	72.79	508	794	140	934
10:00 - 11:00	322.07	37.14	42.50	79.64	402	353.79	33.36	40.29	73.64	427	676	153	829
11:00 - 12:00	321.00	37.29	39.64	76.93	398	332.14	29.29	43.14	72.43	405	653	149	803
12:00 - 13:00	315.43	30.36	36.36	66.71	382	317.29	26.07	37.86	63.93	381	633	131	763
13:00 - 14:00	332.71	33.64	37.64	71.29	404	329.93	28.86	33.93	62.79	393	663	134	797
14:00 - 15:00	415.57	37.71	38.79	76.50	492	393.36	36.00	40.14	76.14	470	809	153	962
15:00 - 16:00	620.50	36.79	38.14	74.93	695	527.43	30.86	41.36	72.21	600	1,148	147	1,295
16:00 - 17:00	802.43	36.50	33.50	70.00	872	572.71	26.21	33.14	59.36	632	1,375	129	1,505
17:00 - 18:00	888.21	27.57	18.21	45.79	934	614.86	21.64	17.36	39.00	654	1,503	85	1,588
18:00 - 19:00	642.50	15.50	12.43	27.93	670	451.29	13.50	11.07	24.57	476	1,094	53	1,146
19:00 - 20:00	378.07	8.86	8.79	17.64	396	277.14	6.71	8.36	15.07	292	655	33	688
20:00 - 21:00	270.43	4.21	5.86	10.07	281	196.43	6.29	5.14	11.43	208	467	22	488
21:00 - 22:00	217.79	3.14	4.07	7.21	225	181.71	2.93	5.07	8.00	190	400	15	415
22:00 - 23:00	163.64	2.07	3.21	5.29	169	139.00	2.36	4.00	6.36	145	303	12	314
23:00 - 24:00	96.50	1.86	3.57	5.43	102	76.86	1.86	2.43	4.29	81	173	10	183
Total	**7828.57**	**460.286**	**506.643**	**966.929**	**8795.5**	**7802.21**	**438.857**	**521.357**	**960.214**	**8762.43**	**15630.8**	**1927.14**	**17557.9**

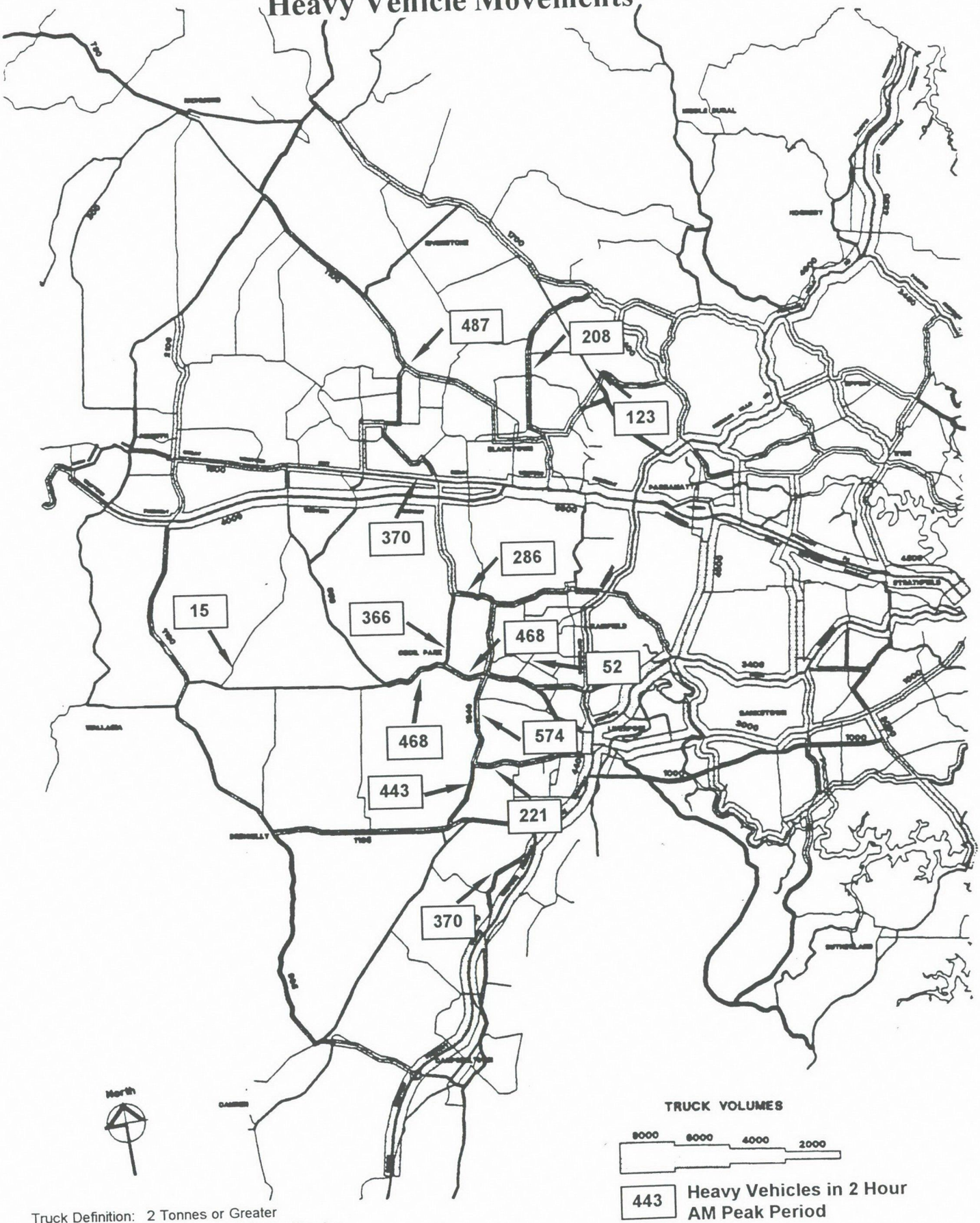
Table 5.2
Percentages of (Heavy) Freight Movements on Key Western Sydney Roads during 2 Hour AM Traffic Peak, 1995

Road	2 hour AM Traffic Peak Flows			
	Freight Vehicles (vp 2h)	Total Vehicles (vp 2 hr)	% Freight	
			% of 2 hr AM peak	% of total Daily Traffic
The Horsley Drive (near Wallgrove Road)	286	3033	9.43	17.19
Wallgrove Road (north of Elizabeth Drive)	366	2157	16.97	16.09
Elizabeth Drive (at Duff Road)	468	2949	15.87	18.95
Elizabeth Drive (east of Wallgrove Road)	468	3760	12.45	15.60
Cowpasture Road (south of Hoxton Park Road)	443	2073	21.37	19.23
Cowpasture Road (south of Green Valley Road)	574	2977	19.28	16.21
Kurrajong Road (east of Bernera Road)	52	709	7.33	14.63
Luddenham Road (north of Elizabeth Drive)	15	318	4.72	17.70
Campbelltown Road (north of Lawson Road)	154	2219	6.94	17.66
Great Western Highway (west of Rooty Hill Road)	370	5920	6.25	15.00
Richmond Road (east of Rooty Hill Road North)	487	4734	10.29	15.30
Sunnyholt Road (near Meurants Lane)	208	4123	5.04	15.05
Old Windsor Road (north of Seven Hills Road)	123	2166	5.68	14.27
Fifteenth Ave/Hoxton Park Rd (east of Cowpasture Road)	221	1967	11.24	14.28

The freight movements contained in Table 5.1 are also illustrated on Figure 5.1, where their spatial distribution can be clearly seen.

Table 5.2 shows that under this conservative scenario, freight vehicles comprise between 5% and 21% of the 2 hour am peak flows, and 14% - 19% of the daily flows. Freight movements are therefore a significant proportion of traffic on Western Sydney arterial routes. Freight

All Day (Two-Way) Truck Volumes-Estimated Pre M4 Extension (1992) With 1995 Heavy Vehicle Movements



Truck Definition: 2 Tonnes or Greater
4 in Between Axles or Greater
(Excluding Buses)

Source: (Figure 6.8 RTA/DOTC/Maunsells-DJA, 1994)
(TTS, 1995)

Figure 5.1

traffic is usually considered to be between 5 - 15% of total vehicle traffic (Schlappi et al, 1993).

The Commercial Vehicle Survey (CVS) (DOT, 1994) revealed that within the Greater Sydney Metropolitan Region most commercial vehicle trips were over a distance less than 20km, and typically start and finish within the same Statistical Local Area (SLA)[1]. If it was assumed that this characteristic applied to freight movements in Western Sydney then it can be inferred that there is potential for road freight movements to increase with future increases of industrial development in the area. This is reflected, too, in RTA's *State Road Network Strategy* which forecast growth rates in commercial traffic to be much higher than for general traffic.

5.3 Growth of Freight Movements

It is expected that the increased development of heavy rail within Western Sydney will **not** attract significant increases in freight traffic (RTA, 1992). The future freight task in the area will most likely be carried by road for the following reasons:

- no major freight rail terminals are planned in the region;
- heavy rail is generally only economical for long distance freight hauls;
- road freight can respond to short lead times when compared to rail;
- total loading and unloading times for road freight are less because mode changes are usually not required for road freight, whereas they are for heavy rail;
- road freight provides more flexibility as it is not as confined in movement as heavy rail.

Consideration of these factors should be given along with the needs of freight users, namely short haul distances and short lead times (DOT, 1994).

It may be expected to grow at a much higher rate perhaps proportional to industrial employment growth in Western Sydney. Employment growth for Sydney up to the year 2017 could be as high as 70% (RTA/DOTC, 1994) when compared to 1991 levels.

As a result it could reasonably be expected that future average road freight movements could be higher than the current 14% - 19% of daily traffic flows, on freight routes.

The RTA in its *State Road Network Strategy* (RTA, December 1994) has stated a number of strategies for the moderation of freight traffic growth, these are:

- implementing its strategies for integration of land-use and transport planning;
- improving accounting for all direct and indirect road freight transport costs;
- giving priority to investments in intermodal linkages, especially with rail;
- regularly reviewing regulatory and administrative impediments to intermodal transfers;

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1 *A geographical area used by the Bureau of Statistics for Census data collection and analysis purposes.*

- promoting access for high-productivity trucks to modal interchanges (eg. road trains to rail silos);
- encouraging the use of high-efficiency trucks, low tare trucks with minimum-wear suspensions and emerging technologies to maximise payload per movement and minimise back loading;
- promoting consistent approaches across different transport modes to taxation exposure, insurance liabilities, accounting practices, capitalisation, depreciation, land utilisation measures, health and safety risks and the allocation of joint costs.

5.4 Conclusions

Existing road freight movements on Western Sydney arterials comprises 14% - 19% of daily traffic volumes. Freight transport distances within the Greater Sydney Region are typically less than 20 kilometres and often start and finish within the same SLA (DOT, 1994). Even with the freight traffic moderation strategies proposed by RTA (RTA, December 1994), such as encouraging the use of high-efficiency trucks and emerging technologies to maximise payload per movement, the road freight task is likely to significantly increase because:

- road freight operates on short lead times;
- road freight operates on a flexible timetable; and
- road freight is better suited to short haul distances between the higher density industrial development proposed for the area.

6. Elizabeth Drive Traffic

6.1 Introduction

The single biggest change in travel patterns in the vicinity of the Western Sydney Orbital will arise from the operations of Sydney West Airport and the increased employment in the vicinity of the Airport that is ancillary to the Airport's operations. With the Commonwealth Government's commitment to accelerate the development of Sydney West Airport to a standard that is capable of handling major domestic and international jet traffic by 1999, the planning process has taken on urgency. On the other hand, the Commonwealth has decided that the development will be carried out by the private sector owner/lessor of both Sydney Airport and Sydney West Airport. With the airport leasing program uncompleted, development details are not finalised on the likely milestones of construction, aeroplane movements and employment.

The following sections address the likely traffic generation of the Airport and its impacts, but the estimations are based on preliminary information only. While overseas experience from cities with two airports has been reviewed, it offers little assistance as government policy has directed the traffic results more than a natural market growth or sharing. As a consequence, air passenger and freight operators will resist providing additional ground facilities at a second location until they are directed to do so or highly restrictive practices are imposed on the longer established airport. Such changes in government policy will have more effect than the national growth trends or economic projections currently available for travel forecasting.

6.2 Airport Rail Link

In 1994 the Commonwealth Minister for Transport indicated that rail links to the Sydney West Airport site would be studied, with the view of linking the airport into Sydney's rail system, and specifically facilitating movements between Sydney West Airport and Sydney (Kingsford Smith) Airport.

In the State Rail Strategic Plan 1994-2016 (State Rail Authority, 1994), it is indicated that the Sydney West Airport Link is proposed for completion after the year 2000. The heavy rail access would "*service any development at South Creek and Sydney's second airport*", and so it is proposed to safeguard "*an initial alignment west of Glenfield through coordination with land development studies conducted by the Department of Planning*".

As a result of this interest in rail by the relevant authorities, the RTA recognises the future development of a rail link to Sydney West Airport. With no firm announcement as to timing, location and funding of that link, this assessment has taken the following approach:

- it is taken that the airport and rail link will be constructed;
- the timing of the rail link is not certain, and so road traffic projections have been considered both *with* and *without* the rail link to test sensitivity; and

- the route has been assumed to be Glenfield/Edmondson Park/Badgerys Creek, in which case the rail link and the Elizabeth Drive/Western Sydney Orbital road link will be complementary rather than in competition.

The result of this approach is to ensure that the four-lane Elizabeth Drive proposal is adequate from a traffic point of view, and to support integrated land use and transport planning in the region.

6.3 Future Traffic Forecasts

The future land use scenarios described above were processed through the EMME/2 traffic model maintained by the RTA. This model covers an area bounded by the Hawkesbury and Nepean River system to the north and west and extends south to Picton, Appin and Waterfall. The model produces traffic flows that occur in the busiest two hour period in the morning which can be factored to produce estimates of daily and annual car travel.

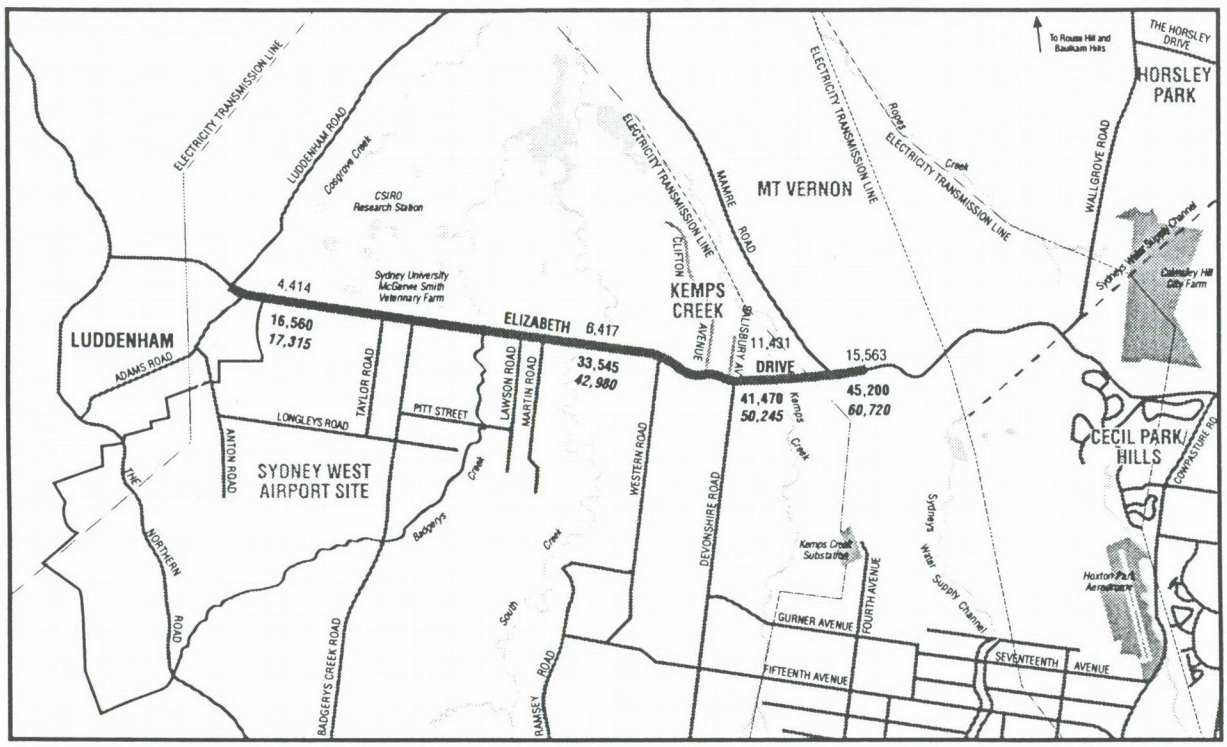
Table 6.1 provides estimates of traffic for four sections of Elizabeth Drive in the year 2016. The estimates represent traffic flows on Elizabeth Drive both with and without the proposed upgrade for the *low, medium* and *high* road travel scenarios. It also provides the results of traffic counts taken on Elizabeth Drive in 1995. The medium estimate of daily traffic is also shown in Figure 6.1.

The estimates of future traffic flows with and without the project show that there is some existing latent demand for using Elizabeth Drive that is presently using other roads in the area and would be attracted to an upgraded Elizabeth Drive which would have improved operating conditions. There would be a heavy demand generated by Sydney West Airport that would use Elizabeth Drive even without the proposed upgrading.

Table 6.1
Traffic Estimates for Elizabeth Drive (Annual Average Daily Traffic Volumes)

Section of Elizabeth Drive	Existing (1995)	Low Scenario (2016)		Medium Scenario (2016)		High Scenario (2016)	
		Without[1] Project	With[2] Project	Without[1] Project	With[2] Project	Without[1] Project	With[2] Project
Luddenham Road to Badgerys Creek Road	4,414	14,025	15,931	16,560	17,315	22,265	23,095
Badgerys Creek Road to Devonshire Road	6,417	25,050	31,575	33,545	42,980	47,250	63,250
Devonshire Road to Mamre Road	11,431	34,238	39,813	41,470	50,245	47,455	66,775
East of Mamre Road	15,563	37,794	49,763	45,200	60,720	56,100	82,240

Notes: 1. Without project means without the upgrade of Elizabeth Drive and the construction of the Western Sydney Orbital.
2. With project means with the upgrade of Elizabeth Drive and the construction of the Western Sydney Orbital.



4,414 Existing Average Daily Traffic 1995

16,560 Medium Estimate of Daily Traffic in 2016 without Upgrade of Elizabeth Drive and Development of Western Sydney Orbital

17,315 Medium Estimate of Daily Traffic in 2016 with Upgrade of Elizabeth Drive and Development of Western Sydney Orbital

Figure 6.1
Traffic Estimates for Elizabeth Drive

The forecast use of Elizabeth Drive is significantly in excess of the current capacity of the road (two lanes) and traffic would be subjected to excessive delays and a high level of accidents. The *medium* scenario estimates for the year 2016 are considered the most likely traffic flows because they represent a reasonable level of use of Sydney West Airport which is consistent with a market-managed growth rather than an imposed level of growth and that there would be some traffic relief provided by a rail service connecting the airport to the Sydney metropolitan rail system. These *medium* level estimates can be accommodated by a four lane divided road with high standard intersections, but they are also indicative of a potential longer term travel growth that could require the addition of two extra lanes to accommodate additional traffic or buses. The restructuring of local accesses to maintain capacity may also be required.

6.4 Characteristics of Airport Generated Traffic

The Strategic Transport Modelling (Traffic Technology Branch, RTA) described in Chapter 3 adopted the *Draft Environmental Impact Statement for the Second Sydney Airport Site Selection Programme* (Kinhill Stearns, 1985) as the basis for forecasting vehicle trip generation for Sydney West Airport.

That document proposed a maximum likely activity level at Sydney West Airport of 13 million air passenger movement per year (42,500 air passengers with 34,000 passengers travelling to and from the airport on a busy day), associated with a forecast employment of 10,500 on site and 2,100 in adjacent traffic zones. It presented forecasts based on these figures for road traffic both with and without a rail service as shown in Table 6.2.

Table 6.2
Traffic Forecasts from 1985 Environmental Impact Statement

Group of Travellers	With Rail	Without Rail
Air passengers	19,000	24,000
Meeters/greeters	8,000	11,000
Employees	15,000	15,000
Total	**42,000**	**50,000**

Source: Kinhill Stearns, 1985
Note: 1. The above figures are based on average mode choice estimates of

Buses and Coaches	15%	30%
Private Car	40%	65%
Taxis	5%	5%
Rail	40%	-

The Draft Environmental Impact Statement (Kinhill Stearns, 1985) identifies additional vehicular traffic to the airport concerned with airport business, freight deliveries and servicing which is estimated at 15,000 vehicles per day with the railway and 19,000 vehicles per day without the railway.

The Sydney Airport Planning Strategy Ground Access Study (SKM, 1989) report on Sydney Airport provides information on access to that airport. Some pertinent information relates to buses and trucks.

The Ground Access Study (SKM, 1989) relates to Sydney Airport in 1989 when there were 3.82 million international air passengers and 7.63 domestic air passengers. There were 3,268 bus passengers at the international terminal and 2,597 bus passengers at the domestic terminal for a total of 6,225 bus passengers. These passengers were carried in 1,080 bus trips for an average load of 5.76 passengers per bus.

Using the rate of passengers per bus, it is possible to solve the modal choice percentages given in the Draft Environmental Impact Statement (Kinhill Stearns, 1985). The resultant figures for 34,000 air passengers on a busy day are shown in Table 6.3.

Table 6.3
Model Choice for Sydney West Airport

Mode	With Rail		Without Rail	
	Persons	Vehicles	Persons	Vehicles
Bus	5,100	885	10,200	1,770
Car	13,600	16,100	22,100	20,215
Taxi	1,700	2,015	1,700	2,015
Rail	13,600	-	-	-
	34,000	**19,000**	**34,000**	**24,000**

Source: SKM, 1989 and Kinhill Stearns, 1985

Further, the Ground Access Study (SKM, 1989) gives 2,735 truck trips to and from Sydney Airport between 6.00am and 8.00pm. It is also reported that there were 550 vehicle trips per day used to handle domestic cargo and 888 vehicle trips (in Link Road) servicing international air cargo. The traffic counts conducted for the Western Sydney Orbital show that an average of 90% of trucks travel in the period between 6.00am and 8.00pm on the average day for existing travel in the western suburbs. This seems to also apply at Sydney Airport. Hence, it can be inferred that there are about 3,040 truck trips to and from Sydney Airport per day with 1,600 of these trips used in handling air cargo.

Using Working Paper 1 of the Ground Access Study (SKM, 1989), the air freight movement values can be estimated from historical values to give 1989 data. This gives a total air freight movement of 244,347 tonnes per annum in 1989. Adopting the above estimate of 1,600 truck trips per day for freight gives an average of 0.42 tonnes per one way truck trip to Sydney Airport. In Section 3.6 of the Ground Access Study (SKM, 1989) it is reported that 550 trucks are used to carry 210 tonnes of domestic freight per day for an average of 0.38 tonnes per average truck trip at Sydney Airport.

Summarising the available data from Sydney Airport on truck trips; approximately 50 percent of truck trips are used to carry air freight, each trip carrying an average of 0.4 tonnes.

There are no forecasts of air freight movement available in the Draft Environmental Impact Statement (Kinhill Stearns, 1989) although it is implied that there is a close relationship with air passenger demand. Assuming that there is such a relationship it is instructive to examine this relationship for Sydney Airport. This reveals a rate of 41.67 tonnes per million international air passengers and 8.27 tonnes per million domestic air passengers per year for 1988 with averages for the past ten years being 41.22 and 9.48.

Assuming that Sydney West Airport will have the same proportions of international and domestic air passengers as occurs at Sydney Airport, a level of 13 million air passengers would generate 256,900 tonnes of air freight. A busy day estimate of 42,500 air passengers would then imply 840 tonnes of air freight on that day, 2,100 truck trips to carry this air freight and, consequently, 4,200 truck trips per day at Sydney West Airport.

There is uncertainty at this time as to whether a fuel pipeline will be constructed to serve Sydney West Airport. In order to account for fuel, oil and other supplies that would need to be transported by road from Sydney Airport an assessment of extra truck trips per day needs to be made to develop an estimate of total truck trips. An allowance has been adopted of 30 percent for these truck trips.

Table 6.4 summarises the various scenarios for Sydney West Airport in respect of truck and bus vehicle trips.

Table 6.4
Estimates of Truck and Bus Movements for Sydney West Airport

	Scenarios		
	Ultimate	**High (2016)**	**Medium (2016)**
Annual air passengers (millions)	13	10	> 7
Annual air freight (tonnes)	256,900	197,600	138,300
Busy day air passengers	42,500	32,700	22,900
Busy day air freight (tonnes)	840	646	452
Busy day freight truck trips	2,100	1,615	1,130
Busy day general truck trips	4,200	3,230	2,260
Busy day total truck trips	5,460	4,200	2,940
Busy day transfer air passengers	8,500	6,550	4,590
Busy day non-transfer passengers	34,000	26,150	18,310
Busy day bus passenger with rail	5,100	3,920	2,745
Busy day bus trips with rail	900	700	480
Busy day bus passengers without rail	10,200	7,840	5,490
Busy day bus trips without rail	1,800	1,400	960
Total heavy vehicles with rail	6,360	4,900	3,920
Total heavy vehicles without rail	7,260	5,600	4,400

6.5 Existing Elizabeth Drive Road Standards

Apart from the steep hill to the east of Mamre Road, Elizabeth Drive traverses rolling country crossing the floodplains of Kemps, South and Badgerys Creeks. The horizontal alignment is generally straight except to the west of Kemps Creek village where there are some relatively tight curves and poor sight distances. At present, Elizabeth Drive is essentially a two lane rural road although there are some localised widenings to accommodate turning movements.

The accident rate on Elizabeth Drive is within the expected range for a road of this type, however it is indicative of a rural road subjected to the pressures of urban traffic demands. On some sections of Elizabeth Drive these demands include a large number of commercial vehicles such as waste and quarry trucks. East of Mamre Road approximately 18 percent of vehicles are either trucks or buses. While accidents are spread out along the length of Elizabeth Drive, the largest number occur at or near the intersection of Elizabeth Drive and Mamre Road where traffic volumes are heaviest. No fatal accidents occurred on the subject section of Elizabeth Drive between October, 1991 and September, 1994 although there were 51 accidents, 10 of which involved serious injury. The existing capacity of Elizabeth Drive is insufficient to meet the projected traffic levels shown in Table 6.1.

6.6 Improvements Required on Elizabeth Drive

To cater for the needs of airport traffic, the project would require two relatively free-flowing lanes in each direction of travel on Elizabeth Drive. Such a road would be adequate to accommodate forecast travel demands to the year 2016 with a maximum peak hour flow of approximately 1,800 vehicles per lane. An assessment of potential accidents has shown that the project would reduce the overall accident potential of Elizabeth Drive notwithstanding the increase in traffic flows.

Free-flowing traffic conditions on Elizabeth Drive rely largely on the capacity and type of intersections. Accordingly, the project has been designed to eliminate any direct vehicular crossings of Elizabeth Drive with all such movements either accommodated in grade-separated intersections where ramps and bridges are provided to separate traffic or through the development of staggered T-intersection designs. These T-intersections would provide storage lanes within the median of Elizabeth Drive to allow vehicles turning right off or into Elizabeth Drive to stop and check oncoming traffic before proceeding. Safe turning movements would be achieved without impeding traffic flowing along Elizabeth Drive.

The growth in traffic volumes up to and beyond the year 2016 would be closely linked to the future development of Sydney West Airport and the development of employment generating activities adjacent to the airport, especially on the northern side of Elizabeth Drive. Consequently, the design of the project would allow for future upgrading to six lanes to provide additional capacity for motorists or dedicated bus lanes. The limitation of proposed at grade intersections would also need to be examined in the very long term.

6.7 Traffic Forecasts Used for Impact Assessment

For the environment impact assessment conservatively high traffic figures were developed. These were based on the high road traffic scenario for 2016 and existing averages for nighttime and heavy vehicle traffic. Traffic forecasts used for air and noise modelling are shown in Table 6.5.

Table 6.5
Traffic Forecasts for Elizabeth Drive used for Air and Noise Modelling

	Average Annual Daily Traffic		Daytime Traffic (92%)		Nighttime Traffic (8%)	
	Total	Trucks (11%)	Total	Trucks (11%)	Total	Trucks (10%)
Luddenham Road to Badgerys Creek Road	23,095	2,522	21,264	2,337	1,848	185
Badgerys Creek Road to Devonshire Road	63,250	6,906	58,190	6,400	5,060	506
Devonshire Road to Mamre Road	66,775	7,292	61,433	6,758	5,342	534
Mamre Road to East	82,240	8,980	75,659	8,322	6,579	658

6.8 Impacts of Upgrading Elizabeth Drive on Traffic and Transport Systems

The traffic and transport related impacts of the upgrade of Elizabeth Drive would occur because of the new road design and the expected additional traffic flow. This additional traffic flow would mainly be due to the activity generated by the airport and also related employment that moves into the area because of the airport. There is no toll proposed for Elizabeth Drive.

The development of the airport will have a significant effect on the nature and structure of the local community and land uses. The changes in traffic patterns will also be substantial. Both the community and urban services will need to be responsive to the development of the airport in order to minimise social and environmental impacts.

A 20 year forecasting period has been adopted for estimating increases in traffic flows. It shows that even without the upgrade of Elizabeth Drive and the development of the Western Sydney Orbital, Elizabeth Drive would need to accommodate significant amounts of traffic because of the development of the airport. For example on the section of Elizabeth Drive between Devonshire Road and Mamre Road approximately 41,000 vehicles per day would travel along Elizabeth Drive is the most likely scenario even without the proposed upgrade or the development of the Western Sydney Orbital. This is over three times greater than the existing traffic flow of 11,431 vehicles a day. With the upgrade of Elizabeth Drive and the development of the Western Sydney Orbital, a greater number of vehicles would be attracted

to these high standard roads and it has been estimated that by 2016 approximately 50,000 vehicles a day (most likely scenario) would use this section of Elizabeth Drive.

The upgrading of Elizabeth Drive to connect with the proposed Western Sydney Orbital provides for the continuation of Elizabeth Drive eastwards which is being progressively upgraded.

Roads adjoining Elizabeth Drive would also experience significant changes to traffic flows because of the anticipated development of the airport over the next 20 years. Table 6.5 shows existing traffic flows and estimates of traffic flows in 2016, both with and without the upgrade of Elizabeth Drive and development of the Western Sydney Orbital. These figures are the "high" car travel scenario to be consistent with the maximum impact analysis used for the environmental assessment.

Table 6.5
Estimates of Future Traffic (2016) on Roads Adjoining Project Area[1]

Location	1996 Average Daily Traffic[2]	Average Daily 2016 Traffic Without Project[3]	Average Daily 2016 Traffic With Project[4]
The Northern Road, north of Elizabeth Drive	5,406	16,269	19,194
The Northern Road, south of Elizabeth Drive	3,650	14,919	12,344
Elizabeth Drive west of Luddenham Road	4,094	10,650	20,294
Luddenham Road	2,156	8,481	7,319
Badgerys Creek Road	1,931	9,544	9,063
Devonshire Road	4,175	21,000	17,863
Mamre Road	16,438	20,231	21,975

Notes:
1. Figures given are for the "high" car travel scenario.
2. 1996 estimates from traffic model.
3. Without project means without upgrade of Elizabeth Drive and the development of the Western Sydney Orbital.
4. With project means with upgrade of Elizabeth Drive and the development of the Western Sydney Orbital.

Table 6.5 shows that over the next 20 years there will be substantial traffic growth on roads adjoining Elizabeth Drive, primarily because of the development of the airport. The upgrade of Elizabeth Drive and the development of the Western Sydney Orbital would marginally reduce traffic growth on most of these roads. The exceptions would be increased flows on Elizabeth Drive, between The Northern Road and Luddenham Road, and marginally increased flows on Mamre Road.

The projected traffic flow on Elizabeth Drive, between The Northern Road and Luddenham Road, for the year 2016 is approximately 20,000 vehicles per day. Such a flow would be approaching the capacity of that existing section of Elizabeth Drive. It should be noted, however, that this traffic flow is based on the high car travel scenario and would be reached in about 20 years time. The medium car travel scenario (the most likely scenario) shows traffic

flows on this section of Elizabeth Drive of approximately 6,000 vehicles per day less than the high car travel scenario.

Without the upgrade of Elizabeth Drive traffic conditions in the future would become very congested and traffic safety would decline. With the upgrade of Elizabeth Drive, access to most individual properties would be less convenient than the arrangements which exist today with high traffic flows making right turns out of driveways very difficult and relatively more dangerous. In many cases the restriction of right turn access to private properties would occur as median islands and other devices. Left turn in and left turn out only would be inevitable at most locations, as is generally the case on busy arterial roads.

Elizabeth Drive presently functions as an important bus route. The number of buses using Elizabeth Drive will increase to provide services to the airport and any new employment areas. The proposed free flowing traffic characteristics of an upgraded Elizabeth Drive would enable buses to provide very competitive regional and local services for those locations which would be at some distance from the proposed rail line. Conversely, if Elizabeth Drive is not upgraded, travel times would deteriorate, making public transport unreliable, with no opportunity on the two lane road for allocating a lane to high occupancy vehicles or bus priority use. Bus priority lanes are not considered to be warranted in the short term to the year 2000, however provision for future public transport lanes has been made.

6.9 Consequences of Not Upgrading Elizabeth Drive

The capacity of a two lane rural road is generally accepted to be about 16,000 vehicles per day (Roads and Traffic Authority, 1993). When traffic volumes come close to or exceed this level, opportunities to pass slower vehicles are severely limited and gaps in the traffic to allow vehicles to enter or leave the road become fewer. The practical consequence is that drivers tend to try using shorter gaps and therefore take more risks. Not all such manoeuvres are successful and a significant increase in accidents can occur.

The opening of the Sydney West Airport, at even a low level of activity, will generate sufficient additional traffic, including trucks and buses, to raise the traffic volumes on Elizabeth Drive beyond its present safe capacity. This traffic demand cannot be adequately accommodated or served by other roads in the area.

The resultant congestion on Elizabeth Drive would cause extensive queues of vehicles and impose unacceptable additional costs on industry, commerce and private individuals. It would be expected that the development and operation of the airport would be severely constrained through the unpredictability of travel times by passengers, workers and servicing vehicles. The potential for the airport to attract employment generating activities to western Sydney and to provide an alternative to Sydney (Kingsford Smith) Airport for flying into and out of Sydney would also be constrained by the poor level of road access.

The traffic congestion and increased accidents involving hazardous materials that would occur if Elizabeth Drive was not upgraded would result in significant environmental impacts. Without the upgrade of Elizabeth Drive, there would be limited opportunities to provide environmental mitigative measures such as noise barriers and water quality measures.

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Appendix A

Traffic Count Data

LIST OF CONTENTS

SECTION 1

24 Hour Classified Counts

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : The Horsley Dr near Wallgrove Road
Suburb : Horsley Park
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	45	1	2	3	**48**	39	0	1	1	**40**	84	4	**88**
1:00 - 2:00	17	0	2	2	**19**	21	0	2	2	**23**	38	4	**42**
2:00 - 3:00	14	1	3	4	**18**	18	3	1	4	**22**	32	8	**40**
3:00 - 4:00	12	2	3	5	**17**	28	4	4	8	**36**	40	13	**53**
4:00 - 5:00	36	6	4	10	**46**	80	12	11	23	**103**	116	33	**149**
5:00 - 6:00	96	12	16	28	**124**	380	32	21	53	**433**	476	81	**557**
6:00 - 7:00	308	18	21	39	**347**	634	31	28	59	**693**	942	98	**1040**
7:00 - 8:00	361	23	28	51	**412**	1018	26	54	80	**1098**	1379	131	**1510**
8:00 - 9:00	384	28	41	69	**453**	984	30	56	86	**1070**	1368	155	**1523**
9:00 - 10:00	271	21	33	54	**325**	365	27	49	76	**441**	636	130	**766**
10:00 - 11:00	289	27	60	87	**376**	320	30	44	74	**394**	609	161	**770**
11:00 - 12:00	317	28	47	75	**392**	310	35	59	94	**404**	627	169	**796**
12:00 - 13:00	301	26	44	70	**371**	275	36	43	79	**354**	576	149	**725**
13:00 - 14:00	381	36	48	84	**465**	339	42	32	74	**413**	720	158	**878**
14:00 - 15:00	484	37	45	82	**566**	353	33	41	74	**427**	837	156	**993**
15:00 - 16:00	764	27	44	71	**835**	453	26	34	60	**513**	1217	131	**1348**
16:00 - 17:00	1188	41	30	71	**1259**	396	29	32	61	**457**	1584	132	**1716**
17:00 - 18:00	1449	27	33	60	**1509**	451	21	10	31	**482**	1900	91	**1991**
18:00 - 19:00	702	19	32	51	**753**	292	3	2	5	**297**	994	56	**1050**
19:00 - 20:00	278	11	15	26	**304**	174	3	4	7	**181**	452	33	**485**
20:00 - 21:00	130	2	8	10	**140**	170	2	5	7	**177**	300	17	**317**
21:00 - 22:00	143	1	5	6	**149**	214	9	6	15	**229**	357	21	**378**
22:00 - 23:00	130	2	1	3	**133**	122	0	2	2	**124**	252	5	**257**
23:00 - 24:00	91	0	1	1	**92**	77	0	2	2	**79**	168	3	**171**
Total	**8191**	**396**	**566**	**962**	**9153**	**7513**	**434**	**543**	**977**	**8490**	**15704**	**1939**	**17643**

Table 1

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Wallgrove Road - and north of Elizabeth Dr
Suburb : Cecil Park
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Northbound					Southbound					Road Total		
	Lights	Heavies Under 4 tonnes	Heavies Over 4 tonnes	Total Heavies	Total	Lights	Heavies Under 4 tonnes	Heavies Over 4 tonnes	Total Heavies	Total	*Lights*	*Heavies*	*Total*
0:00 - 1:00	21	8	0	8	**29**	17	5	1	6	**23**	38	14	**52**
1:00 - 2:00	12	0	3	3	**15**	11	0	5	5	**16**	23	8	**31**
2:00 - 3:00	13	0	10	10	**23**	26	2	16	18	**44**	39	28	**67**
3:00 - 4:00	17	0	8	8	**25**	16	0	9	9	**25**	33	17	**50**
4:00 - 5:00	12	0	6	6	**18**	8	0	12	12	**20**	20	18	**38**
5:00 - 6:00	101	0	7	7	**108**	85	0	12	12	**97**	186	19	**205**
6:00 - 7:00	422	30	54	84	**506**	454	14	68	82	**536**	876	166	**1042**
7:00 - 8:00	348	23	65	88	**436**	624	20	62	82	**706**	972	170	**1142**
8:00 - 9:00	326	37	74	111	**437**	493	24	61	85	**578**	819	196	**1015**
9:00 - 10:00	269	18	77	95	**364**	312	21	78	99	**411**	581	194	**775**
10:00 - 11:00	243	16	79	95	**338**	241	13	61	74	**315**	484	169	**653**
11:00 - 12:00	194	11	75	86	**280**	220	22	47	69	**289**	414	155	**569**
12:00 - 13:00	245	7	76	83	**328**	229	10	66	76	**305**	474	159	**633**
13:00 - 14:00	236	16	87	103	**339**	240	9	66	75	**315**	476	178	**654**
14:00 - 15:00	352	21	75	96	**448**	317	23	62	85	**402**	669	181	**850**
15:00 - 16:00	437	26	74	100	**537**	442	19	56	75	**517**	879	175	**1054**
16:00 - 17:00	461	24	44	68	**529**	421	20	59	79	**500**	882	147	**1029**
17:00 - 18:00	500	22	30	52	**552**	480	13	31	44	**524**	980	96	**1076**
18:00 - 19:00	365	12	29	41	**406**	387	8	20	28	**415**	752	69	**821**
19:00 - 20:00	256	5	13	18	**274**	254	3	13	16	**270**	510	34	**544**
20:00 - 21:00	131	4	7	11	**142**	146	35	11	46	**192**	277	57	**334**
21:00 - 22:00	144	3	10	13	**157**	116	4	9	13	**129**	260	26	**286**
22:00 - 23:00	146	2	15	17	**163**	153	1	11	12	**165**	299	29	**328**
23:00 - 24:00	61	4	4	8	**69**	83	2	4	6	**89**	144	14	**158**
Total	**5312**	**289**	**922**	**1211**	**6523**	**5775**	**268**	**840**	**1108**	**6883**	**11087**	**2319**	**13406**

Table 2

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Elizabeth Dr - at Duff Road
Suburb : Cecil Park
Day/Date : Tue 30.5.1995 to Wed 31.5.1995

Time Period	Eastbound					Westbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Trucks	Semi Trailer				Trucks	Semi Trailer					
0:00 - 1:00	15	3	0	3	**18**	37	0	0	0	**37**	52	3	**55**
1:00 - 2:00	12	8	4	12	**24**	17	3	0	3	**20**	29	15	**44**
2:00 - 3:00	7	3	0	3	**10**	9	0	0	0	**9**	16	3	**19**
3:00 - 4:00	6	2	1	3	**9**	11	1	2	3	**14**	17	6	**23**
4:00 - 5:00	16	2	2	4	**20**	19	1	4	5	**24**	35	9	**44**
5:00 - 6:00	172	2	4	6	**178**	49	2	5	7	**56**	221	13	**234**
6:00 - 7:00	795	52	79	131	**926**	231	29	38	67	**298**	1026	198	**1224**
7:00 - 8:00	1068	66	89	155	**1223**	244	29	48	77	**321**	1312	232	**1544**
8:00 - 9:00	829	57	83	140	**969**	340	35	61	96	**436**	1169	236	**1405**
9:00 - 10:00	383	25	70	95	**478**	275	47	68	115	**390**	658	210	**868**
10:00 - 11:00	287	45	79	124	**411**	284	50	42	92	**376**	571	216	**787**
11:00 - 12:00	259	50	47	97	**356**	244	45	65	110	**354**	503	207	**710**
12:00 - 13:00	135	24	30	54	**189**	158	38	41	79	**237**	293	133	**426**
13:00 - 14:00	262	37	57	94	**356**	279	50	64	114	**393**	541	208	**749**
14:00 - 15:00	309	59	66	125	**434**	398	95	75	170	**568**	707	295	**1002**
15:00 - 16:00	335	38	64	102	**437**	575	78	99	177	**752**	910	279	**1189**
16:00 - 17:00	374	28	40	68	**442**	879	66	73	139	**1018**	1253	207	**1460**
17:00 - 18:00	420	18	17	35	**455**	930	52	40	92	**1022**	1350	127	**1477**
18:00 - 19:00	262	3	8	11	**273**	551	50	24	74	**625**	813	85	**898**
19:00 - 20:00	167	4	10	14	**181**	279	10	10	20	**299**	446	34	**480**
20:00 - 21:00	108	2	7	9	**117**	175	9	6	15	**190**	283	24	**307**
21:00 - 22:00	109	4	2	6	**115**	181	4	4	8	**189**	290	14	**304**
22:00 - 23:00	42	4	1	5	**47**	145	6	2	8	**153**	187	13	**200**
23:00 - 24:00	34	5	2	7	**41**	70	2	1	3	**73**	104	10	**114**
Total	**6406**	**541**	**762**	**1303**	**7709**	**6380**	**702**	**772**	**1474**	**7854**	**12786**	**2777**	**15563**

Table 3

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Elizabeth Drive - east of Wallgrove Road
Suburb : Cecil Park
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies Under 4 tonnes	Heavies Over 4 tonnes	Total Heavies	Total	Lights	Heavies Under 4 tonnes	Heavies Over 4 tonnes	Total Heavies	Total	*Lights*	*Heavies*	*Total*
0:00 - 1:00	94	2	9	11	**105**	90	2	8	10	**100**	184	21	**205**
1:00 - 2:00	87	4	6	10	**97**	79	4	5	9	**88**	166	19	**185**
2:00 - 3:00	81	1	10	11	**92**	68	1	4	5	**73**	149	16	**165**
3:00 - 4:00	74	3	5	8	**82**	71	1	9	10	**81**	145	18	**163**
4:00 - 5:00	30	6	22	28	**58**	84	7	13	20	**104**	114	48	**162**
5:00 - 6:00	122	4	29	33	**155**	330	12	53	65	**395**	452	98	**550**
6:00 - 7:00	440	21	64	85	**525**	936	70	107	177	**1113**	1376	262	**1638**
7:00 - 8:00	537	20	59	79	**616**	1195	74	95	169	**1364**	1732	248	**1980**
8:00 - 9:00	558	24	88	112	**670**	1002	25	83	108	**1110**	1560	220	**1780**
9:00 - 10:00	520	21	70	91	**611**	580	50	95	145	**725**	1100	236	**1336**
10:00 - 11:00	459	25	95	120	**579**	468	53	96	149	**617**	927	269	**1196**
11:00 - 12:00	470	37	97	134	**604**	495	45	100	145	**640**	965	279	**1244**
12:00 - 13:00	458	65	83	148	**606**	431	30	84	114	**545**	889	262	**1151**
13:00 - 14:00	433	76	57	133	**566**	398	53	62	115	**513**	831	248	**1079**
14:00 - 15:00	519	73	60	133	**652**	530	60	62	122	**652**	1049	255	**1304**
15:00 - 16:00	910	72	75	147	**1057**	761	43	69	112	**873**	1671	259	**1930**
16:00 - 17:00	1127	67	97	164	**1291**	701	22	68	90	**791**	1828	254	**2082**
17:00 - 18:00	1152	69	43	112	**1264**	779	27	38	65	**844**	1931	177	**2108**
18:00 - 19:00	671	25	29	54	**725**	483	13	13	26	**509**	1154	80	**1234**
19:00 - 20:00	443	9	14	23	**466**	330	13	16	29	**359**	773	52	**825**
20:00 - 21:00	314	3	11	14	**328**	217	1	9	10	**227**	531	24	**555**
21:00 - 22:00	278	6	4	10	**288**	263	1	7	8	**271**	541	18	**559**
22:00 - 23:00	182	3	8	11	**193**	179	3	7	10	**189**	361	21	**382**
23:00 - 24:00	128	5	7	12	**140**	137	5	6	11	**148**	265	23	**288**
Total	10087	641	1042	1683	11770	10607	615	1109	1724	12331	20694	3407	24101

Table 4

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Cowpasture Road - south of Hoxton Park Road
Suburb : Hoxton Park
Day/Date : Tue 6.6.1995 to Wed 7.6.1995

Time Period	Northbound					Southbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	13	0	6	6	**19**	34	0	2	2	**36**	47	8	**55**
1:00 - 2:00	12	0	7	7	**19**	25	0	2	2	**27**	37	9	**46**
2:00 - 3:00	14	0	10	10	**24**	8	0	3	3	**11**	22	13	**35**
3:00 - 4:00	5	0	10	10	**15**	7	0	3	3	**10**	12	13	**25**
4:00 - 5:00	20	2	1	3	**23**	11	0	3	3	**14**	31	6	**37**
5:00 - 6:00	211	8	37	45	**256**	97	7	13	20	**117**	308	65	**373**
6:00 - 7:00	557	67	41	108	**665**	195	30	68	98	**293**	752	206	**958**
7:00 - 8:00	606	118	61	179	**785**	253	18	77	95	**348**	859	274	**1133**
8:00 - 9:00	515	17	61	78	**593**	256	25	66	91	**347**	771	169	**940**
9:00 - 10:00	280	14	57	71	**351**	198	16	58	74	**272**	478	145	**623**
10:00 - 11:00	230	12	45	57	**287**	188	13	76	89	**277**	418	146	**564**
11:00 - 12:00	204	25	50	75	**279**	183	22	68	90	**273**	387	165	**552**
12:00 - 13:00	134	48	48	96	**230**	132	15	34	49	**181**	266	145	**411**
13:00 - 14:00	142	12	39	51	**193**	127	9	39	48	**175**	269	99	**368**
14:00 - 15:00	160	7	43	50	**210**	183	11	60	71	**254**	343	121	**464**
15:00 - 16:00	215	14	50	64	**279**	259	10	56	66	**325**	474	130	**604**
16:00 - 17:00	240	13	54	67	**307**	357	22	37	59	**416**	597	126	**723**
17:00 - 18:00	331	16	16	32	**363**	582	14	19	33	**615**	913	65	**978**
18:00 - 19:00	219	9	4	13	**232**	410	14	24	38	**448**	629	51	**680**
19:00 - 20:00	160	3	7	10	**170**	292	5	16	21	**313**	452	31	**483**
20:00 - 21:00	56	0	3	3	**59**	118	2	4	6	**124**	174	9	**183**
21:00 - 22:00	89	2	8	10	**99**	151	3	9	12	**163**	240	22	**262**
22:00 - 23:00	59	1	3	4	**63**	115	0	14	14	**129**	174	18	**192**
23:00 - 24:00	21	2	15	17	**38**	48	1	2	3	**51**	69	20	**89**
Total	**4493**	**390**	**676**	**1066**	**5559**	**4229**	**237**	**753**	**990**	**5219**	**8722**	**2056**	**10778**

Table 7

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Cowpasture Road - south of Green Valley Road
Suburb : Hoxton Park
Day/Date : Tue 6.6.1995 to Wed 7.6.1995

Time Period	Northbound					Southbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	22	1	5	6	**28**	49	1	1	2	**51**	71	8	**79**
1:00 - 2:00	8	0	2	2	**10**	7	1	2	3	**10**	15	5	**20**
2:00 - 3:00	16	0	9	9	**25**	6	0	1	1	**7**	22	10	**32**
3:00 - 4:00	11	0	5	5	**16**	18	1	4	5	**23**	29	10	**39**
4:00 - 5:00	80	6	30	36	**116**	50	5	20	25	**75**	130	61	**191**
5:00 - 6:00	342	14	64	78	**420**	137	19	27	46	**183**	479	124	**603**
6:00 - 7:00	653	89	72	161	**814**	370	63	78	141	**511**	1023	302	**1325**
7:00 - 8:00	826	82	100	182	**1008**	420	30	102	132	**552**	1246	314	**1560**
8:00 - 9:00	751	62	78	140	**891**	406	27	93	120	**526**	1157	260	**1417**
9:00 - 10:00	452	61	75	136	**588**	367	24	81	105	**472**	819	241	**1060**
10:00 - 11:00	403	63	73	136	**539**	338	56	89	145	**483**	741	281	**1022**
11:00 - 12:00	316	65	91	156	**472**	324	22	104	126	**450**	640	282	**922**
12:00 - 13:00	272	12	89	101	**373**	318	15	96	111	**429**	590	212	**802**
13:00 - 14:00	302	11	95	106	**408**	307	31	29	60	**367**	609	166	**775**
14:00 - 15:00	353	18	120	138	**491**	391	45	101	146	**537**	744	284	**1028**
15:00 - 16:00	450	15	97	112	**562**	692	20	114	134	**826**	1142	246	**1388**
16:00 - 17:00	576	15	72	87	**663**	737	16	89	105	**842**	1313	192	**1505**
17:00 - 18:00	588	27	31	58	**646**	900	69	40	109	**1009**	1488	167	**1655**
18:00 - 19:00	378	15	20	35	**413**	682	25	27	52	**734**	1060	87	**1147**
19:00 - 20:00	267	2	11	13	**280**	275	11	19	30	**305**	542	43	**585**
20:00 - 21:00	134	6	10	16	**150**	189	9	7	16	**205**	323	32	**355**
21:00 - 22:00	125	3	7	10	**135**	181	4	13	17	**198**	306	27	**333**
22:00 - 23:00	117	1	4	5	**122**	188	2	9	11	**199**	305	16	**321**
23:00 - 24:00	74	0	6	6	**80**	113	1	5	6	**119**	187	12	**199**
Total	**7516**	**568**	**1166**	**1734**	**9250**	**7465**	**497**	**1151**	**1648**	**9113**	**14981**	**3382**	**18363**

Table 8

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Kurrajong Rd -east of Bernera Road
Suburb : Prestons
Day/Date : Tue 30.5.1995 to Wed 31.5.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	2	0	0	0	**2**	0	0	1	1	**1**	2	1	**3**
1:00 - 2:00	1	0	0	0	**1**	0	0	1	1	**1**	1	1	**2**
2:00 - 3:00	0	1	1	2	**2**	1	0	1	1	**2**	1	3	**4**
3:00 - 4:00	0	3	2	5	**5**	4	1	1	2	**6**	4	7	**11**
4:00 - 5:00	1	1	2	3	**4**	25	2	1	3	**28**	26	6	**32**
5:00 - 6:00	11	2	2	4	**15**	63	3	2	5	**68**	74	9	**83**
6:00 - 7:00	149	5	5	10	**159**	197	22	9	31	**228**	346	41	**387**
7:00 - 8:00	132	6	4	10	**142**	181	13	4	17	**198**	313	27	**340**
8:00 - 9:00	148	7	5	12	**160**	196	8	5	13	**209**	344	25	**369**
9:00 - 10:00	128	6	3	9	**137**	139	15	3	18	**157**	267	27	**294**
10:00 - 11:00	106	5	7	12	**118**	125	9	3	12	**137**	231	24	**255**
11:00 - 12:00	127	8	2	10	**137**	107	8	3	11	**118**	234	21	**255**
12:00 - 13:00	133	7	2	9	**142**	115	5	3	8	**123**	248	17	**265**
13:00 - 14:00	141	8	4	12	**153**	148	9	4	13	**161**	289	25	**314**
14:00 - 15:00	158	7	3	10	**168**	166	6	3	9	**175**	324	19	**343**
15:00 - 16:00	189	11	6	17	**206**	205	10	3	13	**218**	394	30	**424**
16:00 - 17:00	222	8	4	12	**234**	210	13	5	18	**228**	432	30	**462**
17:00 - 18:00	247	6	3	9	**256**	177	9	3	12	**189**	424	21	**445**
18:00 - 19:00	177	3	3	6	**183**	156	4	0	4	**160**	333	10	**343**
19:00 - 20:00	19	0	1	1	**20**	63	2	2	4	**67**	82	5	**87**
20:00 - 21:00	36	2	3	5	**41**	34	0	1	1	**35**	70	6	**76**
21:00 - 22:00	6	0	2	2	**8**	14	0	0	0	**14**	20	2	**22**
22:00 - 23:00	5	1	0	1	**6**	9	0	0	0	**9**	14	1	**15**
23:00 - 24:00	6	1	0	1	**7**	6	1	0	1	**7**	12	2	**14**
Total	2144	98	64	162	2306	2341	140	58	198	2539	4485	360	4845

Table 9

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Luddenham Road - north of Elizabeth Drive
Suburb : Badgerys Creek
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Northbound					Southbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	6	0	0	0	6	4	0	0	0	4	10	0	10
1:00 - 2:00	3	0	0	0	3	2	0	0	0	2	5	0	5
2:00 - 3:00	5	0	0	0	5	3	0	0	0	3	8	0	8
3:00 - 4:00	4	0	0	0	4	4	0	0	0	4	8	0	8
4:00 - 5:00	4	0	0	0	4	4	0	0	0	4	8	0	8
5:00 - 6:00	6	0	0	0	6	8	0	0	0	8	14	0	14
6:00 - 7:00	46	2	2	4	50	39	2	1	3	42	85	7	92
7:00 - 8:00	97	4	1	5	102	64	3	4	7	71	161	12	173
8:00 - 9:00	84	2	0	2	86	58	0	1	1	59	142	3	145
9:00 - 10:00	38	0	0	0	38	30	0	0	0	30	68	0	68
10:00 - 11:00	43	3	2	5	48	24	1	0	1	25	67	6	73
11:00 - 12:00	27	5	1	6	33	38	3	0	3	41	65	9	74
12:00 - 13:00	32	3	1	4	36	33	1	1	2	35	65	6	71
13:00 - 14:00	40	4	2	6	46	31	1	2	3	34	71	9	80
14:00 - 15:00	35	0	0	0	35	24	3	0	3	27	59	3	62
15:00 - 16:00	57	0	3	3	60	65	3	2	5	70	122	8	130
16:00 - 17:00	85	5	3	8	93	89	2	4	6	95	174	14	188
17:00 - 18:00	68	4	1	5	73	99	3	1	4	103	167	9	176
18:00 - 19:00	44	0	2	2	46	77	0	1	1	78	121	3	124
19:00 - 20:00	70	1	1	2	72	99	4	2	6	105	169	8	177
20:00 - 21:00	21	1	1	2	23	20	0	0	0	20	41	2	43
21:00 - 22:00	12	0	0	0	12	15	0	0	0	15	27	0	27
22:00 - 23:00	10	0	0	0	10	14	1	0	1	15	24	1	25
23:00 - 24:00	9	0	0	0	9	7	0	0	0	7	16	0	16
Total	846	34	20	54	900	851	27	19	46	897	1697	100	1797

Table 10

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Campbelltown Road - North of Lawson Rd
Suburb : Ingleburn Village
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	45	1	3	4	**49**	20	1	2	3	**23**	65	7	**72**
1:00 - 2:00	17	1	1	2	**19**	12	4	3	7	**19**	29	9	**38**
2:00 - 3:00	13	1	1	2	**15**	10	4	3	7	**17**	23	9	**32**
3:00 - 4:00	7	2	0	2	**9**	22	11	2	13	**35**	29	15	**44**
4:00 - 5:00	16	4	5	9	**25**	58	10	4	14	**72**	74	23	**97**
5:00 - 6:00	45	4	3	7	**52**	232	18	7	25	**257**	277	32	**309**
6:00 - 7:00	223	19	5	24	**247**	566	43	9	52	**618**	789	76	**865**
7:00 - 8:00	278	20	6	26	**304**	901	37	8	45	**946**	1179	71	**1250**
8:00 - 9:00	203	26	9	35	**238**	683	41	7	48	**731**	886	83	**969**
9:00 - 10:00	221	27	4	31	**252**	438	54	8	62	**500**	659	93	**752**
10:00 - 11:00	174	49	4	53	**227**	274	37	5	42	**316**	448	95	**543**
11:00 - 12:00	183	31	7	38	**221**	253	29	6	35	**288**	436	73	**509**
12:00 - 13:00	187	26	18	44	**231**	214	24	8	32	**246**	401	76	**477**
13:00 - 14:00	220	37	12	49	**269**	255	25	15	40	**295**	475	89	**564**
14:00 - 15:00	295	26	11	37	**332**	251	27	14	41	**292**	546	78	**624**
15:00 - 16:00	403	24	11	35	**438**	331	25	7	32	**363**	734	67	**801**
16:00 - 17:00	549	29	20	49	**598**	384	23	4	27	**411**	933	76	**1009**
17:00 - 18:00	788	17	2	19	**807**	311	8	3	11	**322**	1099	30	**1129**
18:00 - 19:00	615	15	4	19	**634**	230	12	6	18	**248**	845	37	**882**
19:00 - 20:00	228	12	3	15	**243**	149	2	1	3	**152**	377	18	**395**
20:00 - 21:00	248	3	4	7	**255**	142	5	2	7	**149**	390	14	**404**
21:00 - 22:00	254	2	3	5	**259**	146	4	2	6	**152**	400	11	**411**
22:00 - 23:00	148	3	1	4	**152**	95	3	1	4	**99**	243	8	**251**
23:00 - 24:00	74	0	2	2	**76**	57	2	2	4	**61**	131	6	**137**
Total	**5434**	**379**	**139**	**518**	**5952**	**6034**	**449**	**129**	**578**	**6612**	**11468**	**1096**	**12564**

Table 11

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Great Western Highway - West of Rooty Hill Road
Suburb : Eastern Creek
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	209	4	1	5	**214**	107	5	1	6	**113**	316	11	**327**
1:00 - 2:00	94	3	0	3	**97**	81	2	2	4	**85**	175	7	**182**
2:00 - 3:00	72	2	1	3	**75**	88	7	3	10	**98**	160	13	**173**
3:00 - 4:00	60	2	4	6	**66**	99	19	7	26	**125**	159	32	**191**
4:00 - 5:00	71	3	2	5	**76**	242	17	9	26	**268**	313	31	**344**
5:00 - 6:00	32	3	4	7	**39**	672	32	28	60	**732**	704	67	**771**
6:00 - 7:00	432	17	4	21	**453**	2325	117	60	177	**2502**	2757	198	**2955**
7:00 - 8:00	604	28	26	54	**658**	2446	91	49	140	**2586**	3050	194	**3244**
8:00 - 9:00	777	46	34	80	**857**	1723	60	36	96	**1819**	2500	176	**2676**
9:00 - 10:00	738	45	30	75	**813**	822	45	26	71	**893**	1560	146	**1706**
10:00 - 11:00	740	75	21	96	**836**	782	59	34	93	**875**	1522	189	**1711**
11:00 - 12:00	822	75	31	106	**928**	706	44	56	100	**806**	1528	206	**1734**
12:00 - 13:00	817	69	29	98	**915**	708	46	59	105	**813**	1525	203	**1728**
13:00 - 14:00	771	64	20	84	**855**	768	39	37	76	**844**	1539	160	**1699**
14:00 - 15:00	979	83	21	104	**1083**	915	43	37	80	**995**	1894	184	**2078**
15:00 - 16:00	1528	79	24	103	**1631**	1113	58	49	107	**1220**	2641	210	**2851**
16:00 - 17:00	2513	77	34	111	**2624**	1046	37	24	61	**1107**	3559	172	**3731**
17:00 - 18:00	2363	74	16	90	**2453**	1049	14	12	26	**1075**	3412	116	**3528**
18:00 - 19:00	1817	34	11	45	**1862**	587	9	5	14	**601**	2404	59	**2463**
19:00 - 20:00	1003	23	2	25	**1028**	523	5	1	6	**529**	1526	31	**1557**
20:00 - 21:00	896	18	7	25	**921**	452	6	3	9	**461**	1348	34	**1382**
21:00 - 22:00	644	7	3	10	**654**	318	3	2	5	**323**	962	15	**977**
22:00 - 23:00	517	4	2	6	**523**	298	7	1	8	**306**	815	14	**829**
23:00 - 24:00	404	4	3	7	**411**	201	3	5	8	**209**	605	15	**620**
Total	18903	839	330	1169	20072	18071	768	546	1314	19385	36974	2483	39457

Table 12

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Richmond Road - east of Rooty Hill Road North
Suburb : Oakhurst
Day/Date : Tue 6.6.1995 to Wed 7.6.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	132	3	1	4	**136**	48	2	3	5	**53**	180	9	**189**
1:00 - 2:00	86	2	2	4	**90**	34	3	1	4	**38**	120	8	**128**
2:00 - 3:00	20	4	8	12	**32**	31	18	12	30	**61**	51	42	**93**
3:00 - 4:00	31	6	5	11	**42**	62	22	8	30	**92**	93	41	**134**
4:00 - 5:00	81	12	3	15	**96**	120	12	16	28	**148**	201	43	**244**
5:00 - 6:00	157	16	11	27	**184**	810	53	30	83	**893**	967	110	**1077**
6:00 - 7:00	420	25	40	65	**485**	1351	129	25	154	**1505**	1771	219	**1990**
7:00 - 8:00	642	71	28	99	**741**	1600	129	23	152	**1752**	2242	251	**2493**
8:00 - 9:00	664	75	24	99	**763**	1341	88	49	137	**1478**	2005	236	**2241**
9:00 - 10:00	558	72	24	96	**654**	801	75	42	117	**918**	1359	213	**1572**
10:00 - 11:00	445	92	27	119	**564**	616	79	45	124	**740**	1061	243	**1304**
11:00 - 12:00	504	95	32	127	**631**	547	73	32	105	**652**	1051	232	**1283**
12:00 - 13:00	524	68	19	87	**611**	612	73	22	95	**707**	1136	182	**1318**
13:00 - 14:00	484	79	26	105	**589**	621	70	34	104	**725**	1105	209	**1314**
14:00 - 15:00	597	101	27	128	**725**	607	77	27	104	**711**	1204	232	**1436**
15:00 - 16:00	1159	122	29	151	**1310**	890	63	29	92	**982**	2049	243	**2292**
16:00 - 17:00	1581	103	21	124	**1705**	899	36	21	57	**956**	2480	181	**2661**
17:00 - 18:00	1792	61	21	82	**1874**	943	30	18	48	**991**	2735	130	**2865**
18:00 - 19:00	1389	49	11	60	**1449**	861	31	8	39	**900**	2250	99	**2349**
19:00 - 20:00	681	18	19	37	**718**	412	17	16	33	**445**	1093	70	**1163**
20:00 - 21:00	583	9	7	16	**599**	423	5	11	16	**439**	1006	32	**1038**
21:00 - 22:00	470	9	5	14	**484**	355	3	9	12	**367**	825	26	**851**
22:00 - 23:00	357	2	2	4	**361**	241	1	2	3	**244**	598	7	**605**
23:00 - 24:00	203	1	5	6	**209**	92	4	1	5	**97**	295	11	**306**
Total	**13560**	**1095**	**397**	**1492**	**15052**	**14317**	**1093**	**484**	**1577**	**15894**	**27877**	**3069**	**30946**

Table 13

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Sunnyholt Road - near Meurants Lane
Suburb : Parklea
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Northbound					Southbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	55	1	1	2	**57**	54	0	2	2	**56**	109	4	**113**
1:00 - 2:00	17	2	1	3	**20**	26	1	2	3	**29**	43	6	**49**
2:00 - 3:00	13	0	1	1	**14**	38	0	3	3	**41**	51	4	**55**
3:00 - 4:00	27	1	1	2	**29**	32	1	1	2	**34**	59	4	**63**
4:00 - 5:00	35	1	6	7	**42**	52	3	2	5	**57**	87	12	**99**
5:00 - 6:00	111	5	9	14	**125**	222	8	15	23	**245**	333	37	**370**
6:00 - 7:00	584	38	36	74	**658**	1022	15	22	37	**1059**	1606	111	**1717**
7:00 - 8:00	544	33	26	59	**603**	1405	14	15	29	**1434**	1949	88	**2037**
8:00 - 9:00	641	40	38	78	**719**	1325	16	26	42	**1367**	1966	120	**2086**
9:00 - 10:00	535	31	62	93	**628**	912	12	32	44	**956**	1447	137	**1584**
10:00 - 11:00	510	38	57	95	**605**	688	16	26	42	**730**	1198	137	**1335**
11:00 - 12:00	521	29	45	74	**595**	635	11	21	32	**667**	1156	106	**1262**
12:00 - 13:00	567	17	42	59	**626**	540	21	38	59	**599**	1107	118	**1225**
13:00 - 14:00	639	21	46	67	**706**	520	13	61	74	**594**	1159	141	**1300**
14:00 - 15:00	770	30	43	73	**843**	601	25	40	65	**666**	1371	138	**1509**
15:00 - 16:00	941	30	34	64	**1005**	655	22	24	46	**701**	1596	110	**1706**
16:00 - 17:00	1192	32	26	58	**1250**	786	27	14	41	**827**	1978	99	**2077**
17:00 - 18:00	1602	8	20	28	**1630**	820	16	12	28	**848**	2422	56	**2478**
18:00 - 19:00	1409	11	14	25	**1434**	812	2	8	10	**822**	2221	35	**2256**
19:00 - 20:00	1116	10	18	28	**1144**	638	10	12	22	**660**	1754	50	**1804**
20:00 - 21:00	649	0	6	6	**655**	343	2	3	5	**348**	992	11	**1003**
21:00 - 22:00	372	1	4	5	**377**	333	0	4	4	**337**	705	9	**714**
22:00 - 23:00	256	3	4	7	**263**	157	3	3	6	**163**	413	13	**426**
23:00 - 24:00	60	1	2	3	**63**	62	1	1	2	**64**	122	5	**127**
Total	**13166**	**383**	**542**	**925**	**14091**	**12678**	**239**	**387**	**626**	**13304**	**25844**	**1551**	**27395**

Table 14

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Old Windsor Road - north of Seven Hills Road
Suburb : Seven Hills
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Northbound					Southbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	76	0	0	0	**76**	24	1	0	1	**25**	100	1	**101**
1:00 - 2:00	32	0	0	0	**32**	19	0	0	0	**19**	51	0	**51**
2:00 - 3:00	15	1	0	1	**16**	18	0	1	1	**19**	33	2	**35**
3:00 - 4:00	12	2	0	2	**14**	16	2	3	5	**21**	28	7	**35**
4:00 - 5:00	31	0	2	2	**33**	147	11	4	15	**162**	178	17	**195**
5:00 - 6:00	72	7	6	13	**85**	364	43	9	52	**416**	436	65	**501**
6:00 - 7:00	198	11	0	11	**209**	286	8	0	8	**294**	484	19	**503**
7:00 - 8:00	369	37	2	39	**408**	595	11	0	11	**606**	964	50	**1014**
8:00 - 9:00	433	32	14	46	**479**	646	20	7	27	**673**	1079	73	**1152**
9:00 - 10:00	337	27	11	38	**375**	473	27	10	37	**510**	810	75	**885**
10:00 - 11:00	285	28	9	37	**322**	372	19	7	26	**398**	657	63	**720**
11:00 - 12:00	290	33	7	40	**330**	297	17	8	25	**322**	587	65	**652**
12:00 - 13:00	394	19	7	26	**420**	331	19	3	22	**353**	725	48	**773**
13:00 - 14:00	362	40	9	49	**411**	271	16	4	20	**291**	633	69	**702**
14:00 - 15:00	499	40	12	52	**551**	394	17	5	22	**416**	893	74	**967**
15:00 - 16:00	756	29	2	31	**787**	408	22	9	31	**439**	1164	62	**1226**
16:00 - 17:00	745	36	1	37	**782**	428	20	10	30	**458**	1173	67	**1240**
17:00 - 18:00	776	23	4	27	**803**	433	13	2	15	**448**	1209	42	**1251**
18:00 - 19:00	674	11	1	12	**686**	332	8	2	10	**342**	1006	22	**1028**
19:00 - 20:00	452	24	0	24	**476**	181	2	0	2	**183**	633	26	**659**
20:00 - 21:00	371	4	3	7	**378**	147	5	0	5	**152**	518	12	**530**
21:00 - 22:00	307	4	1	5	**312**	133	2	0	2	**135**	440	7	**447**
22:00 - 23:00	231	2	2	4	**235**	103	3	0	3	**106**	334	7	**341**
23:00 - 24:00	122	0	1	1	**123**	43	2	1	3	**46**	165	4	**169**
Total	**7839**	**410**	**94**	**504**	**8343**	**6461**	**288**	**85**	**373**	**6834**	**14300**	**877**	**15177**

Table 15

Traffic and Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital Study
Location : Fifteenth Ave/Hoxton Park Rd - east of Cowpasture Road
Suburb : Hoxton Park
Day/Date : Wed 31.5.1995 to Thu 1.6.1995

Time Period	Westbound					Eastbound					Road Total		
	Lights	Heavies		Total Heavies	Total	Lights	Heavies		Total Heavies	Total	*Lights*	*Heavies*	*Total*
		Under 4 tonnes	Over 4 tonnes				Under 4 tonnes	Over 4 tonnes					
0:00 - 1:00	56	2	2	4	**60**	81	2	3	5	**86**	137	9	**146**
1:00 - 2:00	42	1	3	4	**46**	72	0	4	4	**76**	114	8	**122**
2:00 - 3:00	51	1	1	2	**53**	67	0	5	5	**72**	118	7	**125**
3:00 - 4:00	58	1	9	10	**68**	65	0	2	2	**67**	123	12	**135**
4:00 - 5:00	112	3	6	9	**121**	123	8	6	14	**137**	235	23	**258**
5:00 - 6:00	195	6	15	21	**216**	189	12	10	22	**211**	384	43	**427**
6:00 - 7:00	383	34	35	69	**452**	288	17	9	26	**314**	671	95	**766**
7:00 - 8:00	559	21	36	57	**616**	312	17	27	44	**356**	871	101	**972**
8:00 - 9:00	551	20	30	50	**601**	324	22	48	70	**394**	875	120	**995**
9:00 - 10:00	302	31	24	55	**357**	378	21	35	56	**434**	680	111	**791**
10:00 - 11:00	295	42	37	79	**374**	233	32	36	68	**301**	528	147	**675**
11:00 - 12:00	260	30	23	53	**313**	291	34	35	69	**360**	551	122	**673**
12:00 - 13:00	217	34	21	55	**272**	346	32	32	64	**410**	563	119	**682**
13:00 - 14:00	245	30	25	55	**300**	315	37	26	63	**378**	560	118	**678**
14:00 - 15:00	308	26	17	43	**351**	377	39	35	74	**451**	685	117	**802**
15:00 - 16:00	543	28	21	49	**592**	535	33	28	61	**596**	1078	110	**1188**
16:00 - 17:00	381	33	23	56	**437**	685	34	24	58	**743**	1066	114	**1180**
17:00 - 18:00	359	14	18	32	**391**	654	14	14	28	**682**	1013	60	**1073**
18:00 - 19:00	273	11	6	17	**290**	458	10	15	25	**483**	731	42	**773**
19:00 - 20:00	153	2	9	11	**164**	211	7	5	12	**223**	364	23	**387**
20:00 - 21:00	109	5	5	10	**119**	174	7	10	17	**191**	283	27	**310**
21:00 - 22:00	96	2	3	5	**101**	124	4	6	10	**134**	220	15	**235**
22:00 - 23:00	91	1	2	3	**94**	127	3	4	7	**134**	218	10	**228**
23:00 - 24:00	64	3	2	5	**69**	80	2	4	6	**86**	144	11	**155**
Total	5703	381	373	754	6457	6509	387	423	810	7319	12212	1564	13776

Table 16

Western Sydney Orbital

Horsley Dr-near Wallgrove Rd

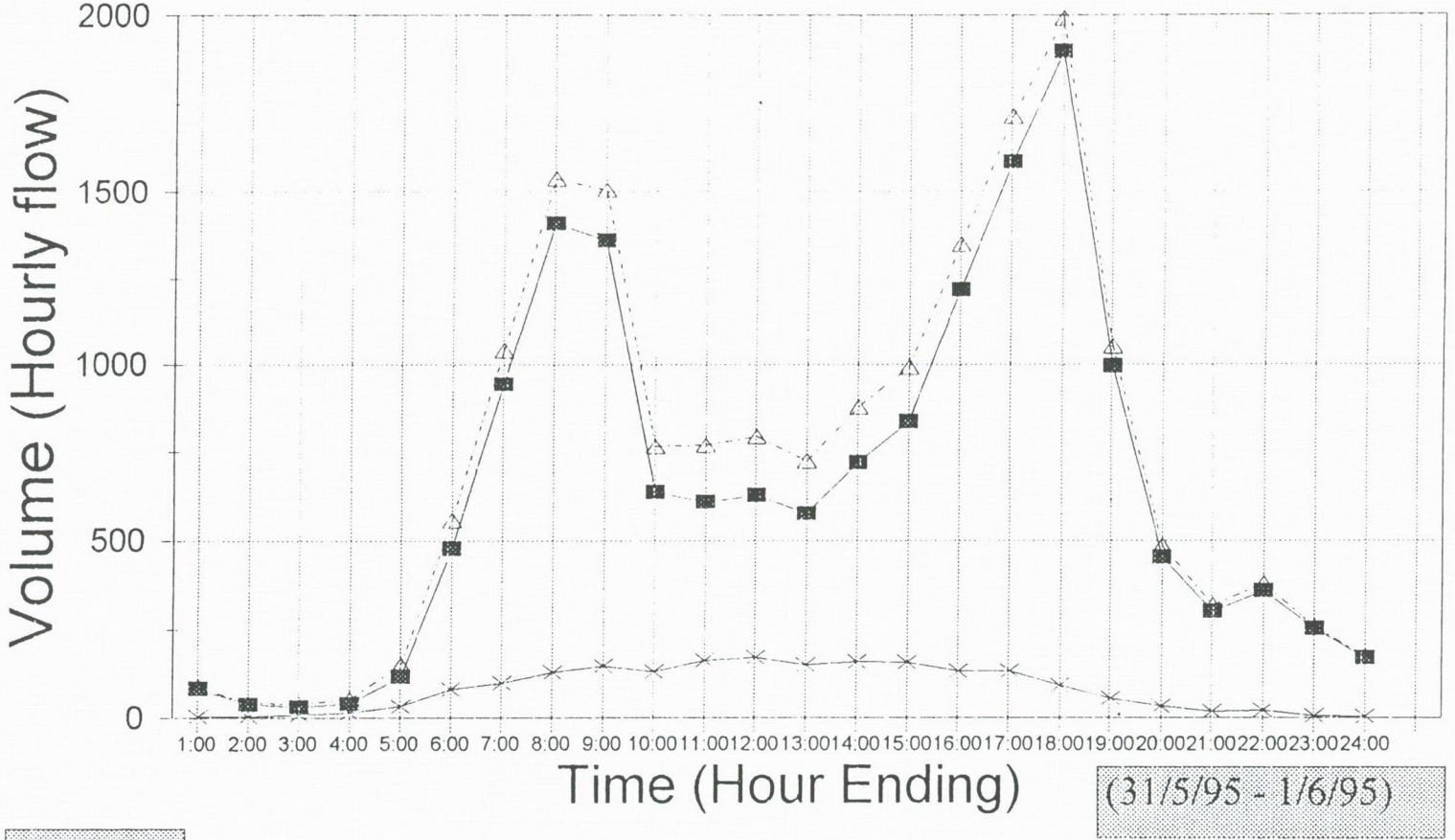


Fig 1

Western Sydney Orbital

Wallgrove Rd - North of Elizabeth Dr

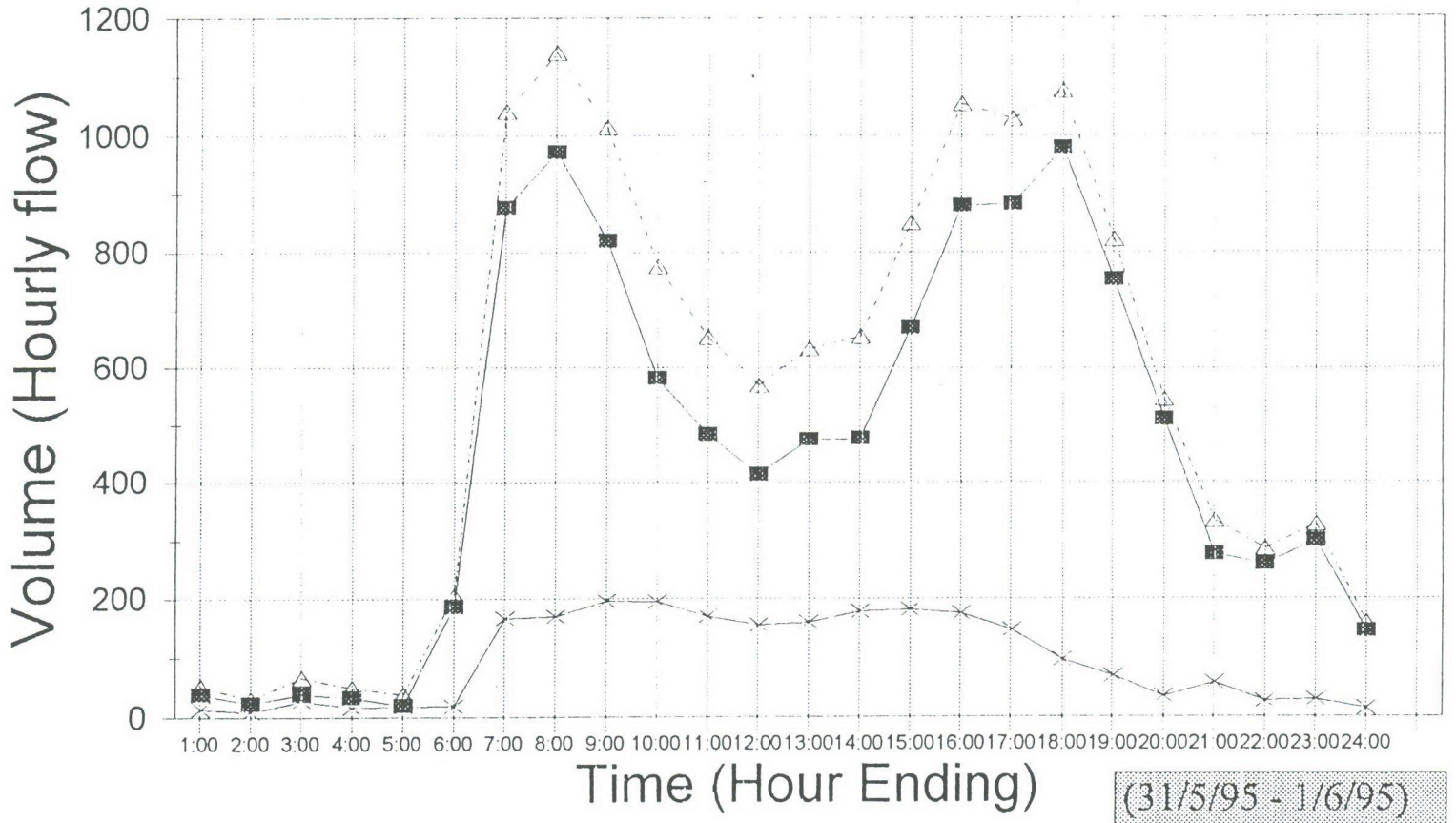


Fig 2

Western Sydney Orbital

Elizabeth Drive - at Duff Road

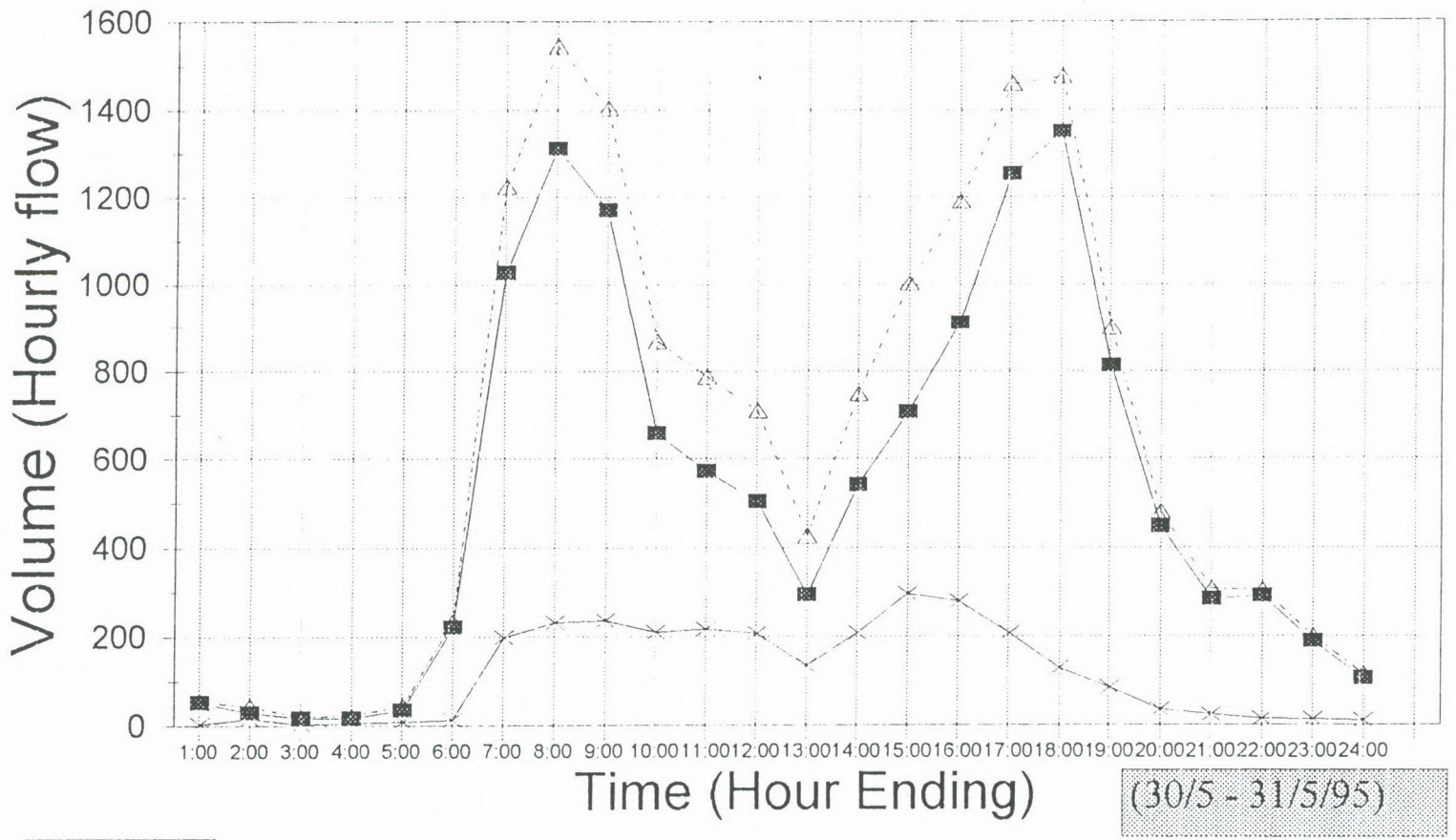


Fig 3

Western Sydney Orbital

Elizabeth Dr - east of Wallgrove Rd

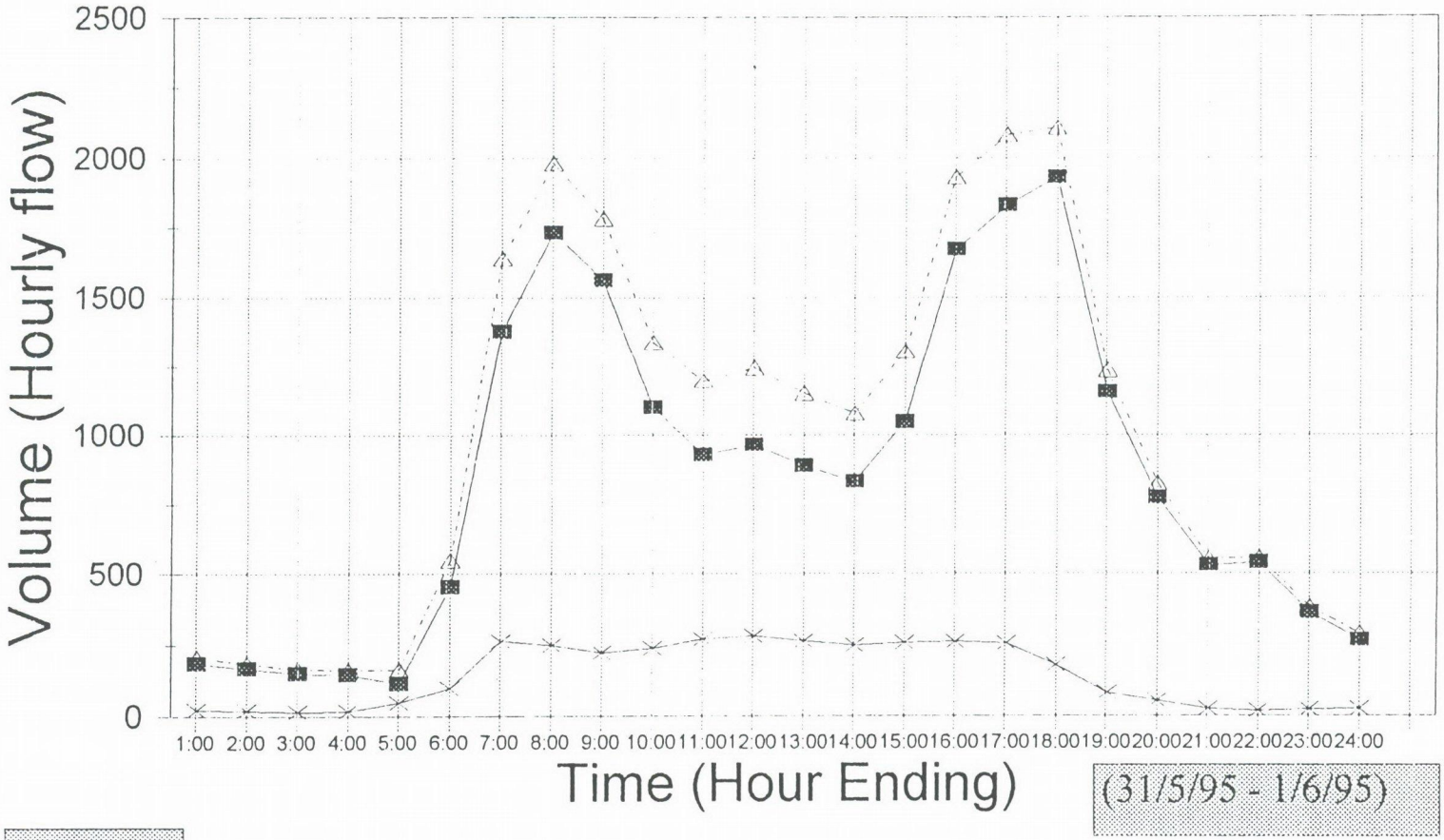


Fig 4

Western Sydney Orbital

Cowpasture Rd - Sth of Hoxton Park Rd

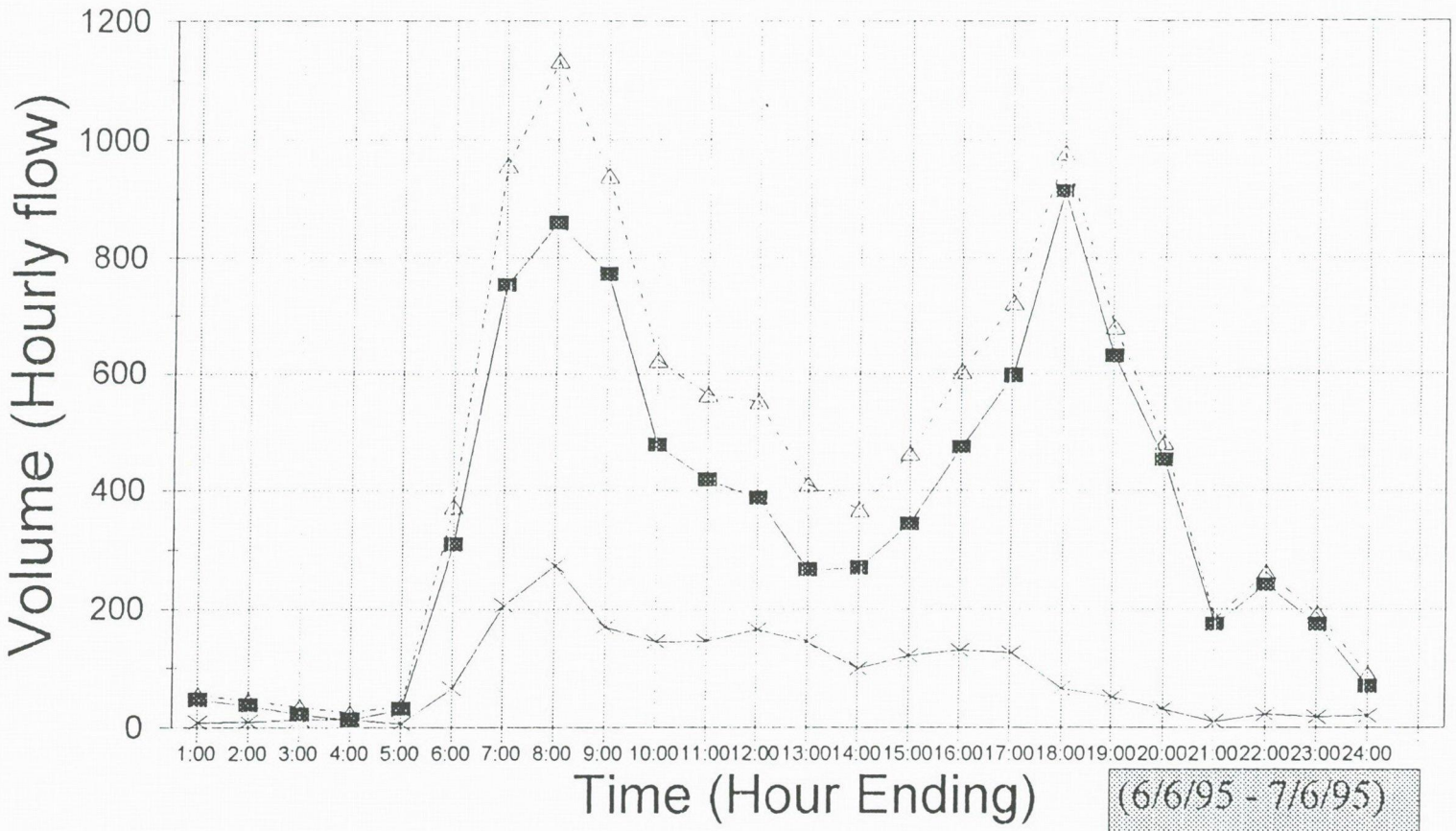
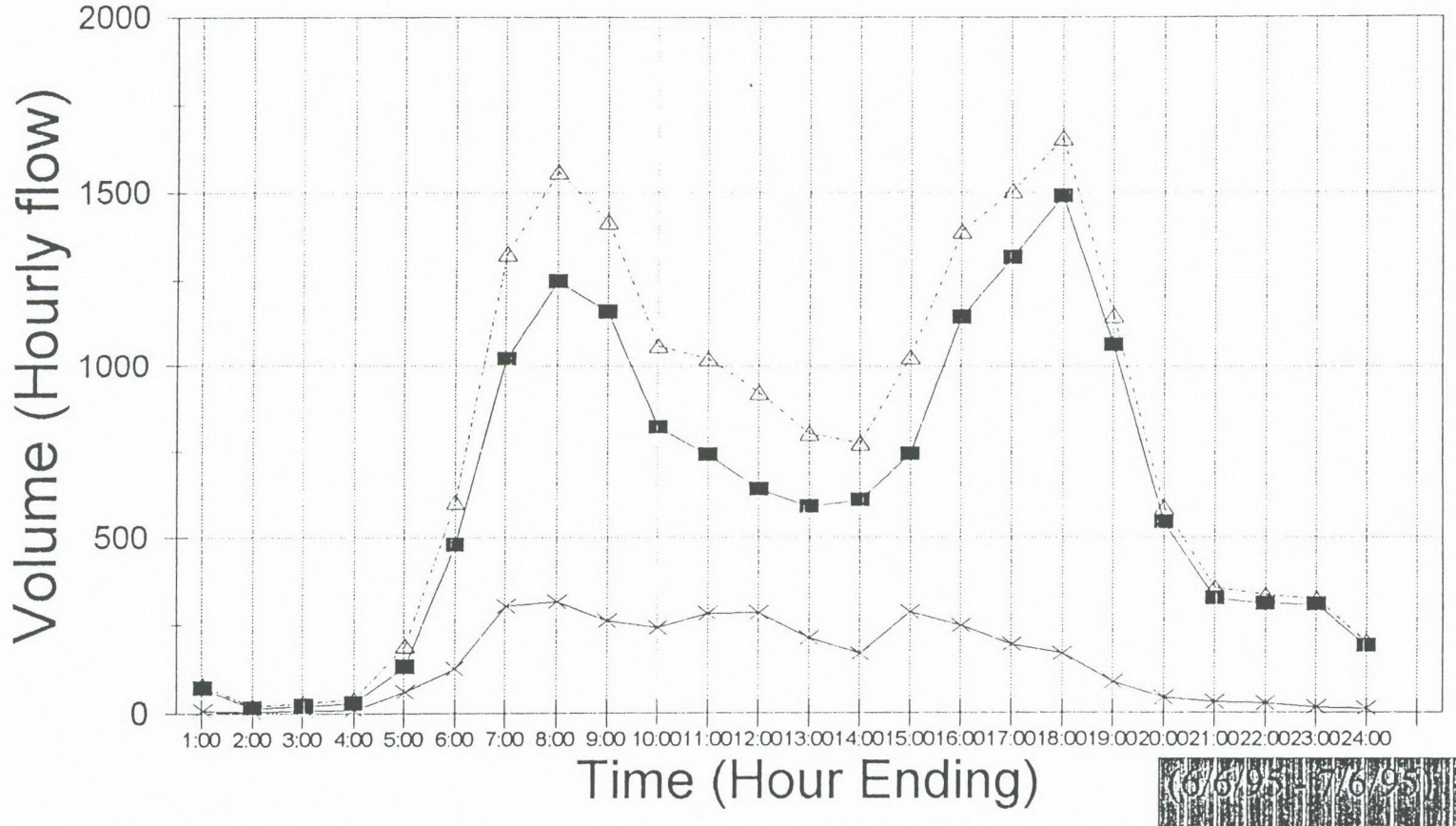


Fig 7

Western Sydney Orbital

Cowpasture Rd - Sth of Green Valley Rd



(6695-7695)

Fig 8

Western Sydney Orbital

Kurrajong Road - east of Bernera Road

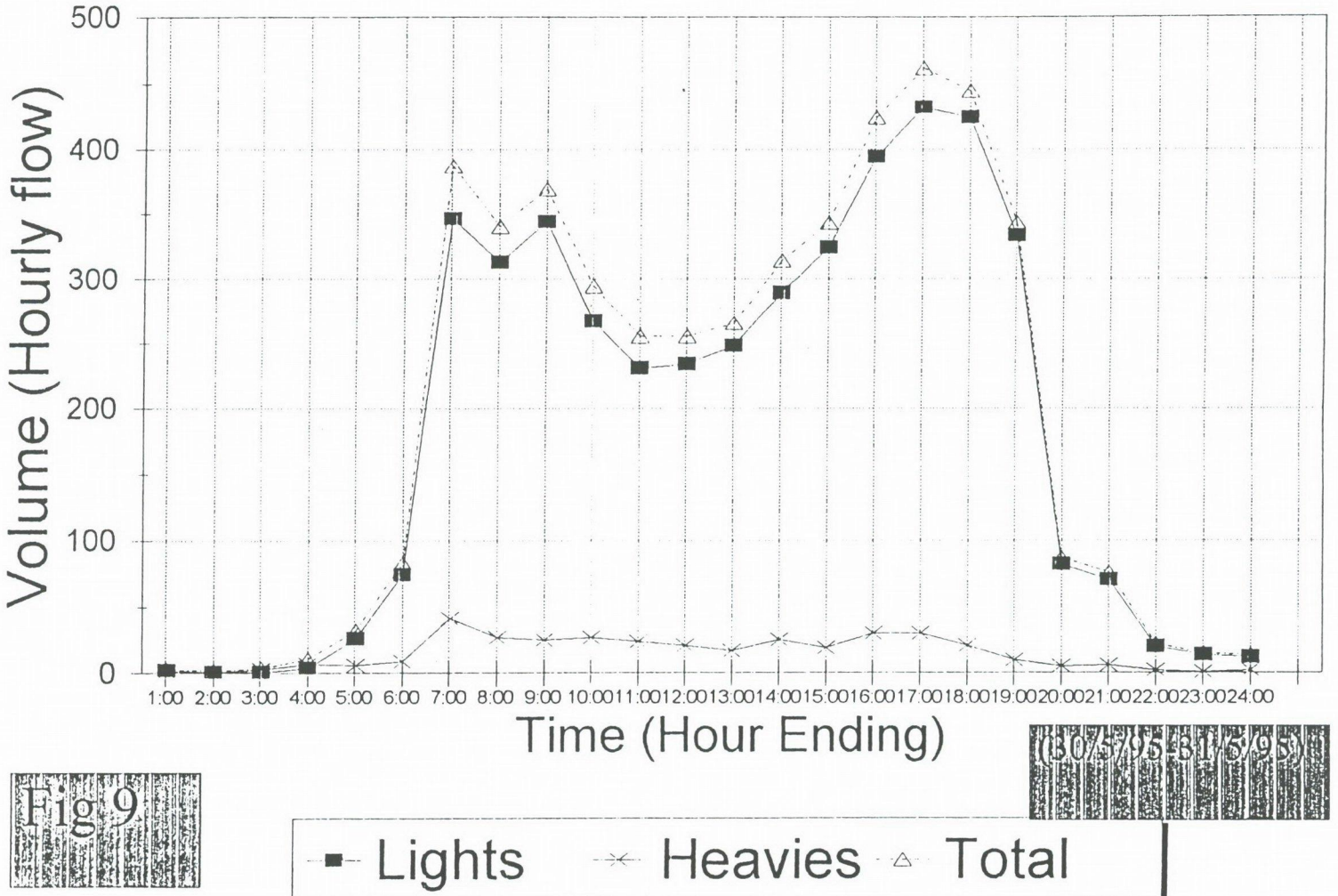


Fig 9

Western Sydney Orbital

Luddenham Rd- North of Elizabeth Rd

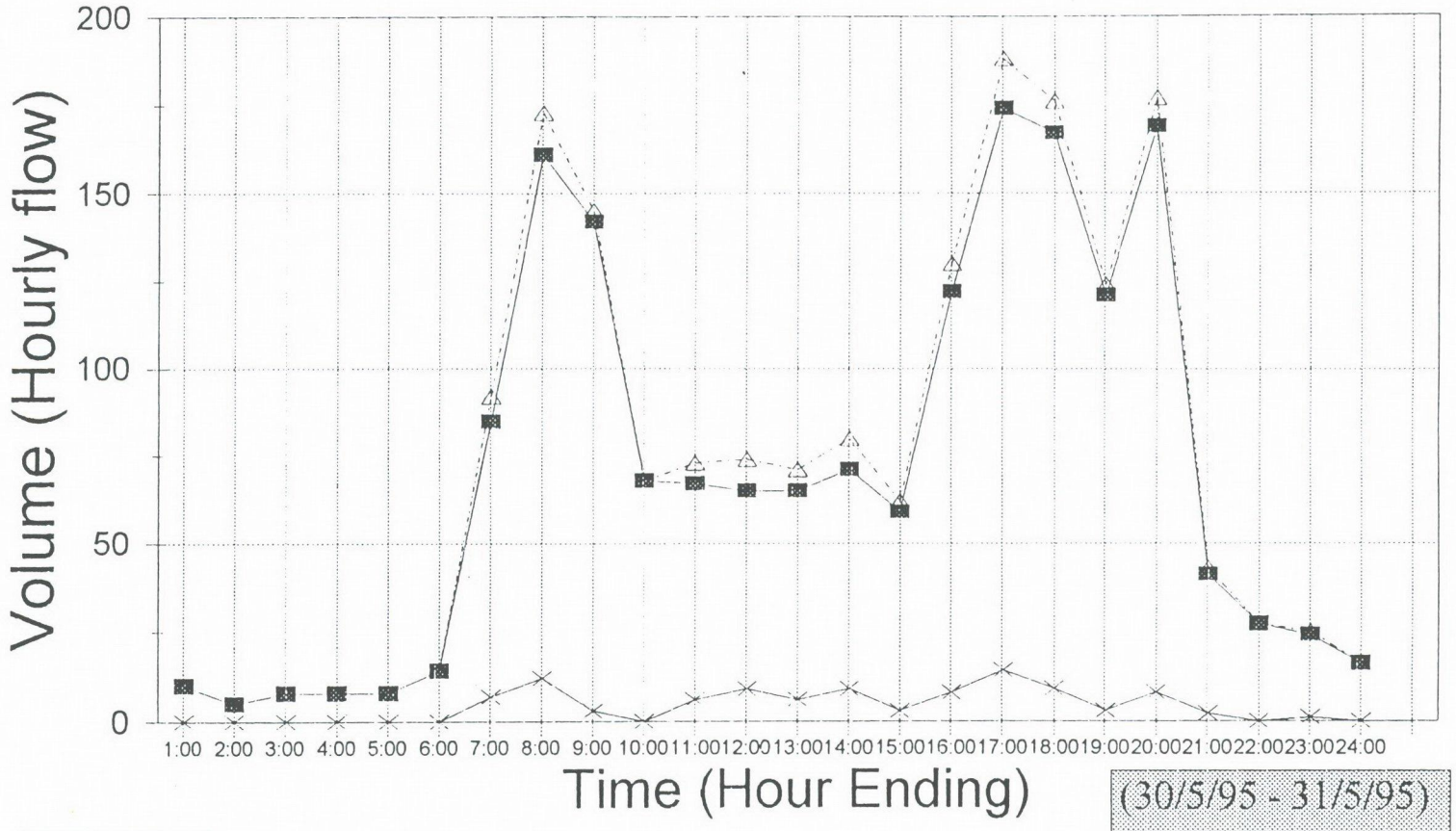


Fig 10

Western Sydney Orbital

Campbelltown Rd -Nth of Lawson Rd

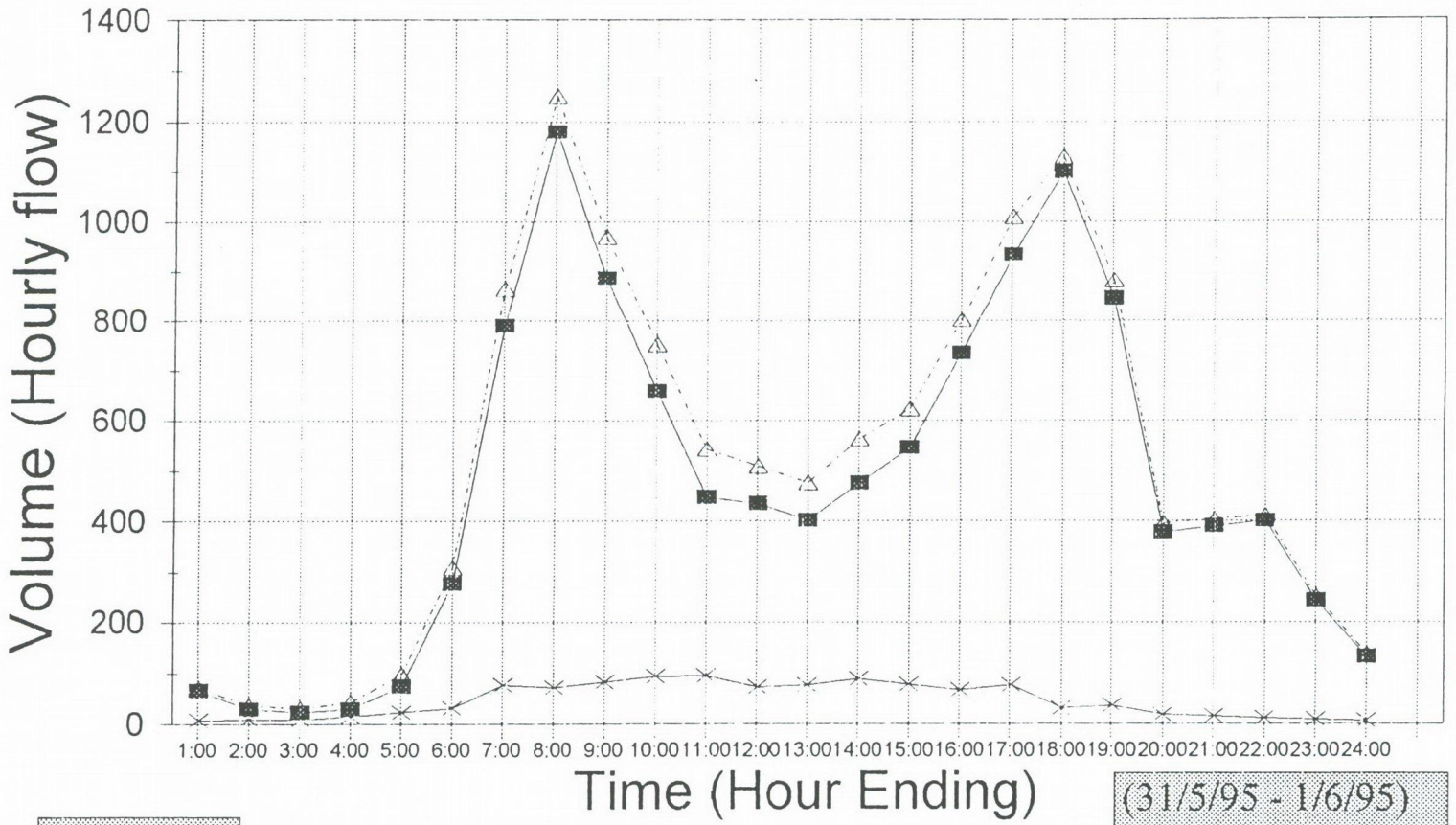


Fig 11

Western Sydney Orbital

Gt Western Hwy-west of Rooty Hill Rd

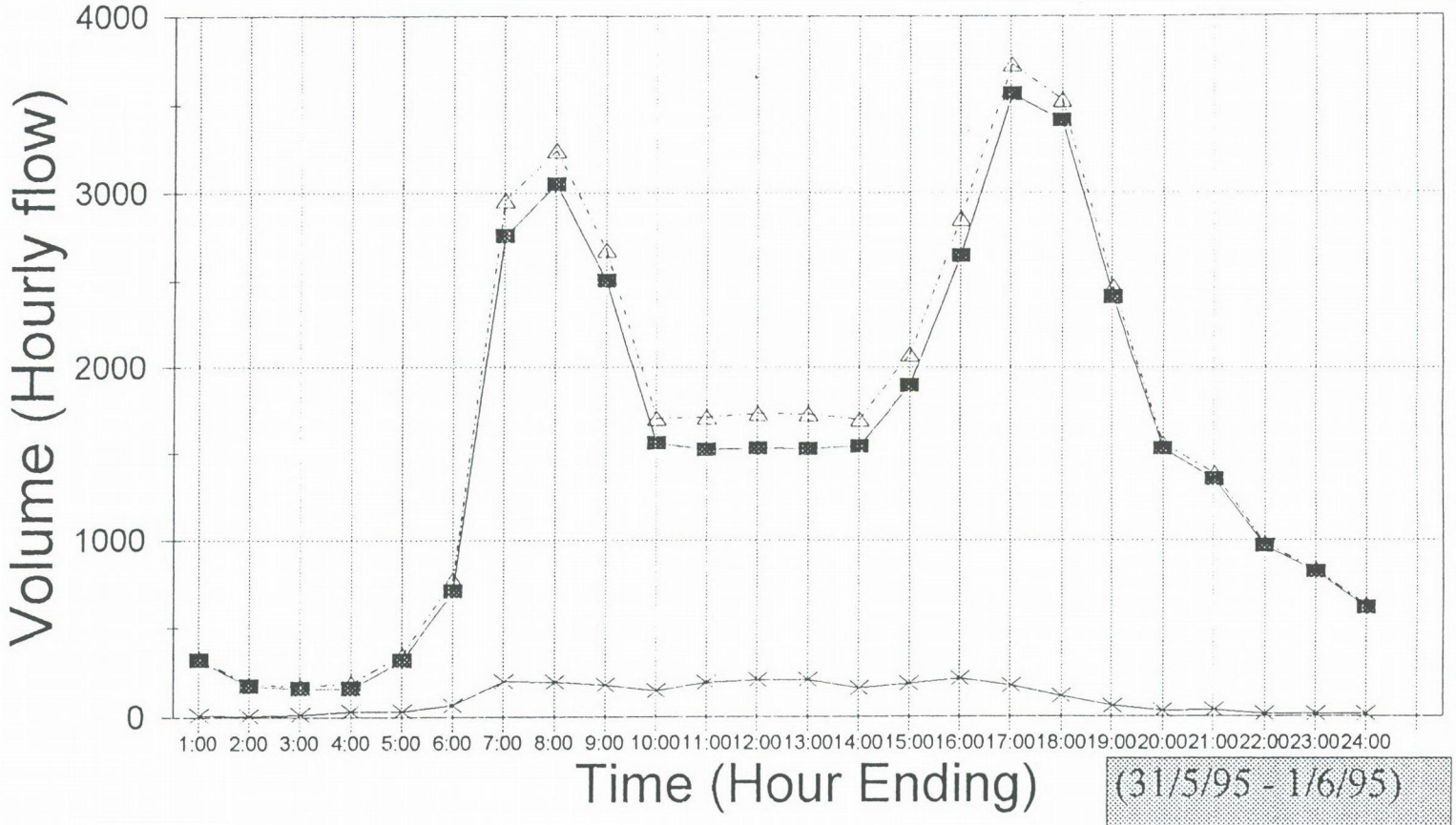


Fig 12

Western Sydney Orbital

Richmond Rd - east of Rooty Hill Rd N

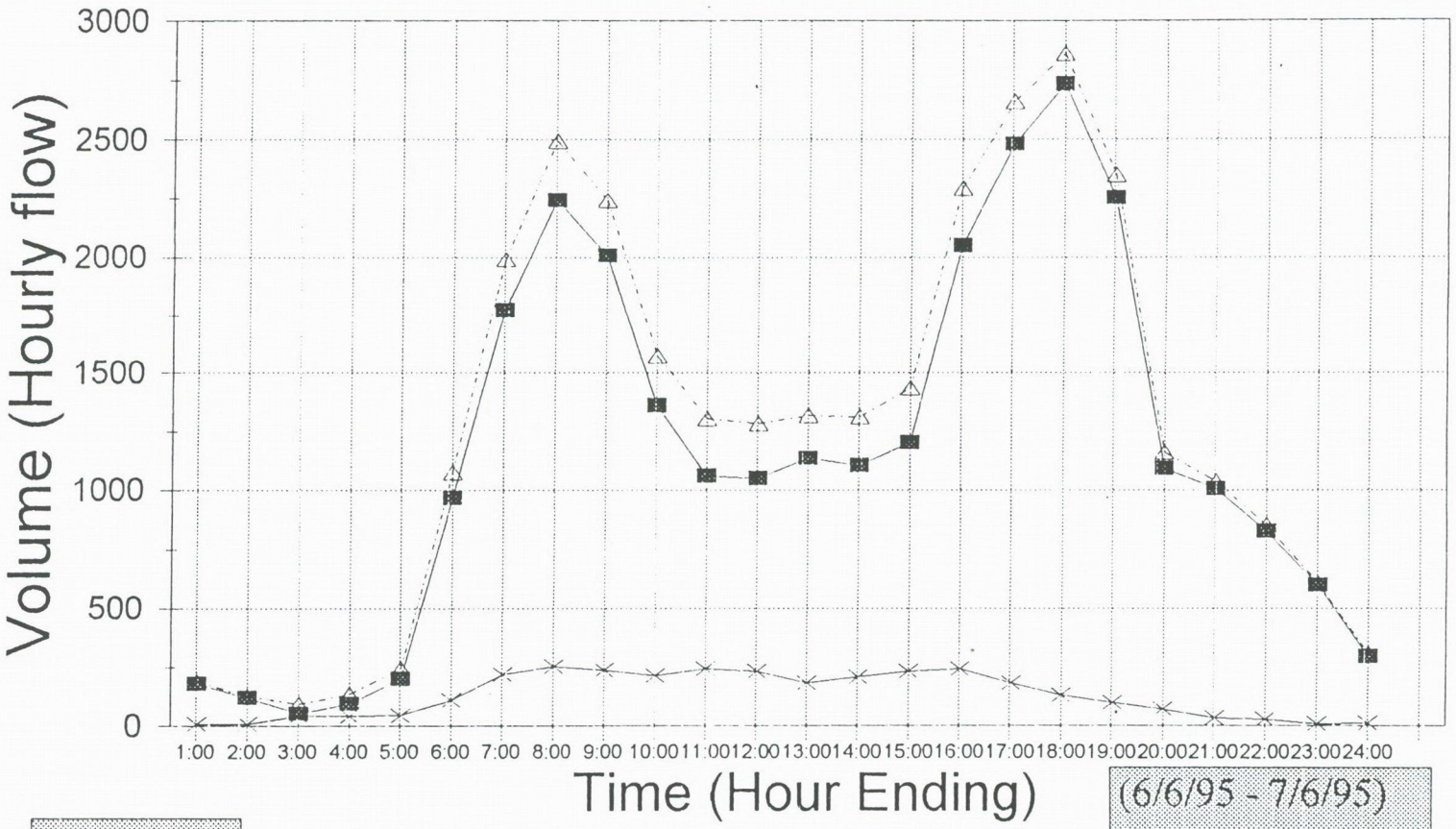


Fig 13

Western Sydney Orbital

Sunnyholt Road-near Meurants Lane

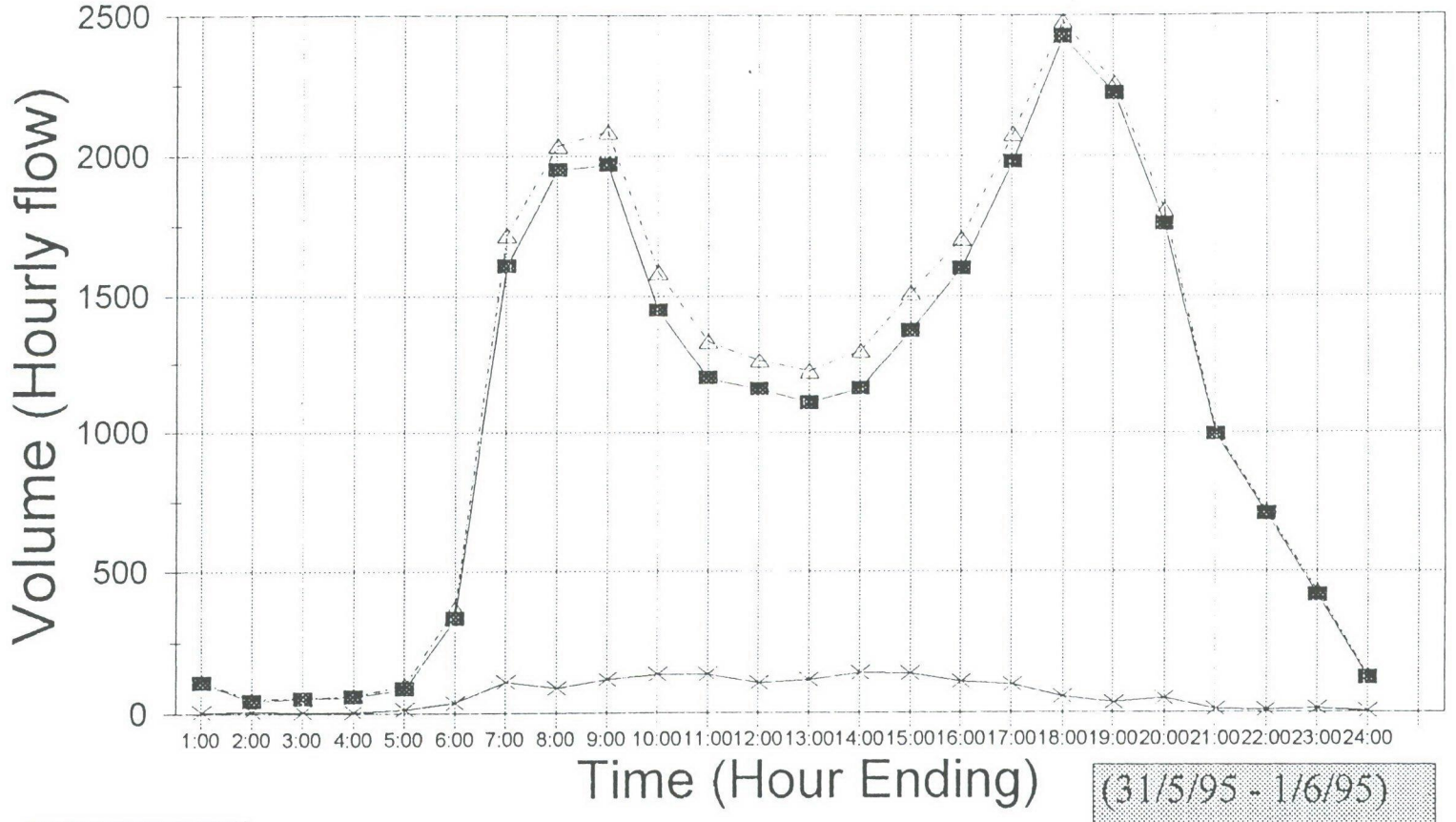


Fig 14

Western Sydney Orbital

Old Windsor Rd - Nth of Seven Hills Rd

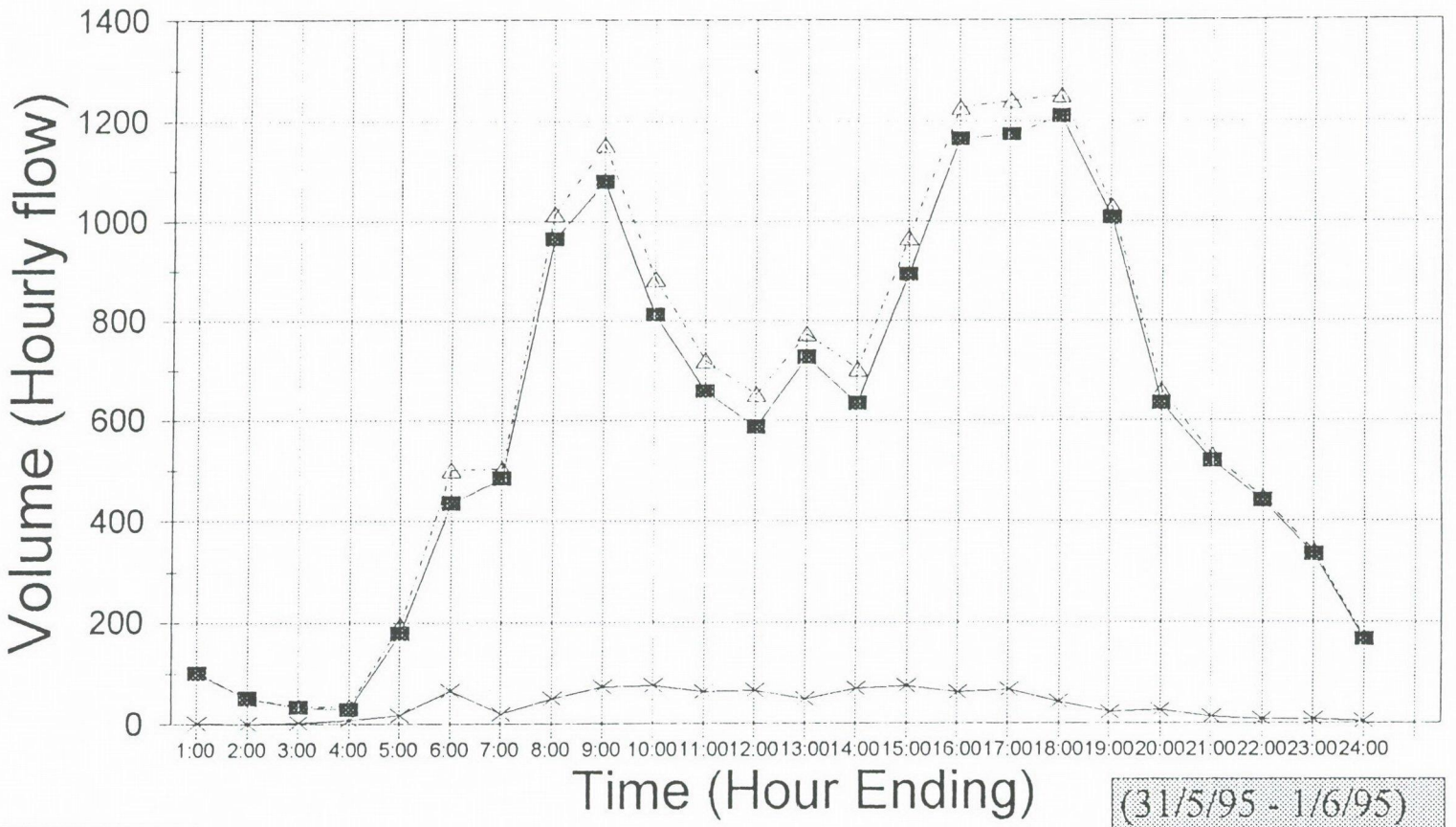


Fig 15

Western Sydney Orbital

Fifteenth/Hoxton-east of Cowpasture Rd

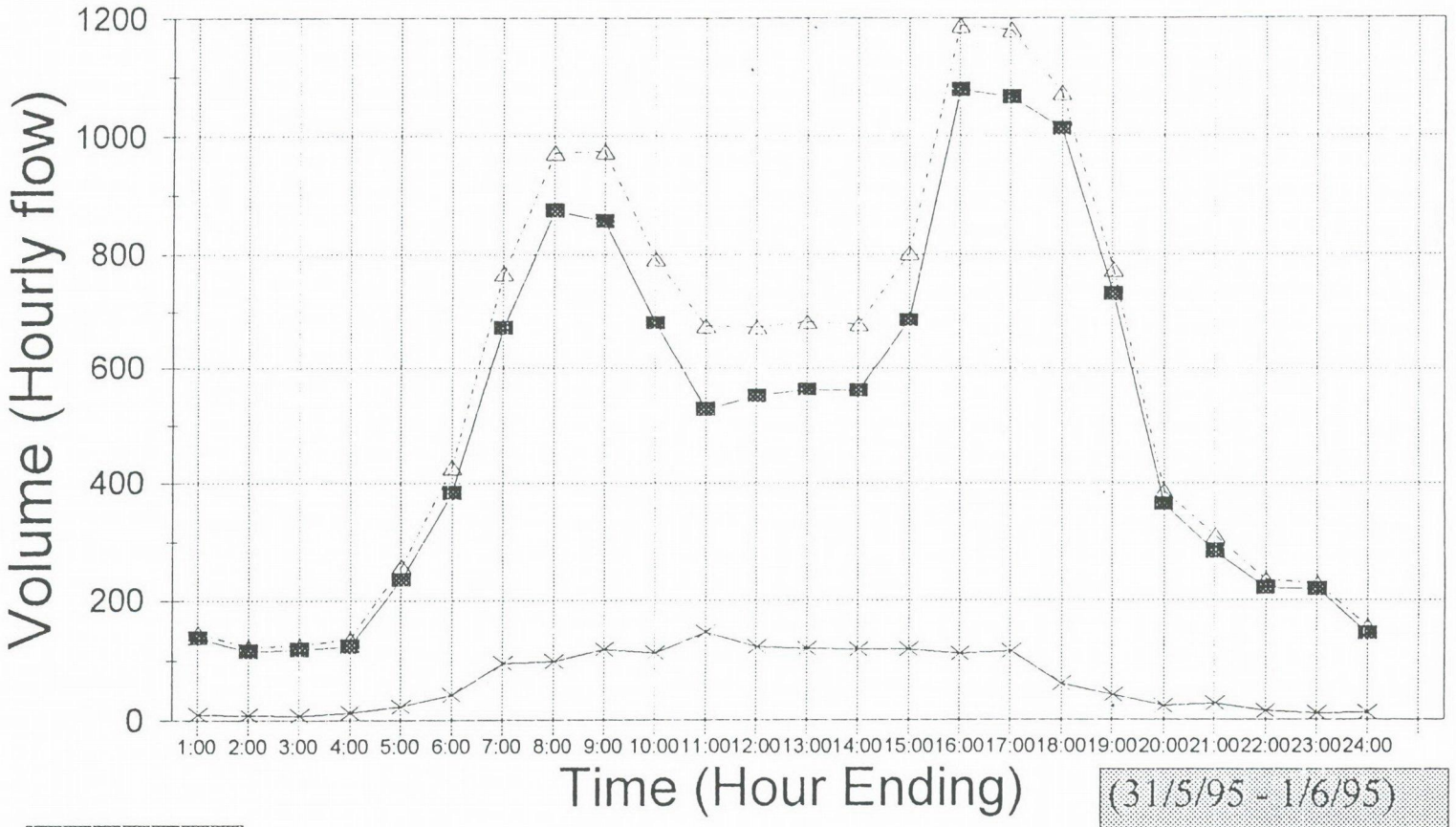


Fig 16

SECTION 2

AM Peak Intersection Counts

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152901
Location :The Horsley Drive / Wallgrove Road
Client :Rust PPK
Surveyors :ML/JP

Day/Date :Tue 06 Jun 95
Suburb :Horsley Drive
Job :Western Sydney Orbital Study
Weather :Fine

VEHICLES / TIME PERIODS	Wallgrove Road ↙	Wallgrove Road ↓	Wallgrove Road ↘	Wallgrove Road ↖	Wallgrove Road ↑	Wallgrove Road ↗	The Horsley Dr ↑	The Horsley Dr →	The Horsley Dr ↘	The Horsley Dr ↖	The Horsley Dr ←	The Horsley Dr ↙	TOTALS
07:00 TO 07:15	4	80	169	2	104	16	10	17	0	64	13	2	481
07:15 TO 07:30	5	84	235	5	128	19	5	27	1	79	17	5	610
07:30 TO 07:45	2	95	238	4	132	41	9	29	2	86	20	5	663
07:45 TO 08:00	4	76	259	3	109	47	3	44	3	86	12	7	653
08:00 TO 08:15	8	96	209	3	109	40	10	40	0	78	17	2	612
08:15 TO 08:30	4	60	188	7	118	33	4	29	2	81	31	4	561
08:30 TO 08:45	2	97	207	12	85	13	4	53	2	87	18	4	584
08:45 TO 09:00	3	88	182	14	105	18	6	35	1	92	37	7	588
TOTALS	32	676	1687	50	890	227	51	274	11	653	165	36	4752

HOURLY FLOWS

VEHICLES / TIME PERIODS	Wallgrove Road ↙	Wallgrove Road ↓	Wallgrove Road ↘	Wallgrove Road ↖	Wallgrove Road ↑	Wallgrove Road ↗	The Horsley Dr ↑	The Horsley Dr →	The Horsley Dr ↘	The Horsley Dr ↖	The Horsley Dr ←	The Horsley Dr ↙	TOTALS
07:00 TO 08:00	15	335	901	14	473	123	27	117	6	315	62	19	2407
07:15 TO 08:15	19	351	941	15	478	147	27	140	6	329	66	19	2538
07:30 TO 08:30	18	327	894	17	468	161	26	142	7	331	80	18	2489
07:45 TO 08:45	18	329	863	25	421	133	21	166	7	332	78	17	2410
08:00 TO 09:00	17	341	786	36	417	104	24	157	5	338	103	17	2345

PEAK HOUR

VEHICLES / TIME PERIODS	Wallgrove Road ↙	Wallgrove Road ↓	Wallgrove Road ↘	Wallgrove Road ↖	Wallgrove Road ↑	Wallgrove Road ↗	The Horsley Dr ↑	The Horsley Dr →	The Horsley Dr ↘	The Horsley Dr ↖	The Horsley Dr ←	The Horsley Dr ↙	TOTALS
07:15 TO 08:15	19	351	941	15	478	147	27	140	6	329	66	19	2538

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

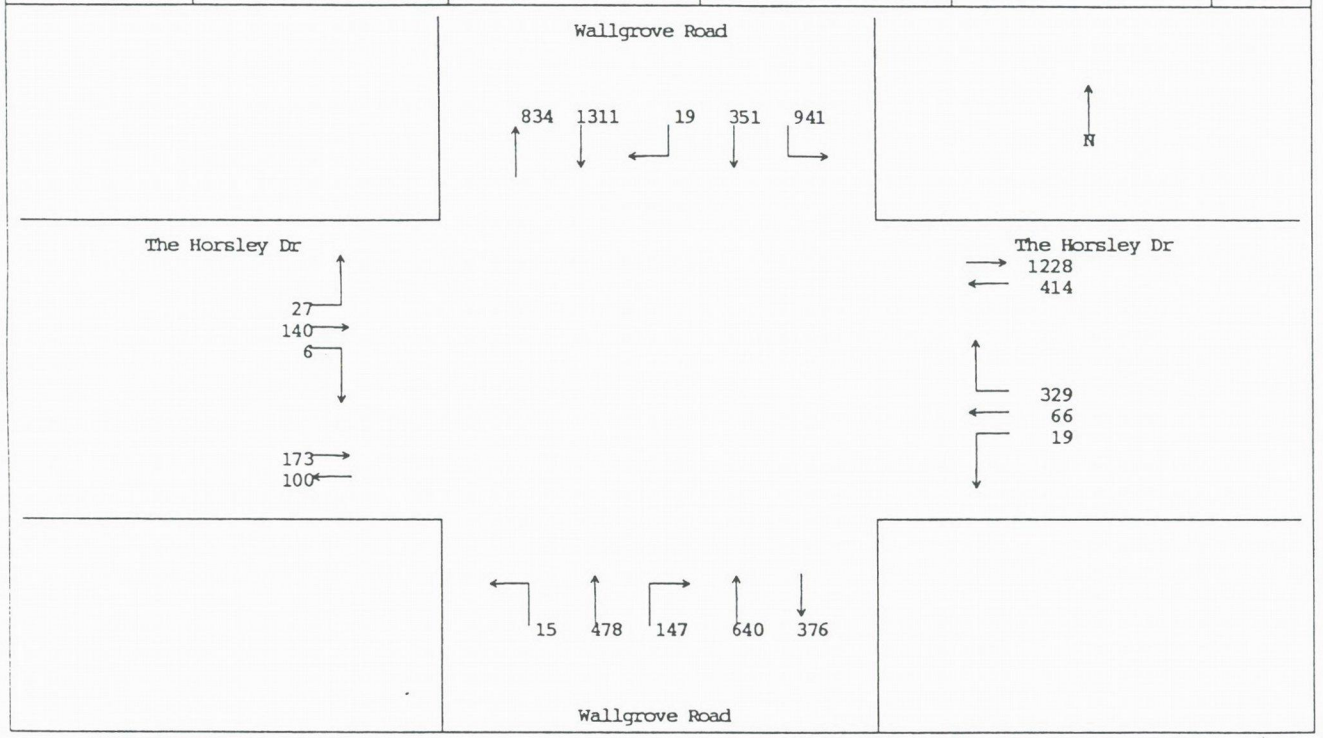
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152901
Location :The Horsley Drive / Wallgrove Road
Client :Rust PPK
Surveyors :ML/JP

Day/Date :Tue 06 Jun 95
Suburb :Horsley Drive
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

VEHICLES / TIME PERIODS	Wallgrove Road			Wallgrove Road			The Horsley Dr			The Horsley Dr			TOTALS
07:15 TO 08:15	19	351	941	15	478	147	27	140	6	329	66	19	2538



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152902
Location :The Horsley Dve / Cowpasture Rd
Client :Rust PPK
Surveyors :VP/GP

Day/Date :Wed 07 Jun 95
Suburb :Bosley Park
Job :Western Sydney Orbital Study
Weather :fine

All Vehicles TIME PERIODS	Cowpasture Road ←	Cowpasture Road →	The Horsley Dve →	The Horsley Dve ↓	The Horsley Dve ←	The Horsley Dve ↓	TOTALS
07:00 TO 07:15	108	137	323	114	101	30	813
07:15 TO 07:30	115	153	327	124	102	18	839
07:30 TO 07:45	136	176	426	107	117	30	992
07:45 TO 08:00	149	201	442	117	110	33	1052
08:00 TO 08:15	137	151	443	124	120	36	1011
08:15 TO 08:30	121	147	285	116	121	21	811
08:30 TO 08:45	122	105	238	99	150	27	741
08:45 TO 09:00	111	111	201	117	123	32	695
TOTALS	999	1181	2685	918	944	227	6954

HOURLY FLOWS

All Vehicles TIME PERIODS	Cowpasture Road ←	Cowpasture Road →	The Horsley Dve →	The Horsley Dve ↓	The Horsley Dve ←	The Horsley Dve ↓	TOTALS
07:00 TO 08:00	508	667	1518	462	430	111	3696
07:15 TO 08:15	537	681	1638	472	449	117	3894
07:30 TO 08:30	543	675	1596	464	468	120	3866
07:45 TO 08:45	529	604	1408	456	501	117	3615
08:00 TO 09:00	491	514	1167	456	514	116	3258

PEAK HOUR

All Vehicles TIME PERIODS	Cowpasture Road ←	Cowpasture Road →	The Horsley Dve →	The Horsley Dve ↓	The Horsley Dve ←	The Horsley Dve ↓	TOTALS
07:15 TO 08:15	537	681	1638	472	449	117	3894

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

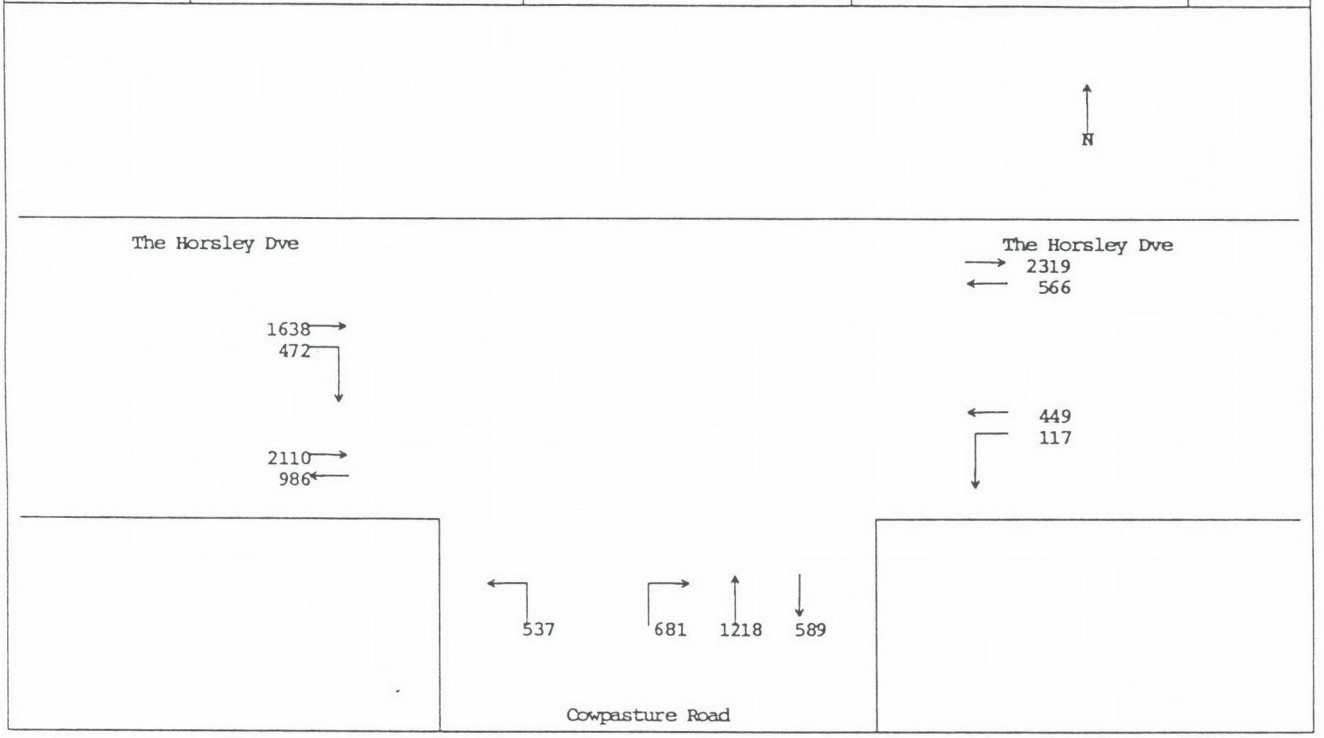
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152902
Location :The Horsley Dve / Cowpasture Rd
Client :Rust PPK
Surveyors :VP/GP

Day/Date :Wed 07 Jun 95
Suburb :Bosley Park
Job :Western Sydney Orbital Study
Weather :fine

PEAK HOUR

All Vehicles TIME PERIODS	Cowpasture Road ←	Cowpasture Road →	The Horsley Dve →	The Horsley Dve ↓	The Horsley Dve ←	The Horsley Dve ↓	TOTALS
07:15 TO 08:15	537	681	1638	472	449	117	3894



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152903
Location :The Horsley Drive / Cumberland Highway
Client :Rust PPK
Surveyors :GH

Day/Date :Thu 08 Jun 95
Suburb :Fairfield Heights
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Cumberland Highway ↙	↓	↘	Cumberland Highway ↖	↑	↗	The Horsley Dr ↑	→	↓	The Horsley Dr ↖	←	↓	TOTALS
07:00 TO 07:15	21	261	46	15	452	11	6	43	0	86	128	2	1071
07:15 TO 07:30	11	273	65	16	461	7	12	191	0	75	114	6	1231
07:30 TO 07:45	27	265	50	14	428	9	21	204	0	95	137	5	1255
07:45 TO 08:00	40	254	54	22	510	7	24	185	0	102	154	3	1355
08:00 TO 08:15	21	244	50	21	495	9	8	151	0	71	132	6	1208
08:15 TO 08:30	15	163	38	21	347	11	28	147	0	104	161	5	1040
08:30 TO 08:45	22	154	40	17	410	6	30	104	0	72	142	8	1005
08:45 TO 09:00	8	105	27	27	355	9	11	76	0	78	153	6	855
TOTALS	165	1719	370	153	3458	69	140	1101	0	683	1121	41	9020

HOURLY FLOWS

All Vehicles TIME PERIODS	Cumberland Highway ↙	↓	↘	Cumberland Highway ↖	↑	↗	The Horsley Dr ↑	→	↓	The Horsley Dr ↖	←	↓	TOTALS
07:00 TO 08:00	99	1053	215	67	1851	34	63	623	0	358	533	16	4912
07:15 TO 08:15	99	1036	219	73	1894	32	65	731	0	343	537	20	5049
07:30 TO 08:30	103	926	192	78	1780	36	81	687	0	372	584	19	4858
07:45 TO 08:45	98	815	182	81	1762	33	90	587	0	349	589	22	4608
08:00 TO 09:00	66	666	155	86	1607	35	77	478	0	325	588	25	4108

PEAK HOUR

All Vehicles TIME PERIODS	Cumberland Highway ↙	↓	↘	Cumberland Highway ↖	↑	↗	The Horsley Dr ↑	→	↓	The Horsley Dr ↖	←	↓	TOTALS
07:15 TO 08:15	99	1036	219	73	1894	32	65	731	0	343	537	20	5049

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

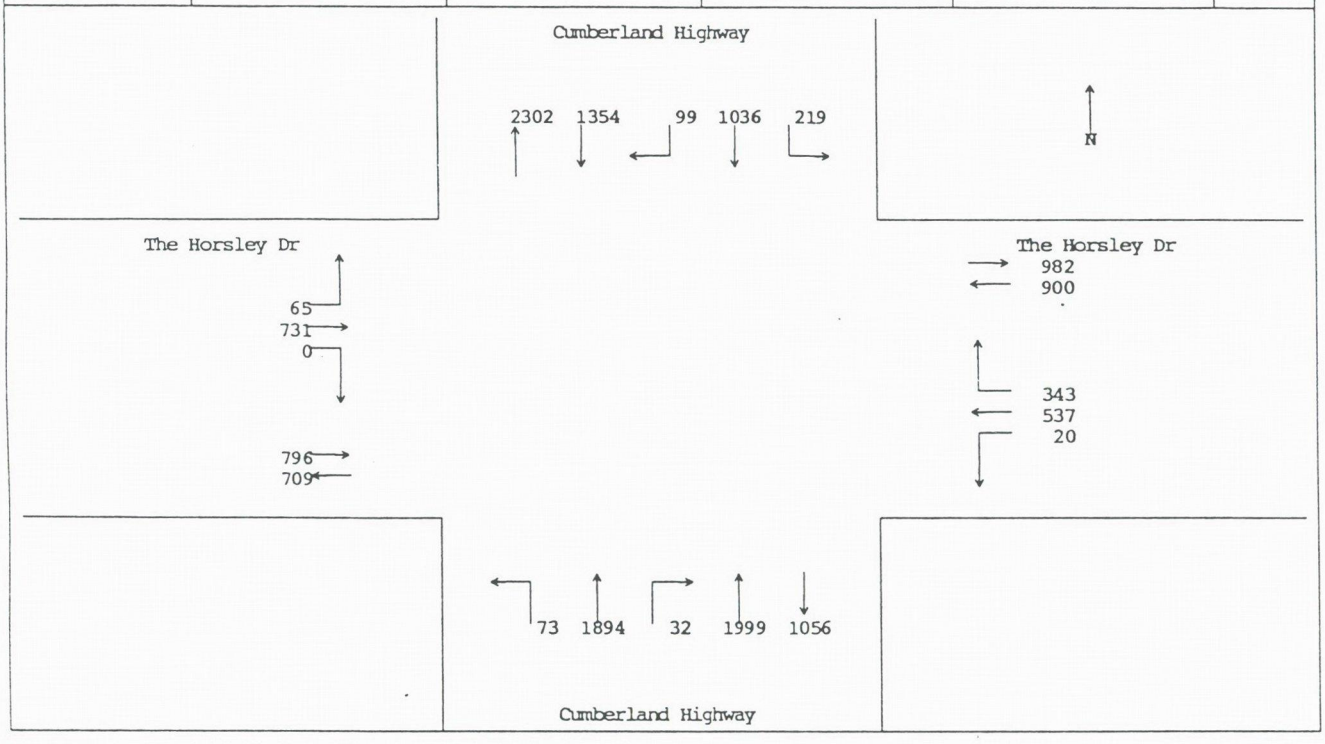
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152903
Location :The Horsley Drive / Cumberland Highway
Client :Rust PPK
Surveyors :GH

Day/Date :Thu 08 Jun 95
Suburb :Fairfield Heights
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Cumberland Highway			Cumberland Highway			The Horsley Dr			The Horsley Dr			TOTALS
07:15 TO 08:15	99	1036	219	73	1894	32	65	731	0	343	537	20	5049



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152904
Location :Elizabeth Drive / Luddenham Road
Client :Rust PPK
Surveyors :K B

Day/Date :Wed 31 May 95
Suburb :Badgerys Creek
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Luddenham Road ↲	Luddenham Road ↳	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:00 TO 07:15	1	8	8	69	13	26	125
07:15 TO 07:30	7	13	12	97	13	28	170
07:30 TO 07:45	9	13	17	85	13	22	159
07:45 TO 08:00	5	12	14	88	7	32	158
08:00 TO 08:15	8	6	13	86	12	27	152
08:15 TO 08:30	4	6	8	43	13	27	101
08:30 TO 08:45	6	9	11	59	6	26	117
08:45 TO 09:00	2	4	8	29	10	19	72
TOTALS	42	71	91	556	87	207	1054

HOURLY FLOWS

All Vehicles TIME PERIODS	Luddenham Road ↲	Luddenham Road ↳	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:00 TO 08:00	22	46	51	339	46	108	612
07:15 TO 08:15	29	44	56	356	45	109	639
07:30 TO 08:30	26	37	52	302	45	108	570
07:45 TO 08:45	23	33	46	276	38	112	528
08:00 TO 09:00	20	25	40	217	41	99	442

PEAK HOUR

All Vehicles TIME PERIODS	Luddenham Road ↲	Luddenham Road ↳	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:15 TO 08:15	29	44	56	356	45	109	639

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

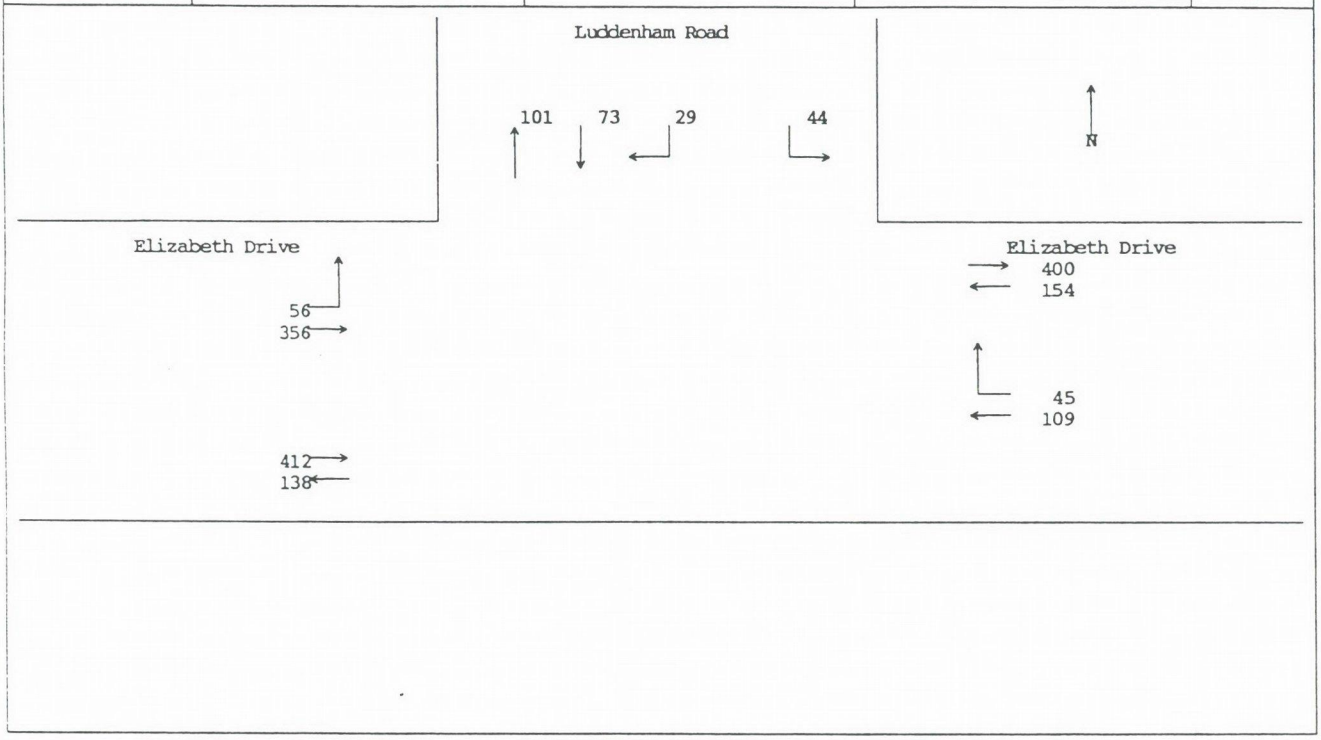
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152904
Location :Elizabeth Drive / Luddenham Road
Client :Rust PPK
Surveyors :K B

Day/Date :Wed 31 May 95
Suburb :Badgerys Creek
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Luddenham Road ↓	Luddenham Road ↳	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:15 TO 08:15	29	44	56	356	45	109	639



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152905
Location :The Northern Road / Elizabeth Drive
Client :Rust PPK
Surveyors :MH

Day/Date :Wed 07 Jun 95
Suburb :Luddenham
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	The Northern Road ↓	The Northern Road ↳	The Northern Road ↑	The Northern Road ↱	Elizabeth Drive ↰	Elizabeth Drive ↓	TOTALS
07:00 TO 07:15	91	58	53	38	16	17	273
07:15 TO 07:30	81	40	58	44	7	13	243
07:30 TO 07:45	96	66	98	52	21	14	347
07:45 TO 08:00	78	53	75	36	17	9	268
08:00 TO 08:15	80	44	73	31	22	11	261
08:15 TO 08:30	108	39	97	38	13	11	306
08:30 TO 08:45	73	24	60	26	16	8	207
08:45 TO 09:00	59	30	71	23	18	11	212
TOTALS	666	354	585	288	130	94	2117

HOURLY FLOWS

All Vehicles TIME PERIODS	The Northern Road ↓	The Northern Road ↳	The Northern Road ↑	The Northern Road ↱	Elizabeth Drive ↰	Elizabeth Drive ↓	TOTALS
07:00 TO 08:00	346	217	284	170	61	53	1131
07:15 TO 08:15	335	203	304	163	67	47	1119
07:30 TO 08:30	362	202	343	157	73	45	1182
07:45 TO 08:45	339	160	305	131	68	39	1042
08:00 TO 09:00	320	137	301	118	69	41	986

PEAK HOUR

All Vehicles TIME PERIODS	The Northern Road ↓	The Northern Road ↳	The Northern Road ↑	The Northern Road ↱	Elizabeth Drive ↰	Elizabeth Drive ↓	TOTALS
07:30 TO 08:30	362	202	343	157	73	45	1182

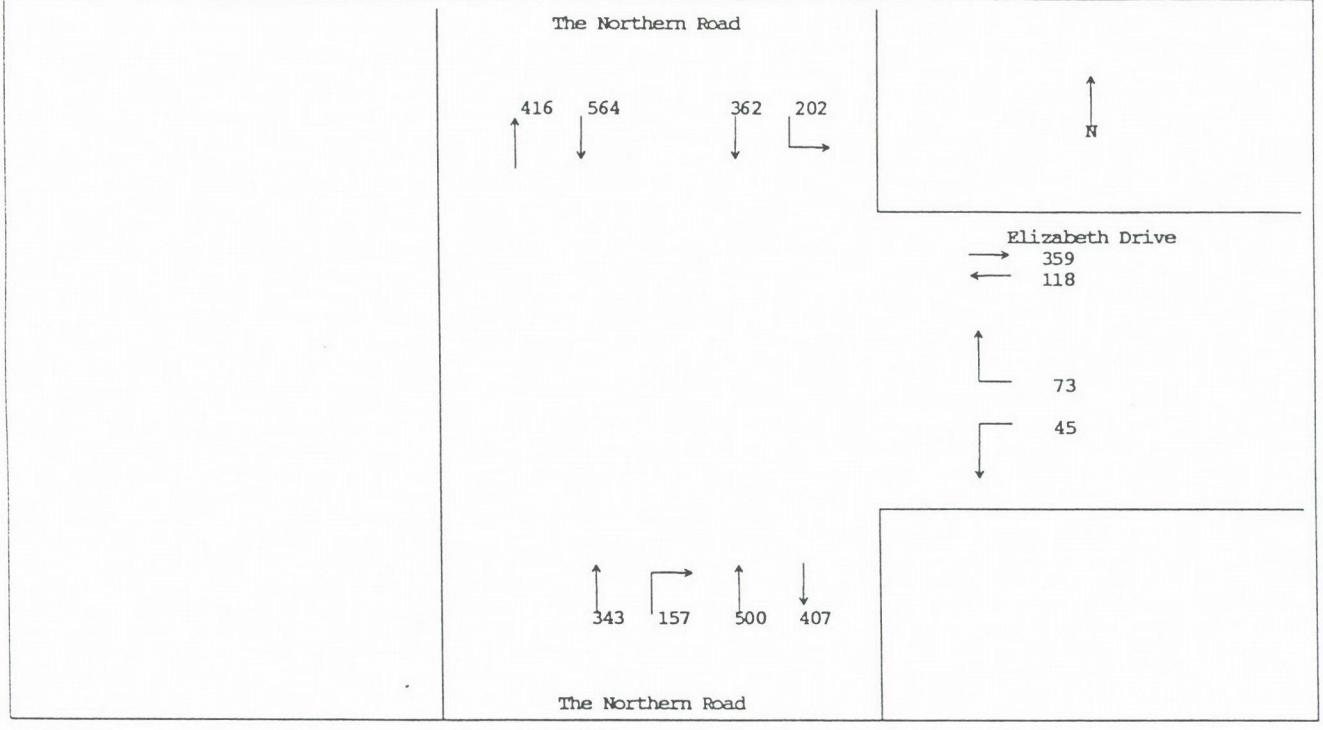
SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name	:rp152905	Day/Date	:Wed 07 Jun 95
Location	:The Northern Road / Elizabeth Drive	Suburb	:Luddenham
Client	:Rust PPK	Job	:Western Sydney Orbital Study
Surveyors	:MH	Weather	:Fine

PEAK HOUR

All Vehicles TIME PERIODS	The Northern Road ↓	The Northern Road ↑	Elizabeth Drive ↑	Elizabeth Drive ↓	TOTALS
07:30 TO 08:30	362	343	73	45	1182



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152906
Location :Elizabeth Drive / Mamre Road
Client :Rust PPK
Surveyors :VP/LO

Day/Date :Thu 08 Jun 95
Suburb :Mount Vernon
Job :Western Sydney Orbital Study
Weather :fine

All Vehicles TIME PERIODS	Mamre Road ↙	Mamre Road ↳	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:00 TO 07:15	19	170	59	104	34	38	424
07:15 TO 07:30	31	162	30	110	28	53	414
07:30 TO 07:45	34	181	39	126	33	46	459
07:45 TO 08:00	28	148	42	137	40	36	431
08:00 TO 08:15	46	148	40	144	46	41	465
08:15 TO 08:30	29	162	53	117	35	42	438
08:30 TO 08:45	33	36	14	63	31	41	218
08:45 TO 09:00	36	70	35	84	35	43	303
TOTALS	256	1077	312	885	282	340	3152

HOURLY FLOWS

All Vehicles TIME PERIODS	Mamre Road ↙	Mamre Road ↳	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:00 TO 08:00	112	661	170	477	135	173	1728
07:15 TO 08:15	139	639	151	517	147	176	1769
07:30 TO 08:30	137	639	174	524	154	165	1793
07:45 TO 08:45	136	494	149	461	152	160	1552
08:00 TO 09:00	144	416	142	408	147	167	1424

PEAK HOUR

All Vehicles TIME PERIODS	Mamre Road ↙	Mamre Road ↳	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:30 TO 08:30	137	639	174	524	154	165	1793

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

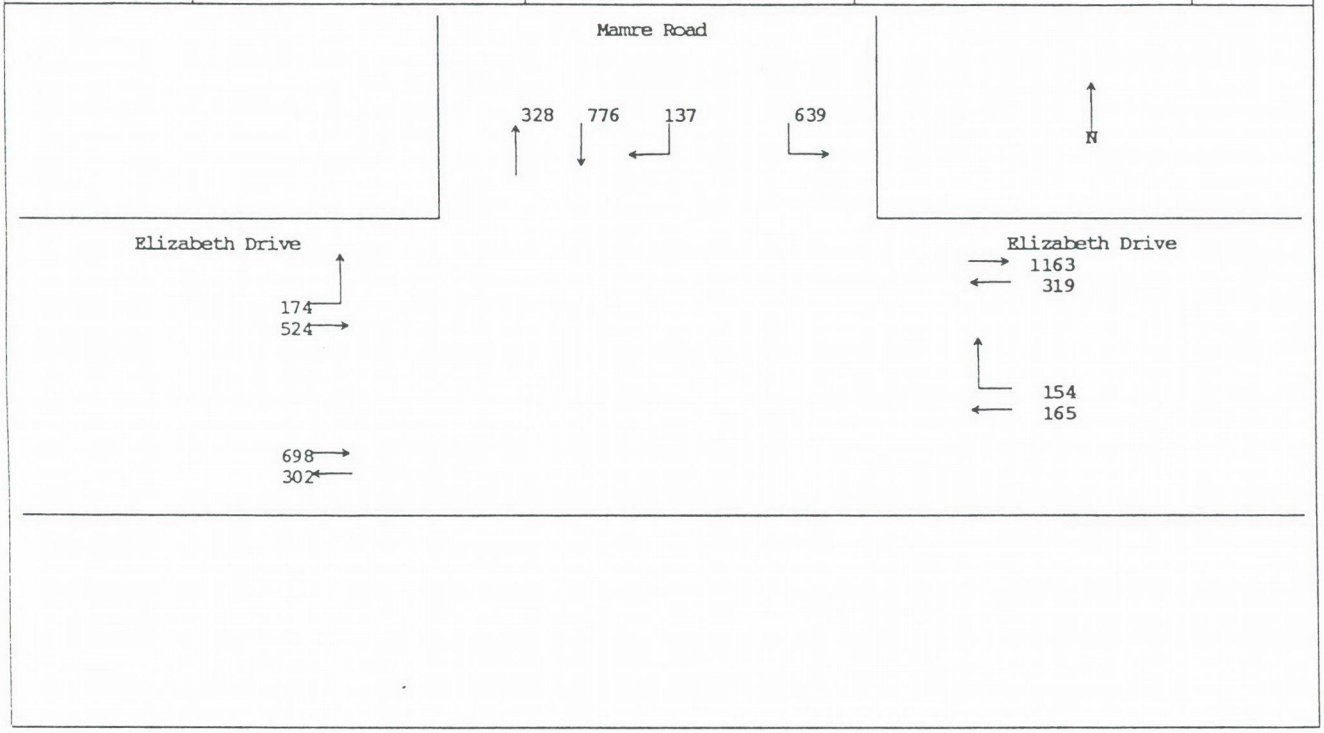
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152906
Location :Elizabeth Drive / Mamre Road
Client :Rust PPK
Surveyors :VP/LO

Day/Date :Thu 08 Jun 95
Suburb :Mount Vernon
Job :Western Sydney Orbital Study
Weather :fine

PEAK HOUR

All Vehicles TIME PERIODS	Mamre Road		Elizabeth Drive		Elizabeth Drive		TOTALS
07:30 TO 08:30	137	639	174	524	154	165	1793



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152907
Location :Elizabeth Drive / Badgerys Creek Rd
Client :Rust PPK
Surveyors :JJ

Day/Date :Thu 08 Jun 95
Suburb :Badgerys Creek
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Badgerys Creek Road ↰	Badgerys Creek Road ↱	Elizabeth Drive →	Elizabeth Drive ↴	Elizabeth Drive ←	Elizabeth Drive ↓	TOTALS
07:00 TO 07:15	1	25	85	5	34	10	160
07:15 TO 07:30	5	23	101	8	28	10	175
07:30 TO 07:45	1	32	117	7	22	18	197
07:45 TO 08:00	7	33	85	3	26	10	164
08:00 TO 08:15	6	41	89	10	20	12	178
08:15 TO 08:30	9	22	64	4	33	19	151
08:30 TO 08:45	5	17	54	3	22	9	110
08:45 TO 09:00	10	17	44	3	31	8	113
TOTALS	44	210	639	43	216	96	1248

HOURLY FLOWS

All Vehicles TIME PERIODS	Badgerys Creek Road ↰	Badgerys Creek Road ↱	Elizabeth Drive →	Elizabeth Drive ↴	Elizabeth Drive ←	Elizabeth Drive ↓	TOTALS
07:00 TO 08:00	14	113	388	23	110	48	696
07:15 TO 08:15	19	129	392	28	96	50	714
07:30 TO 08:30	23	128	355	24	101	59	690
07:45 TO 08:45	27	113	292	20	101	50	603
08:00 TO 09:00	30	97	251	20	106	48	552

PEAK HOUR

All Vehicles TIME PERIODS	Badgerys Creek Road ↰	Badgerys Creek Road ↱	Elizabeth Drive →	Elizabeth Drive ↴	Elizabeth Drive ←	Elizabeth Drive ↓	TOTALS
07:15 TO 08:15	19	129	392	28	96	50	714

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

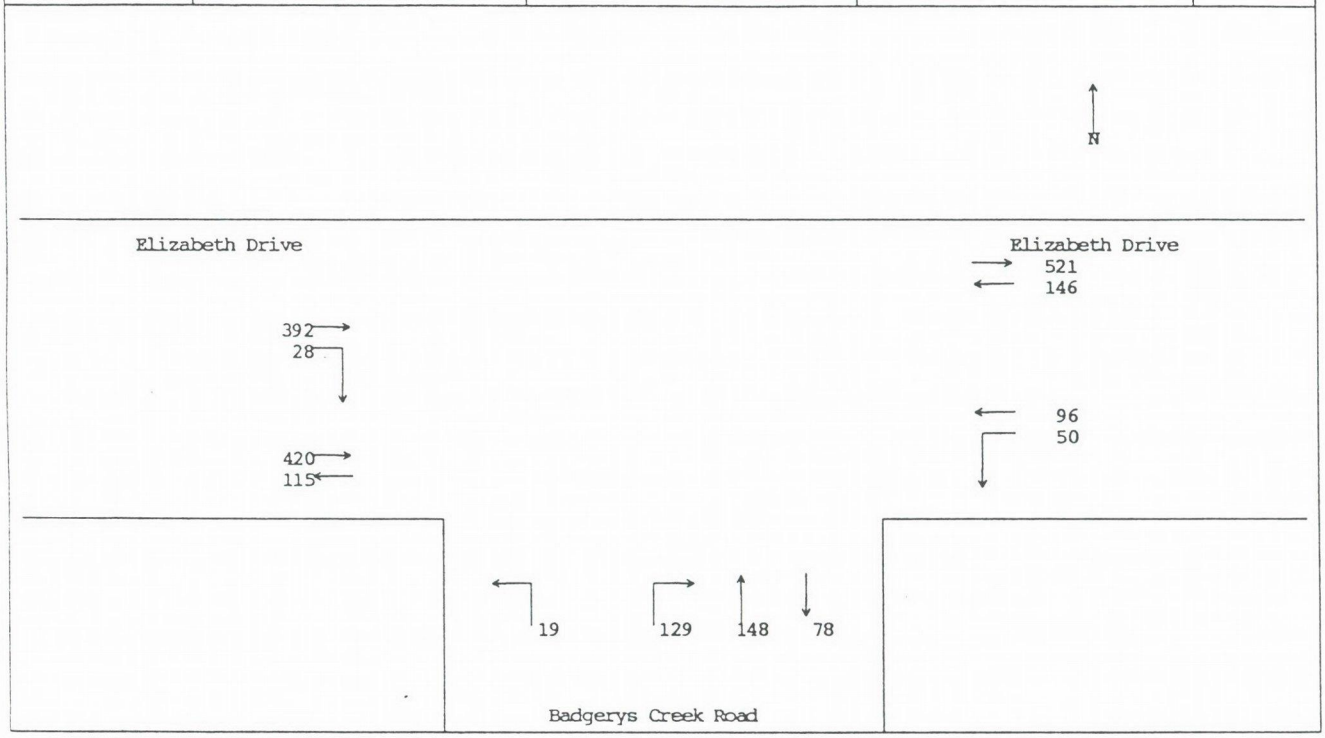
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152907
Location :Elizabeth Drive / Badgerys Creek Rd
Client :Rust PPK
Surveyors :JJ

Day/Date :Thu 08 Jun 95
Suburb :Badgerys Creek
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Badgerys Creek Road ←	Badgerys Creek Road →	Elizabeth Drive →	Elizabeth Drive ↓	Elizabeth Drive ←	Elizabeth Drive ↓	TOTALS
07:15 TO 08:15	19	129	392	28	96	50	714



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152908
Location :Elizabeth Drive / Wallgrove Road
Client :Rust PPK
Surveyors :CP/ER

Day/Date :Tue 06 Jun 95
Suburb :Cecil Park
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Wallgrove Road ↙	Wallgrove Road ↘	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:00 TO 07:15	15	86	67	176	78	62	484
07:15 TO 07:30	16	116	107	222	82	84	627
07:30 TO 07:45	19	133	86	166	93	75	572
07:45 TO 08:00	24	98	87	204	94	64	571
08:00 TO 08:15	24	118	118	186	97	78	621
08:15 TO 08:30	26	131	90	161	80	69	557
08:30 TO 08:45	31	131	86	121	92	72	533
08:45 TO 09:00	25	95	64	97	81	83	445
TOTALS	180	908	705	1333	697	587	4410

HOURLY FLOWS

All Vehicles TIME PERIODS	Wallgrove Road ↙	Wallgrove Road ↘	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:00 TO 08:00	74	433	347	768	347	285	2254
07:15 TO 08:15	83	465	398	778	366	301	2391
07:30 TO 08:30	93	480	381	717	364	286	2321
07:45 TO 08:45	105	478	381	672	363	283	2282
08:00 TO 09:00	106	475	358	565	350	302	2156

PEAK HOUR

All Vehicles TIME PERIODS	Wallgrove Road ↙	Wallgrove Road ↘	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:15 TO 08:15	83	465	398	778	366	301	2391

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

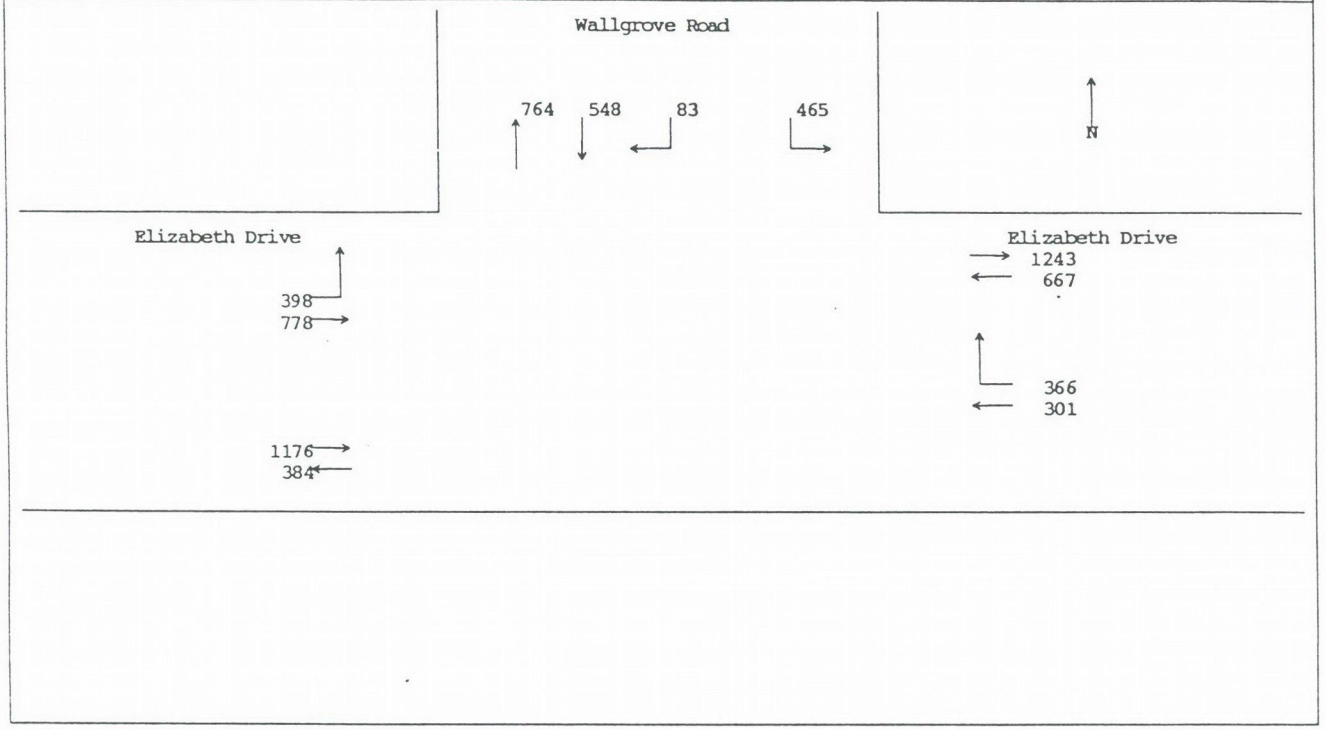
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152908
Location :Elizabeth Drive / Wallgrove Road
Client :Rust PPK
Surveyors :CP/ER

Day/Date :Tue 06 Jun 95
Suburb :Cecil Park
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Wallgrove Road ↙	Wallgrove Road ↘	Elizabeth Drive ↑	Elizabeth Drive →	Elizabeth Drive ↑	Elizabeth Drive ←	TOTALS
07:15 TO 08:15	83	465	398	778	366	301	2391



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152909
Location :Elizabeth Dr / Copeland St (Hume Highway)
Client :Rust PPK
Surveyors :DD

Day/Date :Wed 07 Jun 95
Suburb :Liverpool
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Copeland St(Hume Hwy) ↙	Copeland St(Hume Hwy) ↓	Copeland St(Hume Hwy) ↳	Copeland St(Hume Hwy) ↰	Copeland St(Hume Hwy) ↑	Copeland St(Hume Hwy) ↱	Elizabeth Dr ↑	Elizabeth Dr →	Elizabeth Dr ↴	Elizabeth Dr ↰	Elizabeth Dr ←	Elizabeth Dr ↴	TOTALS
07:00 TO 07:15	44	249	7	11	305	2	127	127	137	36	61	0	1106
07:15 TO 07:30	46	283	18	22	425	0	100	148	143	21	68	2	1276
07:30 TO 07:45	53	273	9	13	350	0	115	184	152	52	93	0	1294
07:45 TO 08:00	61	342	30	25	488	0	113	226	160	55	119	4	1623
08:00 TO 08:15	58	318	19	19	547	0	76	165	122	32	64	2	1422
08:15 TO 08:30	109	321	23	15	333	0	124	269	121	56	98	7	1476
08:30 TO 08:45	86	362	17	15	348	0	98	331	138	28	113	7	1543
08:45 TO 09:00	101	410	25	11	295	0	79	248	125	46	110	2	1452
TOTALS	558	2558	148	131	3091	2	832	1698	1098	326	726	24	11192

HOURLY FLOWS

All Vehicles TIME PERIODS	Copeland St(Hume Hwy) ↙	Copeland St(Hume Hwy) ↓	Copeland St(Hume Hwy) ↳	Copeland St(Hume Hwy) ↰	Copeland St(Hume Hwy) ↑	Copeland St(Hume Hwy) ↱	Elizabeth Dr ↑	Elizabeth Dr →	Elizabeth Dr ↴	Elizabeth Dr ↰	Elizabeth Dr ←	Elizabeth Dr ↴	TOTALS
07:00 TO 08:00	204	1147	64	71	1568	2	455	685	592	164	341	6	5299
07:15 TO 08:15	218	1216	76	79	1810	0	404	723	577	160	344	8	5615
07:30 TO 08:30	281	1254	81	72	1718	0	428	844	555	195	374	13	5815
07:45 TO 08:45	314	1343	89	74	1716	0	411	991	541	171	394	20	6064
08:00 TO 09:00	354	1411	84	60	1523	0	377	1013	506	162	385	18	5893

PEAK HOUR

All Vehicles TIME PERIODS	Copeland St(Hume Hwy) ↙	Copeland St(Hume Hwy) ↓	Copeland St(Hume Hwy) ↳	Copeland St(Hume Hwy) ↰	Copeland St(Hume Hwy) ↑	Copeland St(Hume Hwy) ↱	Elizabeth Dr ↑	Elizabeth Dr →	Elizabeth Dr ↴	Elizabeth Dr ↰	Elizabeth Dr ←	Elizabeth Dr ↴	TOTALS
07:45 TO 08:45	314	1343	89	74	1716	0	411	991	541	171	394	20	6064

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

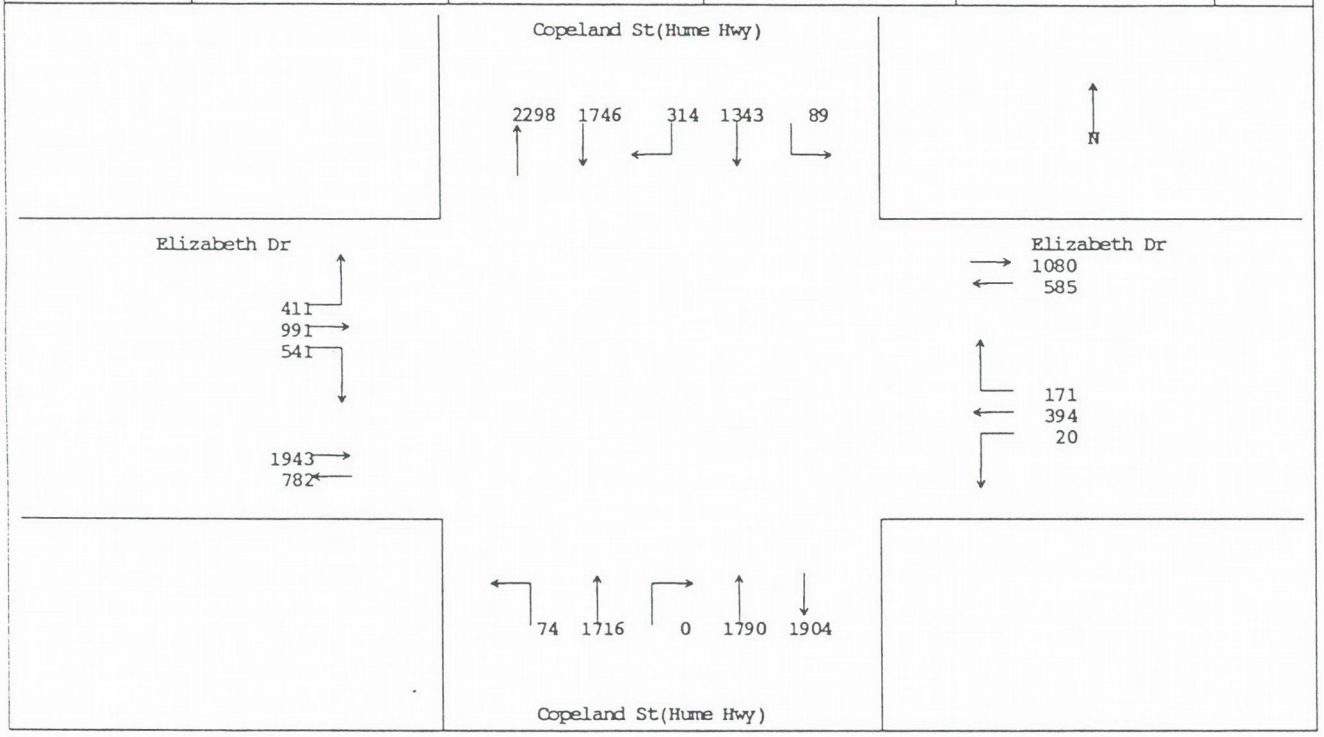
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152909
Location :Elizabeth Dr / Copeland St (Hume Highway)
Client :Rust PPK
Surveyors :DD

Day/Date :Wed 07 Jun 95
Suburb :Liverpool
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Copeland St(Hume Hwy)			Copeland St(Hume Hwy)			Elizabeth Dr			Elizabeth Dr			TOTALS
07:45 TO 08:45	314	1343	89	74	1716	0	411	991	541	171	394	20	6064



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152910
Location :Elizabeth Dr / Devonshire Rd
Client :Rust PPK
Surveyors :NS/JS

Day/Date :Thu 01 Jun 95
Suburb :Kemps Creek
Job :Western Sydney Orbital Study
Weather :Fine

VEHICLES / TIME PERIODS	Devonshire Rd ←	Devonshire Rd →	Elizabeth Dr →	Elizabeth Dr ↓	Elizabeth Dr ←	Elizabeth Dr ↓	TOTALS
07:00 TO 07:15	6	28	70	7	42	44	197
07:15 TO 07:30	4	62	126	17	41	42	292
07:30 TO 07:45	4	23	82	10	31	33	183
07:45 TO 08:00	6	35	111	12	40	34	238
08:00 TO 08:15	5	47	82	14	47	36	231
08:15 TO 08:30	14	47	98	19	54	31	263
08:30 TO 08:45	10	39	72	13	56	33	223
08:45 TO 09:00	7	35	43	18	56	31	190
TOTALS	56	316	684	110	367	284	1817

HOURLY FLOWS

VEHICLES / TIME PERIODS	Devonshire Rd ←	Devonshire Rd →	Elizabeth Dr →	Elizabeth Dr ↓	Elizabeth Dr ←	Elizabeth Dr ↓	TOTALS
07:00 TO 08:00	20	148	389	46	154	153	910
07:15 TO 08:15	19	167	401	53	159	145	944
07:30 TO 08:30	29	152	373	55	172	134	915
07:45 TO 08:45	35	168	363	58	197	134	955
08:00 TO 09:00	36	168	295	64	213	131	907

PEAK HOUR

VEHICLES / TIME PERIODS	Devonshire Rd ←	Devonshire Rd →	Elizabeth Dr →	Elizabeth Dr ↓	Elizabeth Dr ←	Elizabeth Dr ↓	TOTALS
07:45 TO 08:45	35	168	363	58	197	134	955

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

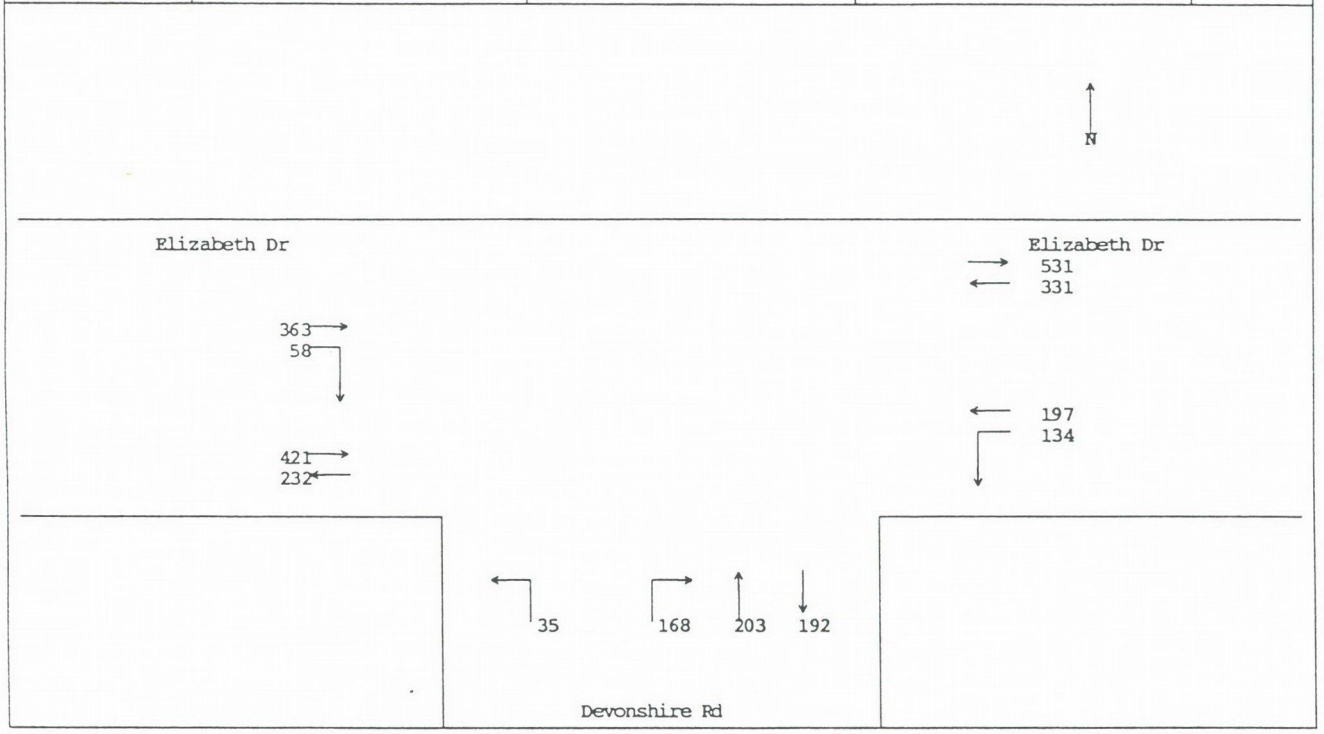
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152910
Location :Elizabeth Dr / Devonshire Rd
Client :Rust PPK
Surveyors :NS/JS

Day/Date :Thu 01 Jun 95
Suburb :Kemps Creek
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

VEHICLES / TIME PERIODS	Devonshire Rd ←	Devonshire Rd →	Elizabeth Dr →	Elizabeth Dr ↓	Elizabeth Dr ←	Elizabeth Dr ↓	TOTALS
07:45 TO 08:45	35	168	363	58	197	134	955



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152911
Location :Fifteenth Ave/Devonshire Rd
Client :Rust PPK
Surveyors :AK/IK

Day/Date :Tue 06 Jun 95
Suburb :Kemps Creek
Job :Western Sydney Orbital Study
Weather :Fine

Lights TIME PERIODS	Devonshire Rd ↲	Devonshire Rd ↓	Devonshire Rd ↳	Devonshire Rd ↰	Devonshire Rd ↑	Devonshire Rd ↱	Fifteenth Ave ↑	Fifteenth Ave →	Fifteenth Ave ↴	Fifteenth Ave ↳	Fifteenth Ave ←	Fifteenth Ave ↴	TOTALS
07:00 TO 07:15	1	13	22	0	11	8	1	12	1	3	11	7	90
07:15 TO 07:30	0	10	26	0	21	5	0	23	1	16	10	7	119
07:30 TO 07:45	3	12	58	1	30	6	2	47	1	22	7	1	190
07:45 TO 08:00	2	17	40	0	31	9	6	24	0	27	12	7	175
08:00 TO 08:15	1	11	44	2	24	6	4	30	1	22	14	6	165
08:15 TO 08:30	0	9	36	0	19	3	0	18	0	15	5	2	107
08:30 TO 08:45	1	13	26	1	14	3	1	19	0	25	17	6	126
08:45 TO 09:00	0	7	24	1	13	2	1	15	1	16	7	4	91
TOTALS	8	92	276	5	163	42	15	188	5	146	83	40	1063

HOURLY FLOWS

Lights TIME PERIODS	Devonshire Rd ↲	Devonshire Rd ↓	Devonshire Rd ↳	Devonshire Rd ↰	Devonshire Rd ↑	Devonshire Rd ↱	Fifteenth Ave ↑	Fifteenth Ave →	Fifteenth Ave ↴	Fifteenth Ave ↳	Fifteenth Ave ←	Fifteenth Ave ↴	TOTALS
07:00 TO 08:00	6	52	146	1	93	28	9	106	3	68	40	22	574
07:15 TO 08:15	6	50	168	3	106	26	12	124	3	87	43	21	649
07:30 TO 08:30	6	49	178	3	104	24	12	119	2	86	38	16	637
07:45 TO 08:45	4	50	146	3	88	21	11	91	1	89	48	21	573
08:00 TO 09:00	2	40	130	4	70	14	6	82	2	78	43	18	489

PEAK HOUR

Lights TIME PERIODS	Devonshire Rd ↲	Devonshire Rd ↓	Devonshire Rd ↳	Devonshire Rd ↰	Devonshire Rd ↑	Devonshire Rd ↱	Fifteenth Ave ↑	Fifteenth Ave →	Fifteenth Ave ↴	Fifteenth Ave ↳	Fifteenth Ave ←	Fifteenth Ave ↴	TOTALS
07:15 TO 08:15	6	50	168	3	106	26	12	124	3	87	43	21	649

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

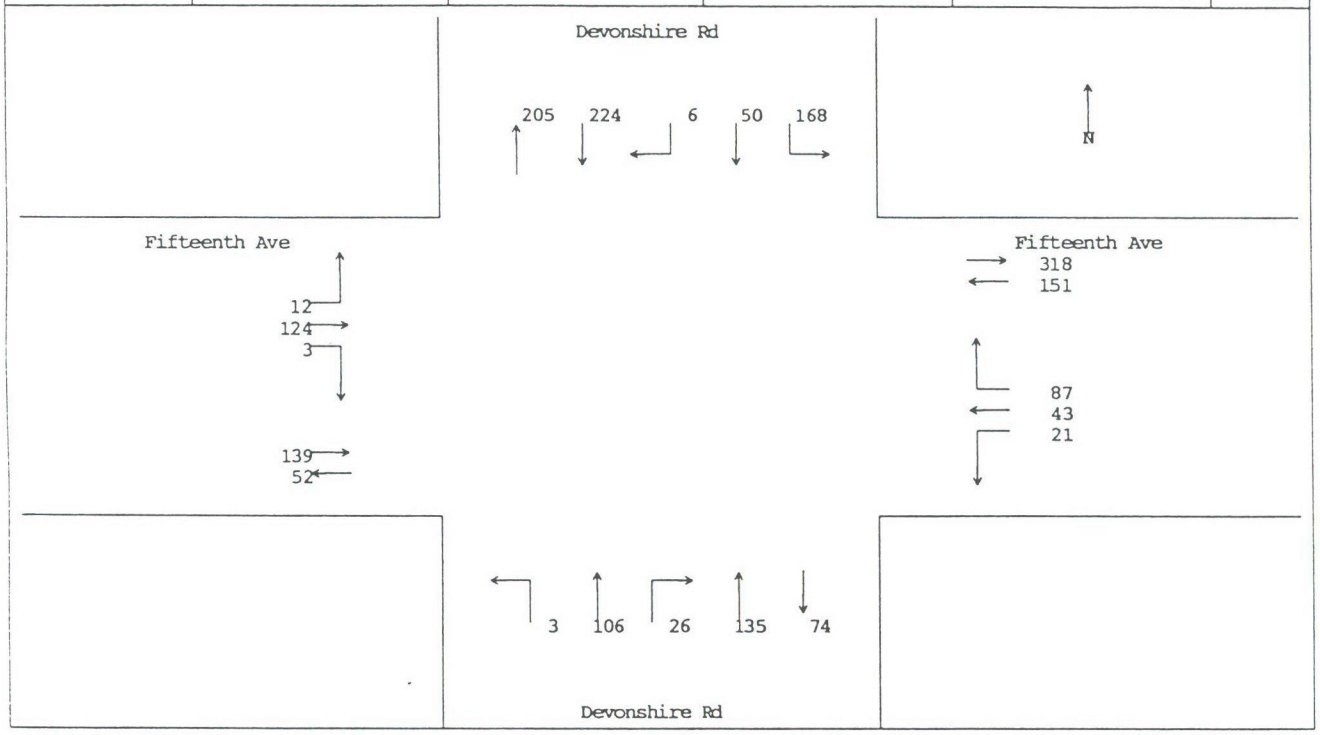
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152911
Location :Fifteenth Ave/Devonshire Rd
Client :Rust PPK
Surveyors :AK/IK

Day/Date :Tue 06 Jun 95
Suburb :Kemps Creek
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

Lights TIME PERIODS	Devonshire Rd			Devonshire Rd			Fifteenth Ave			Fifteenth Ave			TOTALS
07:15 TO 08:15	6	50	168	3	106	26	12	124	3	87	43	21	649



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152912
Location :Fifteenth Avenue / Cowpasture Road
Client :Rust PPK
Surveyors :ER/PG

Day/Date :Tue 30 May 95
Suburb :Hoxton Park
Job :Western Sydney Orbital Study
Weather :Fine

VEHICLES / TIME PERIODS	Cowpasture Road ↲	Cowpasture Road ↓	Cowpasture Road ↳	Cowpasture Road ↰	Cowpasture Road ↑	Cowpasture Road ↱	Fifteenth Avenue ↑	Fifteenth Avenue →	Fifteenth Avenue ↴	Hoxton Park Road ↑	Hoxton Park Road ←	Hoxton Park Road ↓	TOTALS
07:00 TO 07:15	9	49	36	7	115	23	17	94	1	52	21	4	428
07:15 TO 07:30	7	110	63	6	139	15	18	77	1	36	39	8	519
07:30 TO 07:45	8	73	47	2	185	11	20	83	9	47	40	8	533
07:45 TO 08:00	6	97	40	6	140	37	16	100	3	45	37	12	539
08:00 TO 08:15	7	88	39	7	130	28	16	92	3	35	46	8	499
08:15 TO 08:30	9	86	33	8	125	29	14	81	4	41	46	7	483
08:30 TO 08:45	9	88	56	10	137	22	22	79	1	43	38	11	516
08:45 TO 09:00	7	61	56	5	120	13	17	66	1	51	46	8	451
TOTALS	62	652	370	51	1091	178	140	672	23	350	313	66	3968

HOURLY FLOWS

VEHICLES / TIME PERIODS	Cowpasture Road ↲	Cowpasture Road ↓	Cowpasture Road ↳	Cowpasture Road ↰	Cowpasture Road ↑	Cowpasture Road ↱	Fifteenth Avenue ↑	Fifteenth Avenue →	Fifteenth Avenue ↴	Hoxton Park Road ↑	Hoxton Park Road ←	Hoxton Park Road ↓	TOTALS
07:00 TO 08:00	30	329	186	21	579	86	71	354	14	180	137	32	2019
07:15 TO 08:15	28	368	189	21	594	91	70	352	16	163	162	36	2090
07:30 TO 08:30	30	344	159	23	580	105	66	356	19	168	169	35	2054
07:45 TO 08:45	31	359	168	31	532	116	68	352	11	164	167	38	2037
08:00 TO 09:00	32	323	184	30	512	92	69	318	9	170	176	34	1949

PEAK HOUR

VEHICLES / TIME PERIODS	Cowpasture Road ↲	Cowpasture Road ↓	Cowpasture Road ↳	Cowpasture Road ↰	Cowpasture Road ↑	Cowpasture Road ↱	Fifteenth Avenue ↑	Fifteenth Avenue →	Fifteenth Avenue ↴	Hoxton Park Road ↑	Hoxton Park Road ←	Hoxton Park Road ↓	TOTALS
07:15 TO 08:15	28	368	189	21	594	91	70	352	16	163	162	36	2090

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

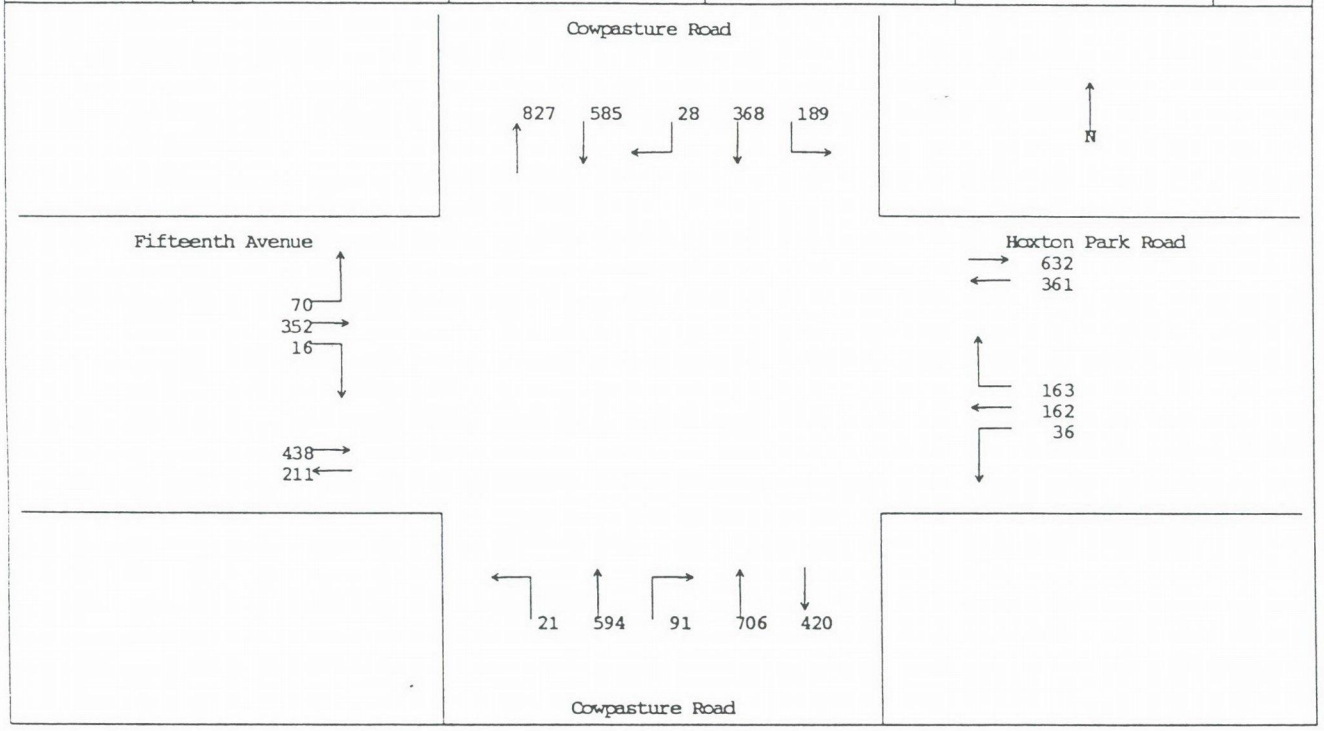
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152912
Location :Fifteenth Avenue / Cowpasture Road
Client :Rust PPK
Surveyors :ER/PG

Day/Date :Tue 30 May 95
Suburb :Hoxton Park
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

VEHICLES / TIME PERIODS	Cowpasture Road			Cowpasture Road			Fifteenth Avenue			Hoxton Park Road			TOTALS
07:15 TO 08:15	28	368	189	21	594	91	70	352	16	163	162	36	2090



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152913
Location :Hoxton Park Rd / Hume Highway
Client :Rust PPK
Surveyors :KR

Day/Date :Tue 06 Jun 95
Suburb :Liverpool
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Hume Highway ↙	Hume Highway ↓	Hume Highway ↘	Hume Highway ↖	Hume Highway ↑	Hume Highway ↗	Hoxton Park Road ↑	Hoxton Park Road →	Hoxton Park Road ↓	Terminus Road ↖	Terminus Road ←	Terminus Road ↙	TOTALS
07:00 TO 07:15	0	239	34	7	545	125	23	245	0	0	106	37	1361
07:15 TO 07:30	0	299	48	5	668	185	18	194	0	0	107	43	1567
07:30 TO 07:45	0	258	33	15	666	191	25	203	0	0	117	36	1544
07:45 TO 08:00	0	290	43	12	655	217	22	215	0	0	151	51	1656
08:00 TO 08:15	0	394	28	14	647	266	23	196	0	0	147	44	1759
08:15 TO 08:30	0	317	27	9	593	310	19	224	0	0	157	77	1733
08:30 TO 08:45	0	406	24	20	543	255	15	231	0	0	118	87	1699
08:45 TO 09:00	0	295	15	12	489	266	29	214	0	0	115	60	1495
TOTALS	0	2498	252	94	4806	1815	174	1722	0	0	1018	435	12814

HOURLY FLOWS

All Vehicles TIME PERIODS	Hume Highway ↙	Hume Highway ↓	Hume Highway ↘	Hume Highway ↖	Hume Highway ↑	Hume Highway ↗	Hoxton Park Road ↑	Hoxton Park Road →	Hoxton Park Road ↓	Terminus Road ↖	Terminus Road ←	Terminus Road ↙	TOTALS
07:00 TO 08:00	0	1086	158	39	2534	718	88	857	0	0	481	167	6128
07:15 TO 08:15	0	1241	152	46	2636	859	88	808	0	0	522	174	6526
07:30 TO 08:30	0	1259	131	50	2561	984	89	838	0	0	572	208	6692
07:45 TO 08:45	0	1407	122	55	2438	1048	79	866	0	0	573	259	6847
08:00 TO 09:00	0	1412	94	55	2272	1097	86	865	0	0	537	268	6686

PEAK HOUR

All Vehicles TIME PERIODS	Hume Highway ↙	Hume Highway ↓	Hume Highway ↘	Hume Highway ↖	Hume Highway ↑	Hume Highway ↗	Hoxton Park Road ↑	Hoxton Park Road →	Hoxton Park Road ↓	Terminus Road ↖	Terminus Road ←	Terminus Road ↙	TOTALS
07:45 TO 08:45	0	1407	122	55	2438	1048	79	866	0	0	573	259	6847

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

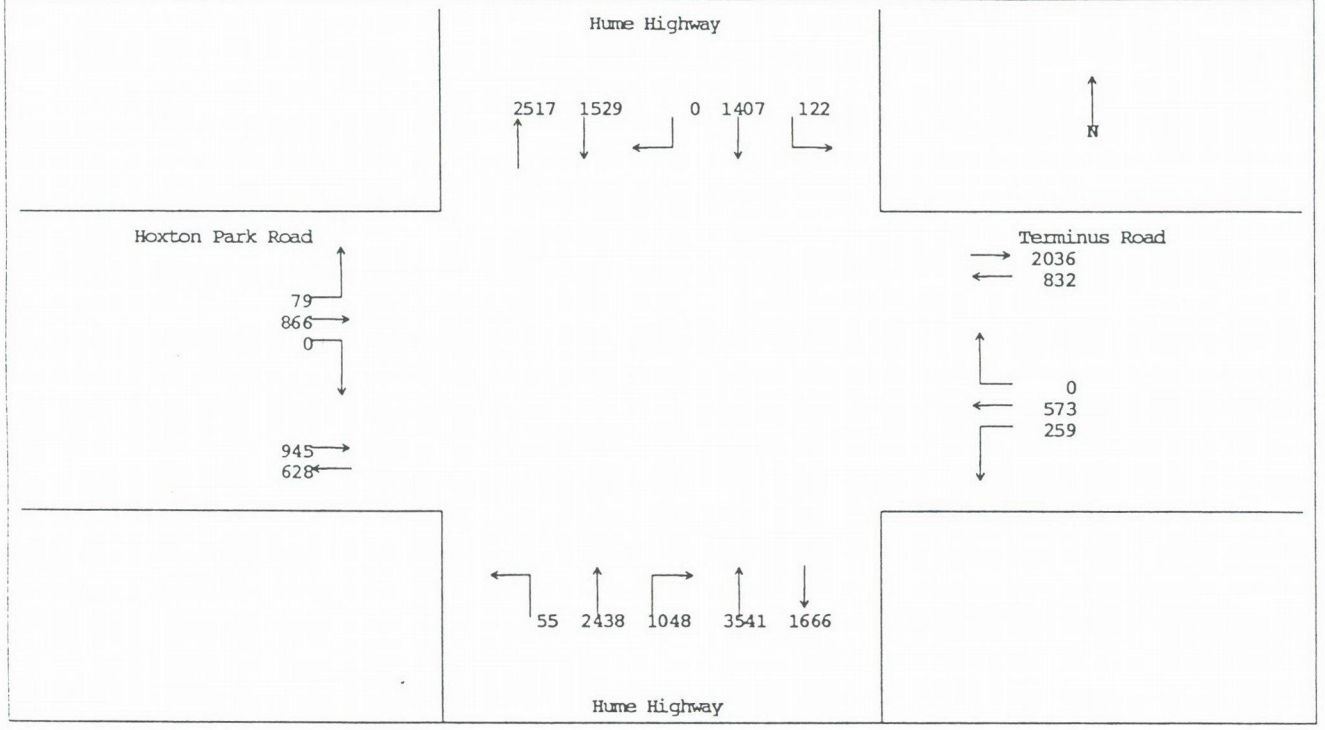
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152913
Location :Hoxton Park Rd / Hume Highway
Client :Rust PPK
Surveyors :KR

Day/Date :Tue 06 Jun 95
Suburb :Liverpool
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Hume Highway			Hume Highway			Hoxton Park Road			Terminus Road			TOTALS
07:45 TO 08:45	0	1407	122	55	2438	1048	79	866	0	0	573	259	6847



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152914
Location :Camden Valley Way / Raby Road
Client :Rust PPK
Surveyors :V P

Day/Date :Tue 06 Jun 95
Suburb :Leppington
Job :Western Sydney Orbital Study
Weather :Fine

VEHICLES / TIME PERIODS	Camden Valley Way ↓	Camden Valley Way ↳	Camden Valley Way ↑	Camden Valley Way ↱	Raby Road ↰	Raby Road ↓	TOTALS
07:00 TO 07:15	52	16	179	30	57	33	367
07:15 TO 07:30	71	15	294	35	77	34	526
07:30 TO 07:45	63	22	249	50	73	39	496
07:45 TO 08:00	82	26	262	47	87	57	561
08:00 TO 08:15	65	22	253	43	71	61	515
08:15 TO 08:30	93	32	201	81	49	51	507
08:30 TO 08:45	78	22	169	43	44	52	408
08:45 TO 09:00	92	14	129	39	32	49	355
TOTALS	596	169	1736	368	490	376	3735

HOURLY FLOWS

VEHICLES / TIME PERIODS	Camden Valley Way ↓	Camden Valley Way ↳	Camden Valley Way ↑	Camden Valley Way ↱	Raby Road ↰	Raby Road ↓	TOTALS
07:00 TO 08:00	268	79	984	162	294	163	1950
07:15 TO 08:15	281	85	1058	175	308	191	2098
07:30 TO 08:30	303	102	965	221	280	208	2079
07:45 TO 08:45	318	102	885	214	251	221	1991
08:00 TO 09:00	328	90	752	206	196	213	1785

PEAK HOUR

VEHICLES / TIME PERIODS	Camden Valley Way ↓	Camden Valley Way ↳	Camden Valley Way ↑	Camden Valley Way ↱	Raby Road ↰	Raby Road ↓	TOTALS
07:15 TO 08:15	281	85	1058	175	308	191	2098

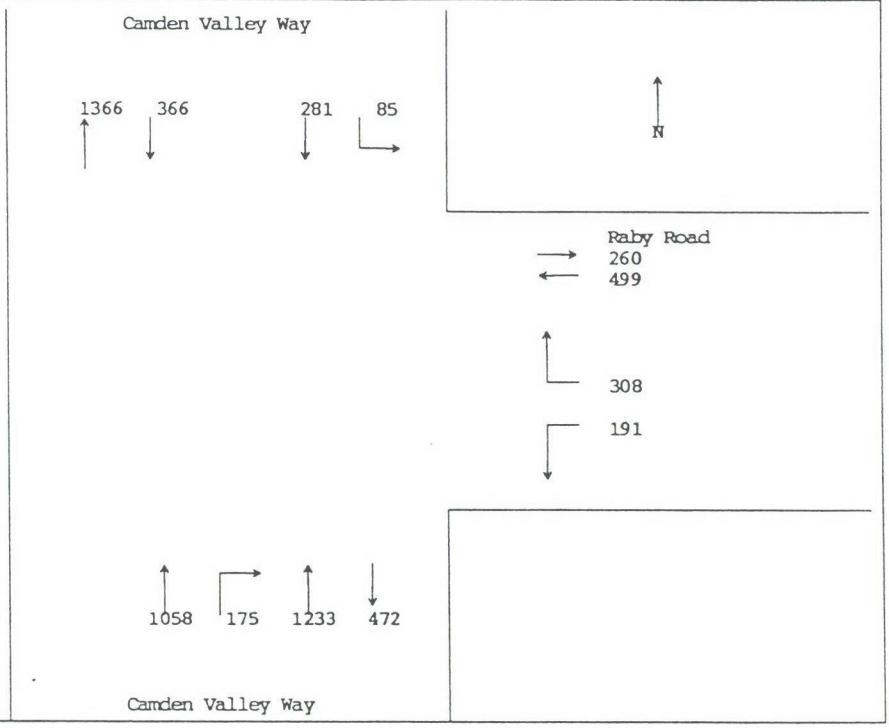
SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

e Name	:rp152914	Day/Date	:Tue 06 Jun 95
ation	:Camden Valley Way / Raby Road	Suburb	:Leppington
ent	:Rust PPK	Job	:Western Sydney Orbital Study
veyors	:V P	Weather	:Fine

PEAK HOUR

VEHICLES / TIME PERIODS	Camden Valley Way ↓	Camden Valley Way →	Camden Valley Way ↑	Camden Valley Way ↱	Raby Road ↰	Raby Road ↳	TOTALS
7:15 TO 08:15	281	85	1058	175	308	191	2098



ACCOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152915
Location :Camden Valley Way / Denham Court Road
Client :Rust PPK
Surveyors :G H

Day/Date :Wed 31 May 95
Suburb :Denham Court
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Camden Valley Way ↓	Camden Valley Way ↳	Camden Valley Way ↑	Camden Valley Way ↱	Denham Court Road ↰	Denham Court Road ↓	TOTALS
07:00 TO 07:15	63	27	245	30	15	14	394
07:15 TO 07:30	57	14	322	30	22	21	466
07:30 TO 07:45	90	8	369	35	21	23	546
07:45 TO 08:00	88	23	345	39	26	35	556
08:00 TO 08:15	82	22	338	36	14	32	524
08:15 TO 08:30	86	16	254	41	27	27	451
08:30 TO 08:45	97	19	229	25	27	16	413
08:45 TO 09:00	96	15	178	29	18	15	351
TOTALS	659	144	2280	265	170	183	3701

HOURLY FLOWS

All Vehicles TIME PERIODS	Camden Valley Way ↓	Camden Valley Way ↳	Camden Valley Way ↑	Camden Valley Way ↱	Denham Court Road ↰	Denham Court Road ↓	TOTALS
07:00 TO 08:00	298	72	1281	134	84	93	1962
07:15 TO 08:15	317	67	1374	140	83	111	2092
07:30 TO 08:30	346	69	1306	151	88	117	2077
07:45 TO 08:45	353	80	1166	141	94	110	1944
08:00 TO 09:00	361	72	999	131	86	90	1739

PEAK HOUR

All Vehicles TIME PERIODS	Camden Valley Way ↓	Camden Valley Way ↳	Camden Valley Way ↑	Camden Valley Way ↱	Denham Court Road ↰	Denham Court Road ↓	TOTALS
07:15 TO 08:15	317	67	1374	140	83	111	2092

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

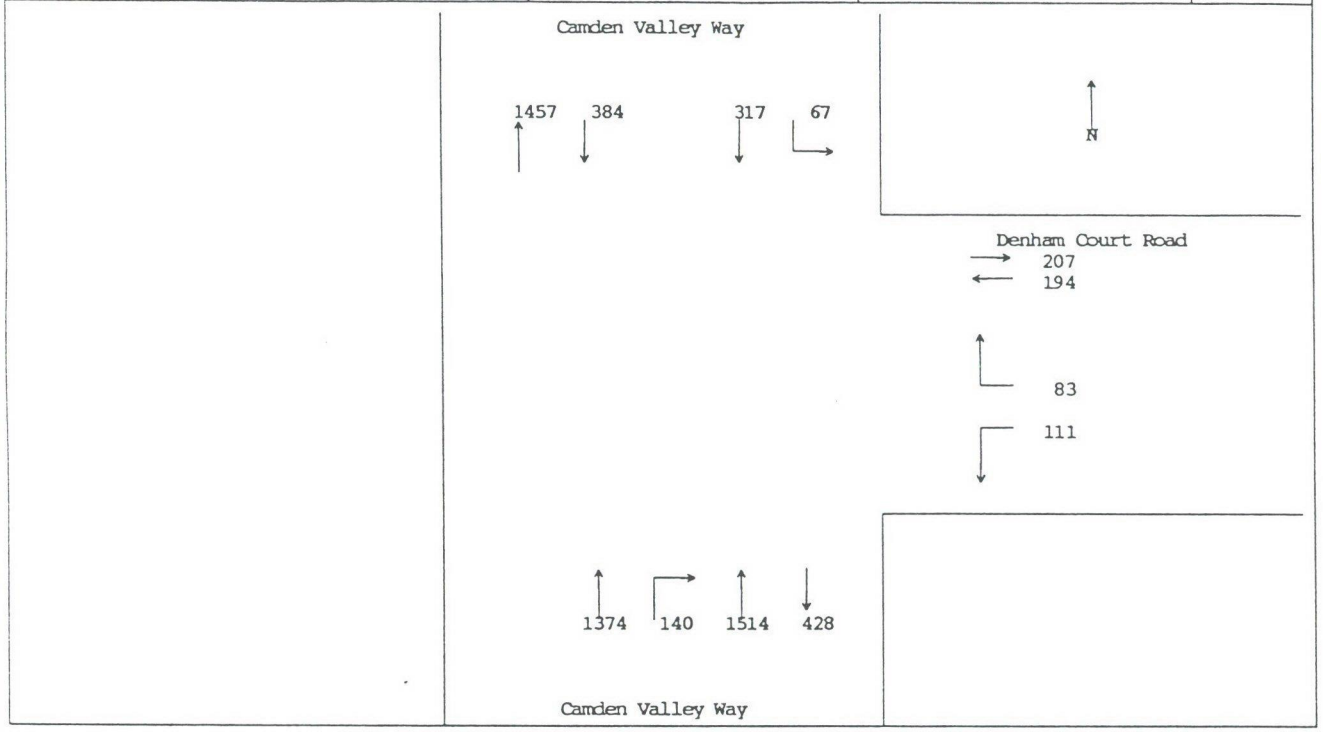
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152915
Location :Camden Valley Way / Denham Court Road
Client :Rust PPK
Surveyors :G H

Day/Date :Wed 31 May 95
Suburb :Denham Court
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Camden Valley Way ↓	Camden Valley Way ↳	Camden Valley Way ↑	Camden Valley Way ↱	Denham Court Road ↰	Denham Court Road ↲	TOTALS
07:15 TO 08:15	317	67	1374	140	83	111	2092



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152916
Location :Bringelly Road/ King St (Devonshire Road)
Client :Rust PPK
Surveyors :JP

Day/Date :Wed 31 May 95
Suburb :Leppington
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	King Street ↲	King Street ↳	Bringelly Road ↑	Bringelly Road →	Bringelly Road ↑	Bringelly Road ←	TOTALS
07:00 TO 07:15	6	6	1	78	10	36	137
07:15 TO 07:30	4	6	4	89	12	31	146
07:30 TO 07:45	3	12	2	92	11	28	148
07:45 TO 08:00	8	10	7	75	16	29	145
08:00 TO 08:15	5	9	7	80	9	31	141
08:15 TO 08:30	4	5	7	62	8	32	118
08:30 TO 08:45	6	5	8	56	7	26	108
08:45 TO 09:00	7	7	6	40	8	30	98
TOTALS	43	60	42	572	81	243	1041

HOURLY FLOWS

All Vehicles TIME PERIODS	King Street ↲	King Street ↳	Bringelly Road ↑	Bringelly Road →	Bringelly Road ↑	Bringelly Road ←	TOTALS
07:00 TO 08:00	21	34	14	334	49	124	576
07:15 TO 08:15	20	37	20	336	48	119	580
07:30 TO 08:30	20	36	23	309	44	120	552
07:45 TO 08:45	23	29	29	273	40	118	512
08:00 TO 09:00	22	26	28	238	32	119	465

PEAK HOUR

All Vehicles TIME PERIODS	King Street ↲	King Street ↳	Bringelly Road ↑	Bringelly Road →	Bringelly Road ↑	Bringelly Road ←	TOTALS
07:15 TO 08:15	20	37	20	336	48	119	580

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

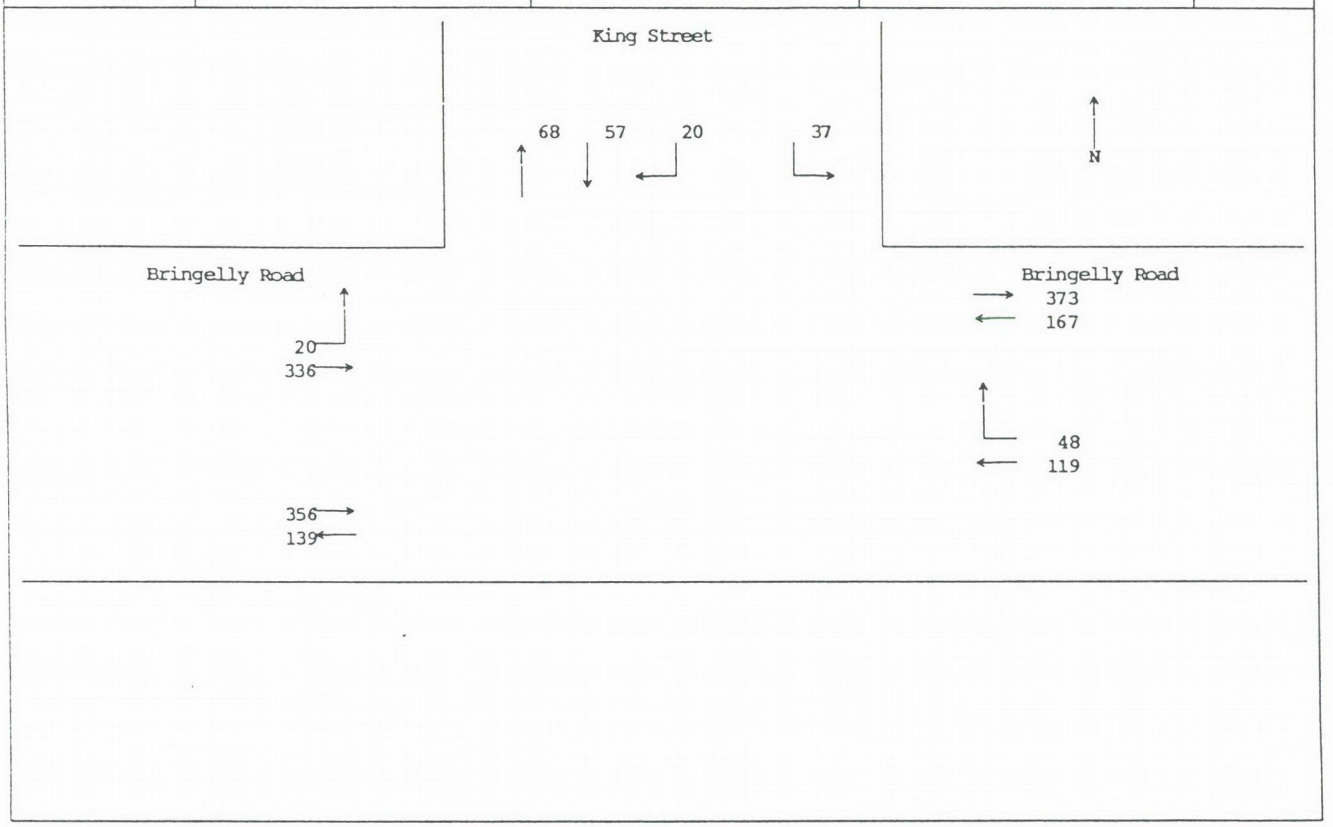
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152916
Location :Bringelly Road/ King St (Devonshire Road)
Client :Rust PPK
Surveyors :JP

Day/Date :Wed 31 May 95
Suburb :Leppington
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	King Street ↙	↘	Bringelly Road ↑	→	Bringelly Road ↑	←	TOTALS
07:15 TO 08:15	20	37	20	336	48	119	580



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152917
Location :Camden Valley Way / Bringelly Road
Client :Rust PPK
Surveyors :KM/ID

Day/Date :Wed 31 May 95
Suburb :Edmondson Park
Job :Western Sydney Orbital Survey
Weather :fine

VEHICLES / TIME PERIODS	Bringelly Road ↲	Bringelly Road ↳	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↑	Camden Valley Way ←	TOTALS
07:00 TO 07:15	7	66	15	165	52	44	349
07:15 TO 07:30	9	80	15	180	64	61	409
07:30 TO 07:45	4	86	18	182	53	44	387
07:45 TO 08:00	5	81	16	192	51	51	396
08:00 TO 08:15	1	95	19	179	43	42	379
08:15 TO 08:30	1	85	11	149	53	36	335
08:30 TO 08:45	3	68	6	128	44	50	299
08:45 TO 09:00	5	72	4	119	58	58	316
TOTALS	35	633	104	1294	418	386	2870

HOURLY FLOWS

VEHICLES / TIME PERIODS	Bringelly Road ↲	Bringelly Road ↳	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↑	Camden Valley Way ←	TOTALS
07:00 TO 08:00	25	313	64	719	220	200	1541
07:15 TO 08:15	19	342	68	733	211	198	1571
07:30 TO 08:30	11	347	64	702	200	173	1497
07:45 TO 08:45	10	329	52	648	191	179	1409
08:00 TO 09:00	10	320	40	575	198	186	1329

PEAK HOUR

VEHICLES / TIME PERIODS	Bringelly Road ↲	Bringelly Road ↳	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↑	Camden Valley Way ←	TOTALS
07:15 TO 08:15	19	342	68	733	211	198	1571

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

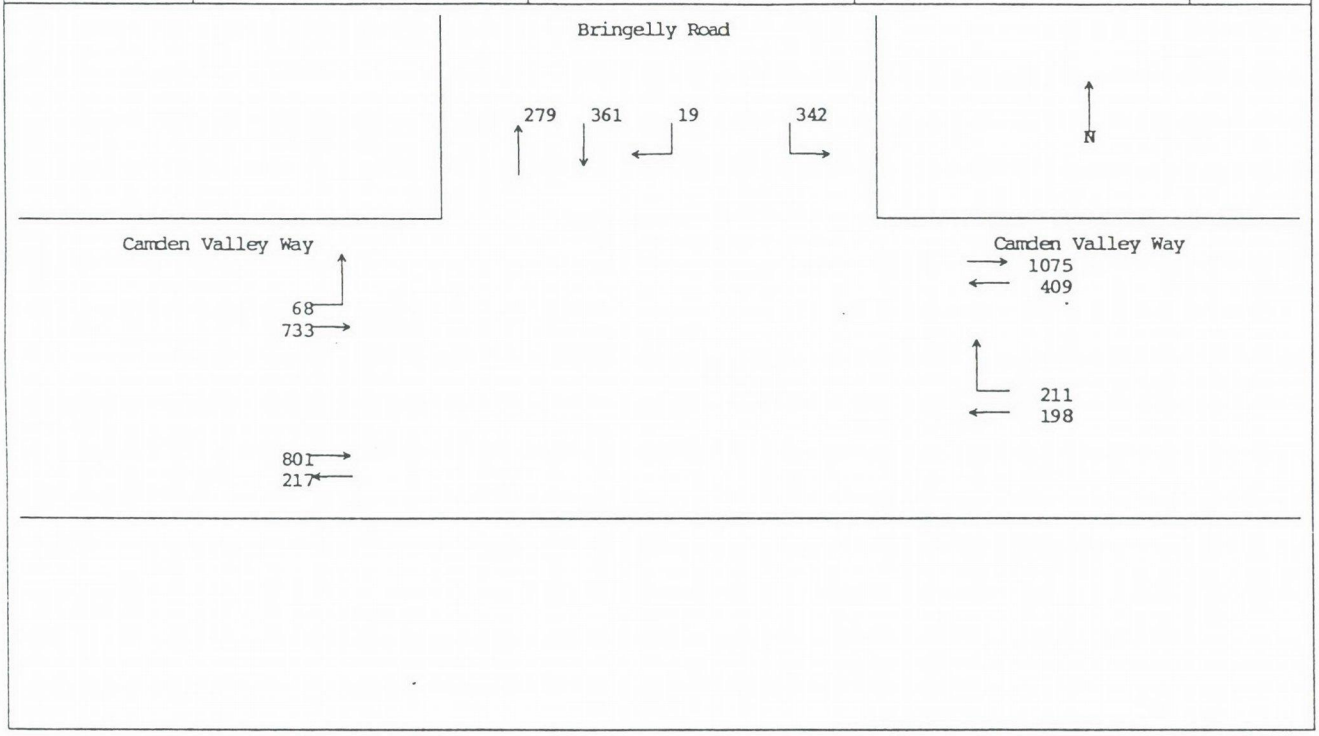
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152917
Location :Camden Valley Way / Bringelly Road
Client :Rust PPK
Surveyors :KM/ID

Day/Date :Wed 31 May 95
Suburb :Edmondson Park
Job :Western Sydney Orbital Survey
Weather :fine

PEAK HOUR

VEHICLES / TIME PERIODS	Bringelly Road ↙	Bringelly Road ↘	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↑	Camden Valley Way ←	TOTALS
07:15 TO 08:15	19	342	68	733	211	198	1571



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152919
Location :Camden Valley Way / Bernera Road
Client :Rust PPK
Surveyors :ML

Day/Date :Wed 07 Jun 95
Suburb :Emondson Park
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Bernera Road ↙	Bernera Road ↘	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↖	Camden Valley Way ←	TOTALS
07:00 TO 07:15	15	42	26	161	68	25	337
07:15 TO 07:30	11	44	38	170	84	38	385
07:30 TO 07:45	5	56	60	219	89	56	485
07:45 TO 08:00	3	57	79	259	111	86	595
08:00 TO 08:15	4	61	65	228	101	68	527
08:15 TO 08:30	14	59	52	192	102	77	496
08:30 TO 08:45	12	47	46	171	64	91	431
08:45 TO 09:00	8	31	47	141	68	96	391
TOTALS	72	397	413	1541	687	537	3647

HOURLY FLOWS

All Vehicles TIME PERIODS	Bernera Road ↙	Bernera Road ↘	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↖	Camden Valley Way ←	TOTALS
07:00 TO 08:00	34	199	203	809	352	205	1802
07:15 TO 08:15	23	218	242	876	385	248	1992
07:30 TO 08:30	26	233	256	898	403	287	2103
07:45 TO 08:45	33	224	242	850	378	322	2049
08:00 TO 09:00	38	198	210	732	335	332	1845

PEAK HOUR

All Vehicles TIME PERIODS	Bernera Road ↙	Bernera Road ↘	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↖	Camden Valley Way ←	TOTALS
07:30 TO 08:30	26	233	256	898	403	287	2103

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

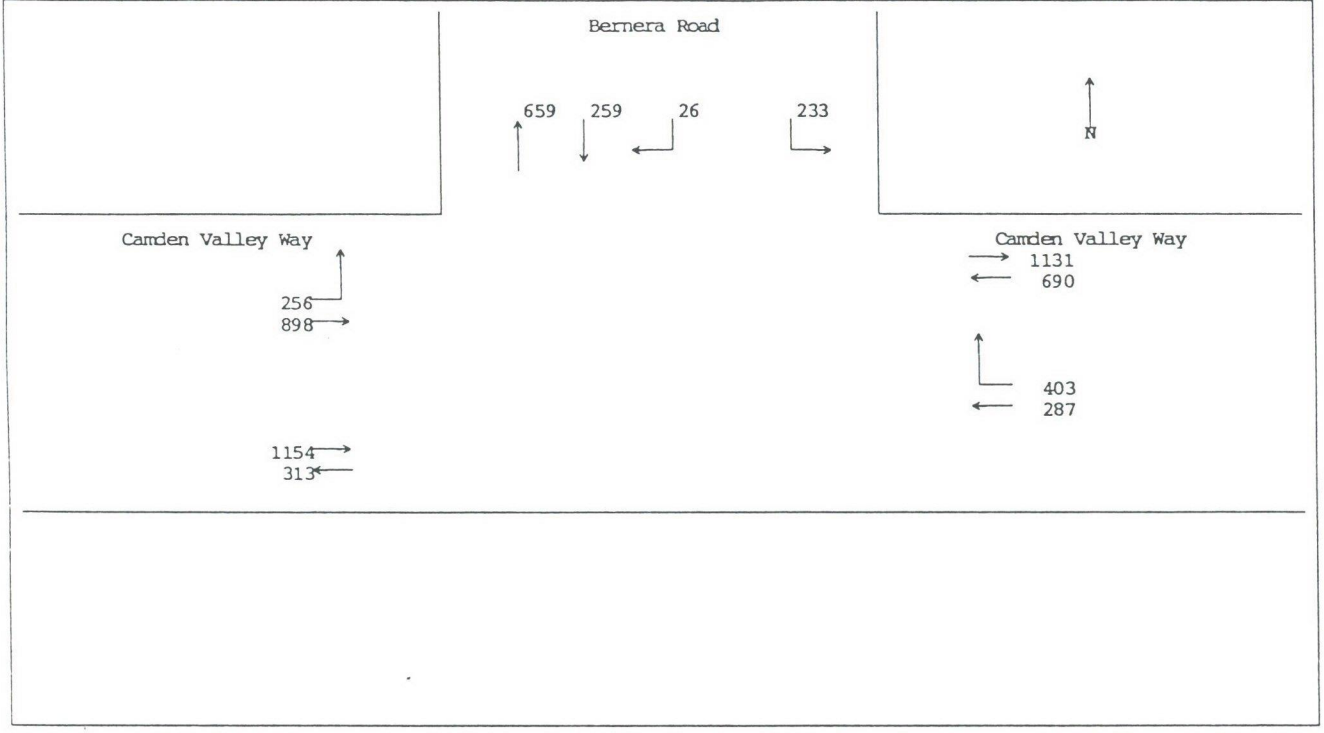
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152919
Location :Camden Valley Way / Bernera Road
Client :Rust PPK
Surveyors :ML

Day/Date :Wed 07 Jun 95
Suburb :Emondson Park
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Bernera Road ↙	Bernera Road ↘	Camden Valley Way ↑	Camden Valley Way →	Camden Valley Way ↑	Camden Valley Way ←	TOTALS
07:30 TO 08:30	26	233	256	898	403	287	2103



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152920
Location :Camden Valley Way / Hume Highway
Client :Rust PPK
Surveyors :KC

Day/Date :Tue 06 Jun 95
Suburb :Glenfield
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Hume Highway ↙	Hume Highway ↓	Campbelltown Road ↖	Campbelltown Road ↑	Camden Valley Way ↑	Camden Valley Way ↘	TOTALS
07:00 TO 07:15	20	210	49	250	223	90	842
07:15 TO 07:30	21	270	54	282	260	94	981
07:30 TO 07:45	41	255	53	319	266	80	1014
07:45 TO 08:00	32	281	77	116	416	93	1015
08:00 TO 08:15	34	293	76	380	408	89	1280
08:15 TO 08:30	36	298	74	325	373	92	1198
08:30 TO 08:45	38	296	72	211	268	88	973
08:45 TO 09:00	35	281	49	195	315	101	976
TOTALS	257	2184	504	2078	2529	727	8279

HOURLY FLOWS

All Vehicles TIME PERIODS	Hume Highway ↙	Hume Highway ↓	Campbelltown Road ↖	Campbelltown Road ↑	Camden Valley Way ↑	Camden Valley Way ↘	TOTALS
07:00 TO 08:00	114	1016	233	967	1165	357	3852
07:15 TO 08:15	128	1099	260	1097	1350	356	4290
07:30 TO 08:30	143	1127	280	1140	1463	354	4507
07:45 TO 08:45	140	1168	299	1032	1465	362	4466
08:00 TO 09:00	143	1168	271	1111	1364	370	4427

PEAK HOUR

All Vehicles TIME PERIODS	Hume Highway ↙	Hume Highway ↓	Campbelltown Road ↖	Campbelltown Road ↑	Camden Valley Way ↑	Camden Valley Way ↘	TOTALS
07:30 TO 08:30	143	1127	280	1140	1463	354	4507

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

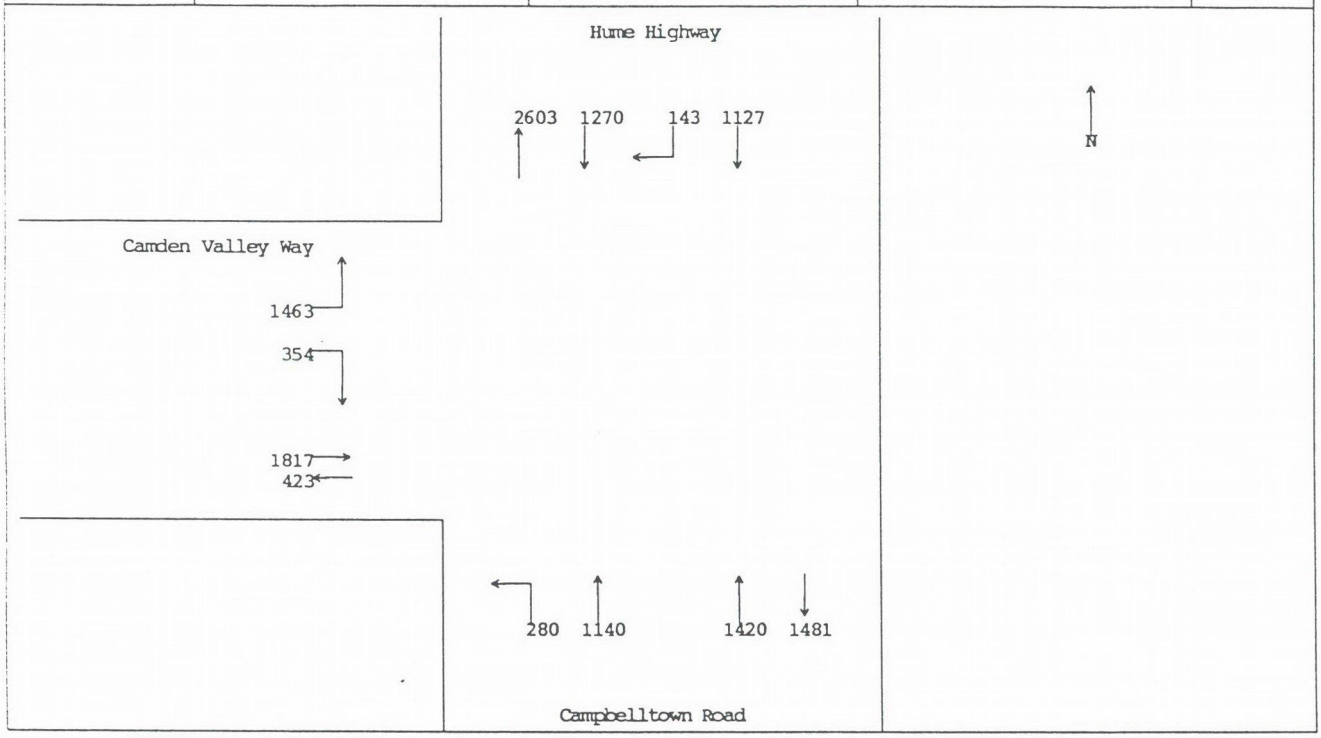
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152920
Location :Camden Valley Way / Hume Highway
Client :Rust PPK
Surveyors :KC

Day/Date :Tue 06 Jun 95
Suburb :Glenfield
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Hume Highway		Campbelltown Road		Camden Valley Way		TOTALS
07:30 TO 08:30	143	1127	280	1140	1463	354	4507



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152921
Location :Bernera Road / Kurrajong Rd
Client :Rusk PPK
Surveyors :HJ/KL

Day/Date :Wed 31 May 95
Suburb :Prestons
Job :Western Sydney Orbital Study
Weather :Fine

VEHICLES / TIME PERIODS	Bernera Rd ↙	Bernera Rd ↓	Bernera Rd ↳	Bernera Rd ↰	Bernera Rd ↑	Bernera Rd ↱	Kurrajong Rd ↑	Kurrajong Rd →	Kurrajong Rd ↓	Kurrajong Rd ↰	Kurrajong Rd ←	Kurrajong Rd ↲	TOTALS
07:00 TO 07:15	11	25	12	3	86	15	1	4	0	13	8	2	180
07:15 TO 07:30	11	25	21	6	101	11	4	8	2	15	9	0	213
07:30 TO 07:45	10	45	15	1	84	20	5	10	0	20	21	2	233
07:45 TO 08:00	13	53	26	1	126	26	2	12	0	20	14	2	295
08:00 TO 08:15	13	54	16	2	129	23	2	9	0	21	10	2	281
08:15 TO 08:30	26	50	18	2	112	16	10	7	1	25	17	1	285
08:30 TO 08:45	21	41	23	1	85	32	14	10	0	30	17	6	280
08:45 TO 09:00	21	46	31	0	99	25	10	12	1	16	15	4	280
TOTALS	126	339	162	16	822	168	48	72	4	160	111	19	2047

HOURLY FLOWS

VEHICLES / TIME PERIODS	Bernera Rd ↙	Bernera Rd ↓	Bernera Rd ↳	Bernera Rd ↰	Bernera Rd ↑	Bernera Rd ↱	Kurrajong Rd ↑	Kurrajong Rd →	Kurrajong Rd ↓	Kurrajong Rd ↰	Kurrajong Rd ←	Kurrajong Rd ↲	TOTALS
07:00 TO 08:00	45	148	74	11	397	72	12	34	2	68	52	6	921
07:15 TO 08:15	47	177	78	10	440	80	13	39	2	76	54	6	1022
07:30 TO 08:30	62	202	75	6	451	85	19	38	1	86	62	7	1094
07:45 TO 08:45	73	198	83	6	452	97	28	38	1	96	58	11	1141
08:00 TO 09:00	81	191	88	5	425	96	36	38	2	92	59	13	1126

PEAK HOUR

VEHICLES / TIME PERIODS	Bernera Rd ↙	Bernera Rd ↓	Bernera Rd ↳	Bernera Rd ↰	Bernera Rd ↑	Bernera Rd ↱	Kurrajong Rd ↑	Kurrajong Rd →	Kurrajong Rd ↓	Kurrajong Rd ↰	Kurrajong Rd ←	Kurrajong Rd ↲	TOTALS
07:45 TO 08:45	73	198	83	6	452	97	28	38	1	96	58	11	1141

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

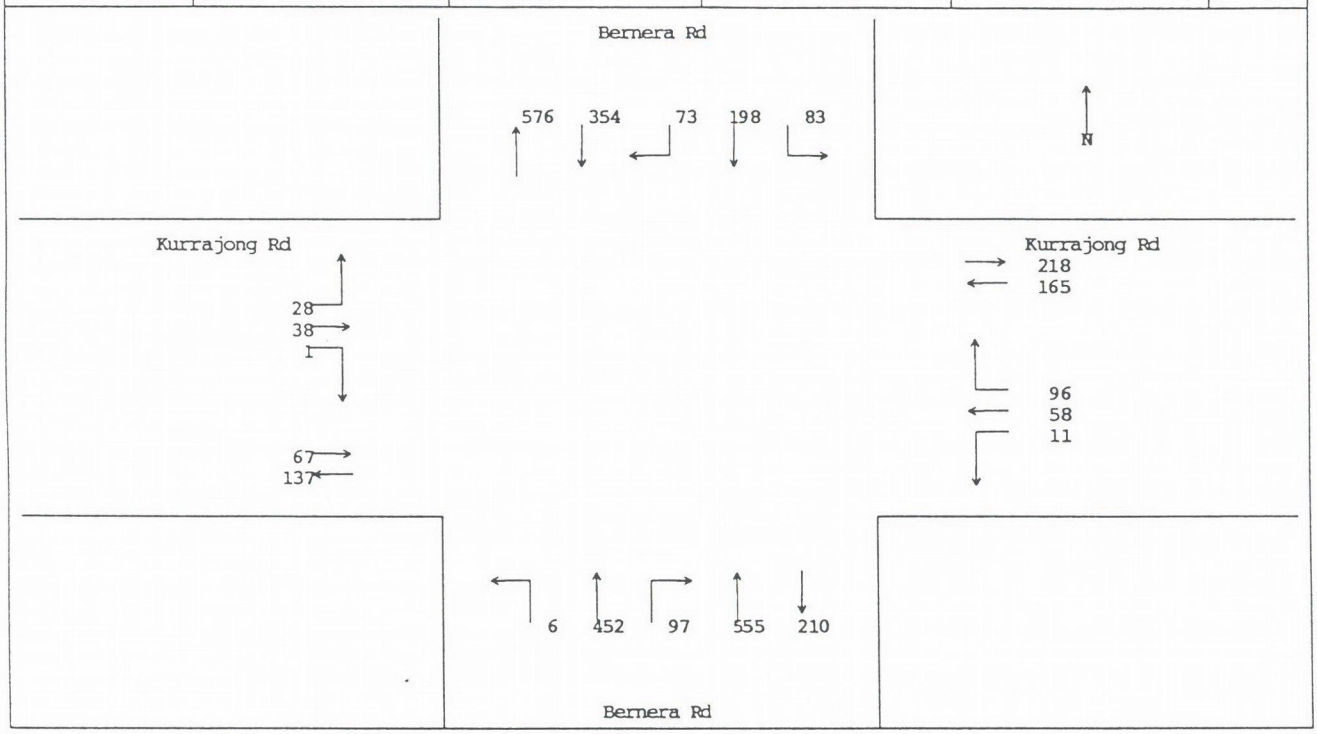
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :RP152921
Location :Bernera Road / Kurrajong Rd
Client :Rusk PPK
Surveyors :HJ/KL

Day/Date :Wed 31 May 95
Suburb :Prestons
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

VEHICLES / TIME PERIODS	Bernera Rd			Bernera Rd			Kurrajong Rd			Kurrajong Rd			TOTALS
07:45 TO 08:45	73	198	83	6	452	97	28	38	1	96	58	11	1141



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

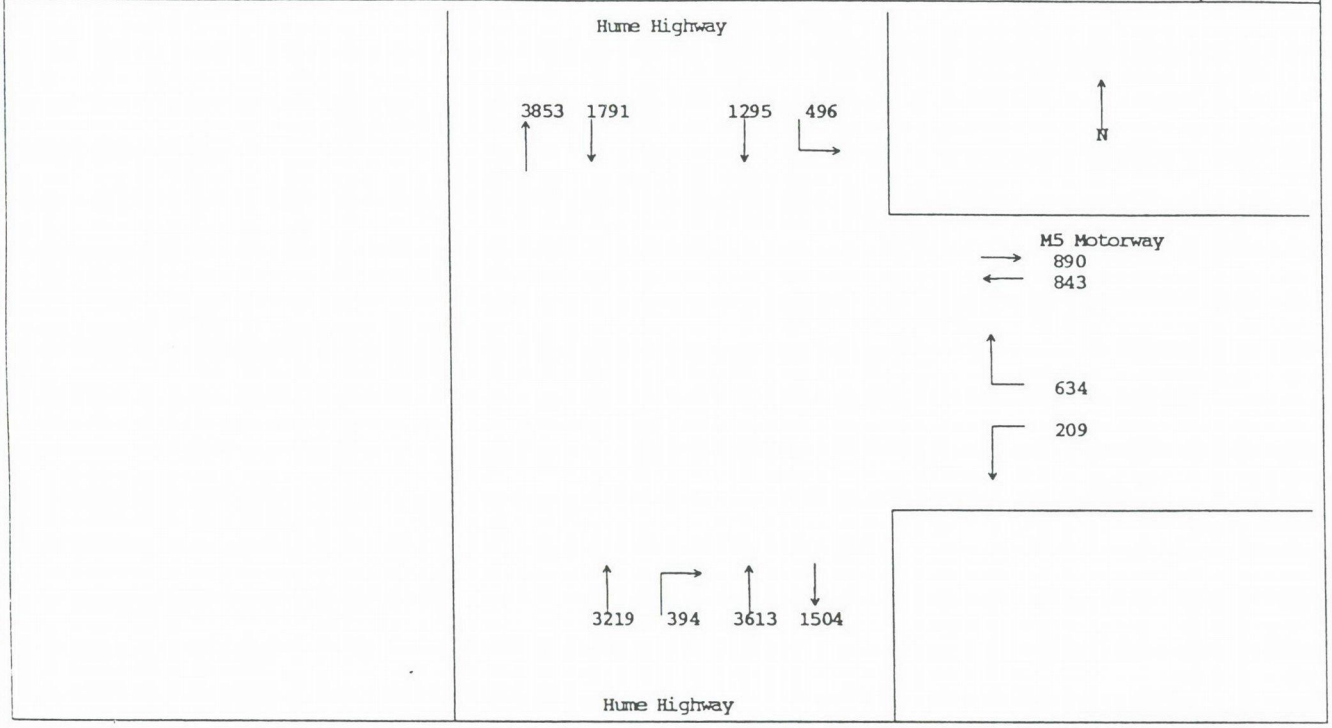
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152922
Location :Hume Highway / M5 Motorway
Client :Rust PPK
Surveyors :AF

Day/Date :Thu 08 Jun 95
Suburb :Casula
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Hume Highway ↓	Hume Highway ↳	Hume Highway ↑	Hume Highway ↱	M5 Motorway ↑	M5 Motorway ↓	TOTALS
07:45 TO 08:45	1295	496	3219	394	634	209	6247



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152922
Location :Hume Highway / M5 Motorway
Client :Rust PPK
Surveyors :AF

Day/Date :Thu 08 Jun 95
Suburb :Casula
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Hume Highway ↓	Hume Highway ↳	Hume Highway ↑	Hume Highway ↱	M5 Motorway ↰	M5 Motorway ↓	TOTALS
07:00 TO 07:15	203	121	765	88	102	26	1305
07:15 TO 07:30	214	145	968	84	108	24	1543
07:30 TO 07:45	268	114	792	97	114	33	1418
07:45 TO 08:00	298	133	866	119	179	43	1638
08:00 TO 08:15	299	136	849	102	142	38	1566
08:15 TO 08:30	369	126	793	95	161	68	1612
08:30 TO 08:45	329	101	711	78	152	60	1431
08:45 TO 09:00	291	93	660	67	82	40	1233
TOTALS	2271	969	6404	730	1040	332	11746

HOURLY FLOWS

All Vehicles TIME PERIODS	Hume Highway ↓	Hume Highway ↳	Hume Highway ↑	Hume Highway ↱	M5 Motorway ↰	M5 Motorway ↓	TOTALS
07:00 TO 08:00	983	513	3391	388	503	126	5904
07:15 TO 08:15	1079	528	3475	402	543	138	6165
07:30 TO 08:30	1234	509	3300	413	596	182	6234
07:45 TO 08:45	1295	496	3219	394	634	209	6247
08:00 TO 09:00	1288	456	3013	342	537	206	5842

PEAK HOUR

All Vehicles TIME PERIODS	Hume Highway ↓	Hume Highway ↳	Hume Highway ↑	Hume Highway ↱	M5 Motorway ↰	M5 Motorway ↓	TOTALS
07:45 TO 08:45	1295	496	3219	394	634	209	6247

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152923
Location :Campbelltown Road / Glenfield Road
Client :Rust PPK
Surveyors :Al

Day/Date :Wed 07 Jun 95
Suburb :The Cross Roads
Job :Western Sydney Orbital Study
Weather :Fine

All Vehicles TIME PERIODS	Campbelltown Road ↓	Campbelltown Road ↳	Campbelltown Road ↑	Campbelltown Road ↱	Glenfield Road ↰	Glenfield Road ↓	TOTALS
07:00 TO 07:15	220	71	179	10	128	10	618
07:15 TO 07:30	317	88	329	5	149	11	899
07:30 TO 07:45	289	63	240	3	153	10	758
07:45 TO 08:00	296	79	268	6	130	11	790
08:00 TO 08:15	341	91	252	5	158	8	855
08:15 TO 08:30	333	110	178	9	124	10	764
08:30 TO 08:45	316	111	178	7	90	8	710
08:45 TO 09:00	253	67	134	7	82	11	554
TOTALS	2365	680	1758	52	1014	79	5948

HOURLY FLOWS

All Vehicles TIME PERIODS	Campbelltown Road ↓	Campbelltown Road ↳	Campbelltown Road ↑	Campbelltown Road ↱	Glenfield Road ↰	Glenfield Road ↓	TOTALS
07:00 TO 08:00	1122	301	1016	24	560	42	3065
07:15 TO 08:15	1243	321	1089	19	590	40	3302
07:30 TO 08:30	1259	343	938	23	565	39	3167
07:45 TO 08:45	1286	391	876	27	502	37	3119
08:00 TO 09:00	1243	379	742	28	454	37	2883

PEAK HOUR

All Vehicles TIME PERIODS	Campbelltown Road ↓	Campbelltown Road ↳	Campbelltown Road ↑	Campbelltown Road ↱	Glenfield Road ↰	Glenfield Road ↓	TOTALS
07:15 TO 08:15	1243	321	1089	19	590	40	3302

SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

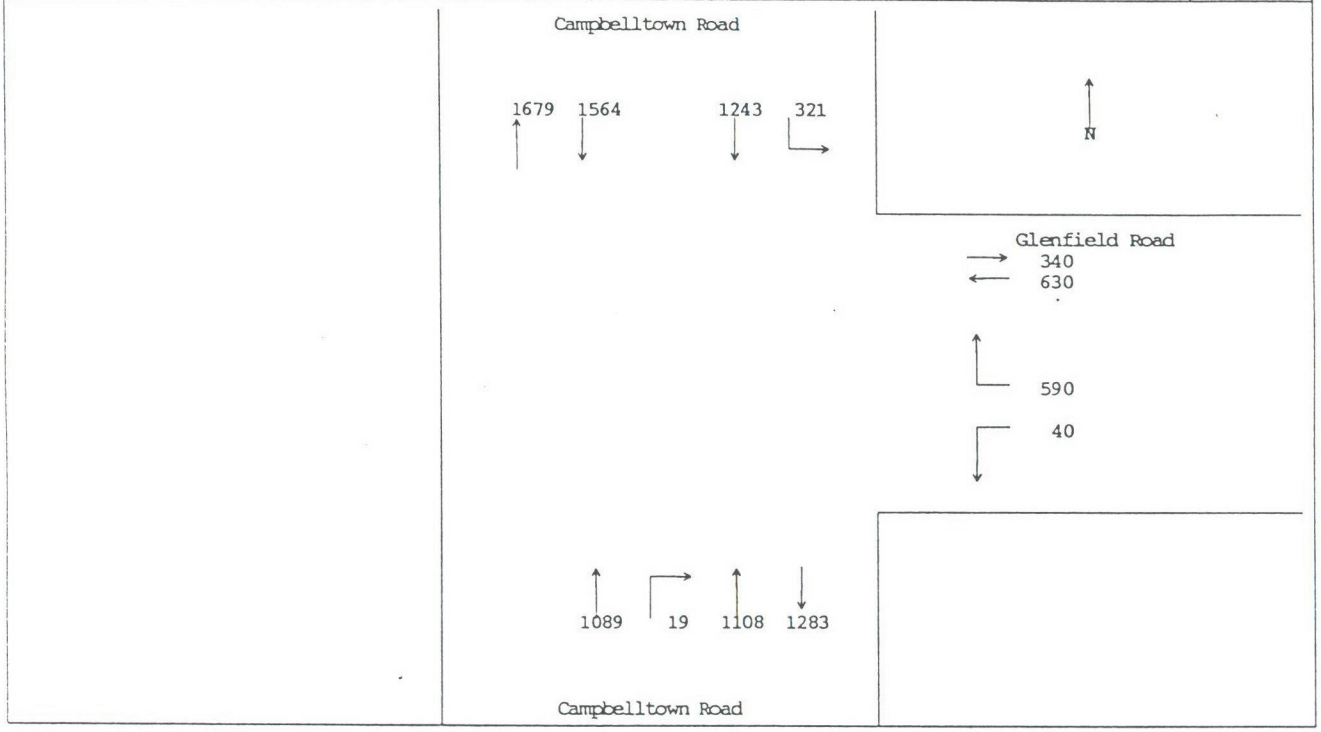
TRAFFIC AND TRANSPORT SURVEYS PTY LTD

File Name :rp152923
Location :Campbelltown Road / Glenfield Road
Client :Rust PPK
Surveyors :Al

Day/Date :Wed 07 Jun 95
Suburb :The Cross Roads
Job :Western Sydney Orbital Study
Weather :Fine

PEAK HOUR

All Vehicles TIME PERIODS	Campbelltown Road ↓	Campbelltown Road ↑	Glenfield Road ↑	Glenfield Road ↓	TOTALS
07:15 TO 08:15	1243 321	1089 19	590	40	3302



SUPACOUNT : - Data Analysis Software By ACCELERATION SOFTWARE

SECTION 3

Elizabeth Drive Classified Counts

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Thu 8.6.95 to Wed 21.6.95
Direction : Westbound Average

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	5.5	0.0	0.0	0.1	0.0	6
02:00	2.1	0.1	0.0	0.0	0.1	2
03:00	1.4	0.0	0.0	0.1	0.1	2
04:00	1.6	0.0	0.1	0.0	0.0	2
05:00	1.1	0.0	0.1	0.0	0.0	1
06:00	4.0	0.0	0.2	0.1	0.1	4
07:00	12.7	0.1	0.3	0.0	0.2	13
08:00	32.7	0.2	1.1	0.8	0.4	35
09:00	73.7	0.4	3.4	2.4	1.2	81
10:00	111.5	0.5	4.9	4.0	2.8	124
11:00	139.4	0.4	5.4	3.9	1.4	150
12:00	155.6	0.5	5.9	3.6	1.9	168
13:00	161.2	0.4	5.0	3.4	2.3	172
14:00	160.3	0.1	5.7	3.4	2.1	172
15:00	163.0	0.1	4.6	4.1	2.6	174
16:00	217.6	0.3	6.1	3.9	3.3	231
17:00	260.6	0.4	7.4	5.4	4.2	278
18:00	266.6	0.2	4.7	2.9	3.3	278
19:00	171.8	0.4	1.7	1.9	1.6	177
20:00	75.6	0.1	0.5	0.6	0.7	78
21:00	36.3	0.0	0.2	0.1	0.1	37
22:00	28.1	0.0	0.1	0.1	0.1	29
23:00	17.9	0.0	0.4	0.0	0.0	18
24:00	10.5	0.0	0.1	0.0	0.0	11
Totals	2,111.1	4.3	57.9	40.6	28.5	2,242

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Thu 8.6.95 to Wed 21.6.95
Direction : Eastbound Average

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	10.1	0.0	0.3	0.3	0.1	11
02:00	7.7	0.0	0.4	0.2	0.1	8
03:00	4.8	0.0	0.4	0.2	0.0	5
04:00	7.9	0.0	0.1	0.1	0.1	8
05:00	10.4	0.0	1.6	1.2	0.1	13
06:00	63.6	0.2	5.1	4.7	4.1	78
07:00	161.2	0.4	4.2	3.4	9.9	179
08:00	207.6	0.5	4.3	3.8	13.4	230
09:00	156.4	0.6	3.6	4.1	8.6	173
10:00	105.9	0.6	3.4	3.4	3.4	117
11:00	107.9	0.1	5.1	3.5	3.1	120
12:00	105.9	0.6	5.4	4.3	3.9	120
13:00	109.8	0.4	3.4	3.4	3.8	121
14:00	119.9	0.6	5.0	3.1	3.2	132
15:00	131.1	0.9	4.6	3.7	3.7	144
16:00	138.8	0.4	5.0	4.0	3.8	152
17:00	161.8	0.1	3.9	2.9	3.7	172
18:00	135.7	0.3	1.2	1.4	2.9	142
19:00	75.9	0.1	1.6	1.5	1.4	80
20:00	50.3	0.1	0.6	0.4	0.8	52
21:00	37.0	0.0	0.2	0.1	0.4	38
22:00	29.6	0.0	0.6	0.3	0.5	31
23:00	27.0	0.0	0.6	0.2	0.3	28
24:00	15.9	0.1	0.6	0.3	0.2	17
Totals	1,982.2	6.1	61.1	50.6	71.4	2,171.4

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 8.6.95 to Tue 27.6.95
Direction : Westbound Average

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	45.7	0.0	0.5	0.3	0.1	47
02:00	19.4	0.0	1.3	0.2	0.2	21
03:00	12.7	0.0	0.4	0.1	0.0	13
04:00	12.8	0.0	0.8	0.7	0.2	15
05:00	17.8	0.0	2.3	0.7	0.2	21
06:00	82.2	0.1	3.6	1.5	1.3	89
07:00	261.1	0.2	10.9	3.3	3.8	279
08:00	329.1	0.6	12.8	3.9	6.0	352
09:00	299.2	0.9	17.0	8.8	7.1	333
10:00	278.6	0.8	15.4	9.5	8.6	313
11:00	306.9	0.4	17.1	8.4	8.4	341
12:00	337.7	0.9	12.7	7.1	7.9	366
13:00	293.9	0.6	15.4	7.7	10.4	328
14:00	334.6	0.3	16.4	9.2	10.3	371
15:00	338.0	0.5	17.7	6.7	8.4	371
16:00	480.8	0.7	16.2	8.8	10.6	517
17:00	584.4	0.5	16.7	7.2	12.7	622
18:00	675.3	0.7	18.8	6.8	11.7	713
19:00	449.5	0.6	7.7	1.9	3.1	463
20:00	257.8	0.2	5.2	1.1	1.3	266
21:00	154.0	0.1	2.1	1.3	0.6	158
22:00	130.9	0.0	2.4	0.4	1.0	135
23:00	105.1	0.0	2.5	0.9	0.6	109
24:00	68.1	0.0	1.2	0.2	0.5	70
Totals	5,875.6	8.1	217.1	96.7	115.0	6,313

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 8.6.95 to Tue 27.6.95
Direction : Eastbound Average

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	27.4	0.1	0.9	1.2	0.0	30
02:00	18.7	0.1	2.2	0.5	0.1	22
03:00	13.4	0.0	1.4	0.9	0.6	16
04:00	16.6	0.1	2.0	0.8	0.2	20
05:00	23.3	0.2	4.5	2.1	0.4	31
06:00	132.2	1.1	10.4	8.9	3.2	156
07:00	282.5	1.4	16.7	10.5	7.6	319
08:00	407.6	1.3	15.8	7.9	9.9	443
09:00	379.5	0.4	13.8	9.8	8.3	412
10:00	273.7	2.2	12.7	11.2	5.8	306
11:00	255.8	0.4	13.7	11.6	6.8	288
12:00	266.5	1.1	14.5	11.2	7.0	300
13:00	254.8	1.3	12.6	10.5	6.1	285
14:00	256.5	1.2	14.4	9.9	7.4	289
15:00	290.1	2.1	13.4	9.6	7.2	322
16:00	335.1	1.6	13.1	9.3	7.7	367
17:00	394.6	1.9	9.2	5.2	6.2	417
18:00	377.1	0.9	6.4	3.7	4.0	392
19:00	236.1	1.1	4.9	2.3	2.0	246
20:00	153.6	0.4	2.9	1.9	0.6	159
21:00	100.9	0.3	1.7	1.7	0.4	105
22:00	78.0	0.2	2.1	1.7	0.4	82
23:00	62.2	0.3	0.9	1.6	0.3	65
24:00	42.2	0.0	1.9	1.3	0.1	46
Totals	4,678.8	19.4	192.2	135.5	92.3	5,118

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Thu 8.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	1	0	0	0	1
03:00	3	0	0	0	1	4
04:00	0	0	0	0	0	0
05:00	2	0	1	0	0	3
06:00	4	0	0	0	0	4
07:00	7	1	0	0	0	8
08:00	8	0	0	0	0	8
09:00	19	0	1	0	0	20
10:00	54	1	1	0	2	58
11:00	29	0	1	0	1	31
12:00	83	0	7	6	2	98
13:00	150	0	3	0	3	156
14:00	135	0	5	8	0	148
15:00	162	0	3	5	3	173
16:00	220	1	7	5	6	239
17:00	330	1	9	7	8	355
18:00	334	0	3	4	5	346
19:00	185	1	7	1	2	196
20:00	93	0	0	1	1	95
21:00	62	0	0	0	1	63
22:00	22	0	1	0	0	23
23:00	13	0	0	0	0	13
24:00	7	0	0	0	0	7
Totals	1922	6	49	37	35	2049

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Thu 8.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	9	0	1	1	0	11
02:00	4	0	0	0	0	4
03:00	8	0	0	1	0	9
04:00	11	0	0	0	0	11
05:00	8	0	2	0	1	11
06:00	75	0	8	9	11	103
07:00	217	1	5	5	18	246
08:00	303	1	5	6	21	336
09:00	193	0	5	5	18	221
10:00	112	1	5	4	8	130
11:00	108	0	11	8	1	128
12:00	90	0	12	8	1	111
13:00	78	1	6	4	3	92
14:00	122	0	6	3	3	134
15:00	113	1	3	7	3	127
16:00	124	0	2	2	3	131
17:00	152	0	8	3	1	164
18:00	140	1	1	1	4	147
19:00	68	0	1	2	1	72
20:00	53	1	0	0	0	54
21:00	31	0	0	0	2	33
22:00	39	0	2	1	1	43
23:00	23	0	0	0	0	23
24:00	12	0	1	1	0	14
Totals	2093	7	84	71	100	2355

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Fri 9.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	1	0	0	0	0	1
03:00	0	0	0	0	0	0
04:00	1	0	0	0	0	1
05:00	3	0	0	0	0	3
06:00	14	0	0	1	1	16
07:00	28	1	0	0	2	31
08:00	105	0	11	5	4	125
09:00	169	1	9	5	4	188
10:00	141	0	6	2	3	152
11:00	143	0	12	2	2	159
12:00	166	0	6	5	2	179
13:00	197	1	6	1	5	210
14:00	200	0	8	3	2	213
15:00	215	0	4	2	1	222
16:00	324	0	3	3	6	336
17:00	380	0	6	0	4	390
18:00	410	0	6	8	3	427
19:00	282	0	2	2	2	288
20:00	153	1	2	2	1	159
21:00	69	0	1	1	0	71
22:00	53	0	0	2	0	55
23:00	27	0	2	0	0	29
24:00	17	0	0	0	0	17
Totals	3098	4	84	44	42	3272

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Fri 9.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	8	0	0	1	1	10
02:00	9	0	2	0	0	11
03:00	3	0	0	0	0	3
04:00	11	0	0	1	0	12
05:00	12	0	2	1	0	15
06:00	92	0	8	8	6	114
07:00	270	0	9	7	13	299
08:00	306	0	7	4	21	338
09:00	241	2	7	2	13	265
10:00	117	1	6	6	3	133
11:00	129	0	7	4	2	142
12:00	108	1	8	2	4	123
13:00	112	0	6	7	1	126
14:00	128	1	6	5	5	145
15:00	131	3	8	6	3	151
16:00	136	2	5	6	4	153
17:00	136	0	4	4	1	145
18:00	139	1	3	0	0	143
19:00	91	0	2	1	1	95
20:00	68	0	0	0	0	68
21:00	50	0	0	0	0	50
22:00	40	0	2	0	0	42
23:00	29	0	0	0	1	30
24:00	21	0	1	0	0	22
Totals	2387	11	93	65	79	2635

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sat 10.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	9	0	0	1	0	10
02:00	1	0	0	0	0	1
03:00	1	0	0	1	1	3
04:00	6	0	1	0	0	7
05:00	2	0	0	0	0	2
06:00	2	0	1	0	0	3
07:00	34	0	3	0	0	37
08:00	60	0	2	2	1	65
09:00	117	0	6	6	3	132
10:00	130	0	0	6	4	140
11:00	175	0	2	5	1	183
12:00	190	1	3	2	2	198
13:00	180	0	3	5	4	192
14:00	202	0	6	1	1	210
15:00	185	0	1	4	1	191
16:00	199	0	4	1	3	207
17:00	179	0	4	1	1	185
18:00	129	0	0	2	0	131
19:00	94	0	2	0	1	97
20:00	38	0	0	0	0	38
21:00	21	0	1	0	0	22
22:00	13	0	0	0	0	13
23:00	10	0	0	0	0	10
24:00	12	0	0	0	0	12
Totals	1989	1	39	37	23	2089

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sat 10.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	14	0	0	0	0	14
02:00	15	0	0	0	0	15
03:00	4	0	1	0	0	5
04:00	8	0	0	0	0	8
05:00	7	0	0	0	0	7
06:00	48	0	3	2	2	55
07:00	74	0	1	4	3	82
08:00	84	0	2	3	7	96
09:00	111	0	4	4	3	122
10:00	125	0	2	4	3	134
11:00	122	0	1	2	3	128
12:00	120	0	3	6	1	130
13:00	114	0	2	0	5	121
14:00	129	1	3	0	2	135
15:00	115	0	4	2	2	123
16:00	142	0	1	1	1	145
17:00	141	0	3	1	3	148
18:00	104	0	2	0	2	108
19:00	89	0	2	1	1	93
20:00	48	0	0	0	2	50
21:00	27	0	0	0	0	27
22:00	25	0	0	0	1	26
23:00	40	0	0	0	1	41
24:00	22	0	2	0	0	24
Totals	1728	1	36	30	42	1837

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sun 11.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	15	0	0	0	0	15
02:00	5	0	0	0	0	5
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	1	0	0	0	0	1
06:00	0	0	0	0	0	0
07:00	1	0	0	0	0	1
08:00	20	0	0	0	0	20
09:00	75	0	3	3	0	81
10:00	145	0	2	3	0	150
11:00	244	1	3	0	0	248
12:00	278	0	3	1	1	283
13:00	280	1	1	0	2	284
14:00	219	0	0	0	2	221
15:00	188	0	0	0	0	188
16:00	213	1	1	1	1	217
17:00	180	0	4	0	1	185
18:00	184	0	1	0	1	186
19:00	96	0	0	0	0	96
20:00	53	0	0	0	0	53
21:00	12	0	0	0	0	12
22:00	32	0	0	0	1	33
23:00	16	0	0	0	0	16
24:00	5	0	0	0	0	5
Totals	2262	3	18	8	9	2300

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sun 11.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	19	0	0	0	0	19
02:00	14	0	0	0	0	14
03:00	8	0	0	0	0	8
04:00	6	0	0	0	0	6
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	1	0	1
09:00	1	0	0	0	0	1
10:00	10	0	0	0	0	10
11:00	134	0	0	0	5	139
12:00	129	0	0	0	3	132
13:00	132	0	0	0	1	133
14:00	158	0	1	0	3	162
15:00	174	0	1	0	1	176
16:00	178	0	0	1	7	186
17:00	235	0	0	0	4	239
18:00	176	0	2	1	3	182
19:00	76	1	2	0	0	79
20:00	68	0	0	0	1	69
21:00	54	0	0	0	0	54
22:00	39	0	0	0	0	39
23:00	45	0	2	0	1	48
24:00	21	0	2	1	0	24
Totals	1677	1	10	4	29	1721

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Mon 12.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	3	0	0	0	0	3
02:00	2	0	0	0	0	2
03:00	0	0	0	0	0	0
04:00	1	0	0	0	0	1
05:00	0	0	0	0	0	0
06:00	3	0	0	0	0	3
07:00	14	0	0	0	0	14
08:00	32	0	0	0	0	32
09:00	66	0	2	0	1	69
10:00	145	0	1	0	1	147
11:00	237	0	3	0	1	241
12:00	292	0	1	0	1	294
13:00	246	0	2	0	1	249
14:00	217	1	2	1	2	223
15:00	206	0	1	1	1	209
16:00	171	1	1	0	2	175
17:00	166	0	1	0	2	169
18:00	134	0	1	1	1	137
19:00	76	0	1	0	0	77
20:00	22	0	0	0	1	23
21:00	18	0	0	0	0	18
22:00	12	0	0	0	0	12
23:00	12	0	0	0	0	12
24:00	8	0	0	0	0	8
Totals	2083	2	16	3	14	2118

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Mon 12.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	10	0	1	0	0	11
02:00	5	0	0	0	0	5
03:00	7	0	0	0	0	7
04:00	4	0	0	0	0	4
05:00	10	0	0	0	0	10
06:00	16	0	0	0	0	16
07:00	32	0	0	0	0	32
08:00	28	0	2	0	0	30
09:00	54	0	1	1	2	58
10:00	60	0	1	0	2	63
11:00	94	0	2	0	3	99
12:00	155	0	0	0	2	157
13:00	135	0	1	1	3	140
14:00	144	0	0	0	3	147
15:00	194	0	2	1	6	203
16:00	270	0	1	5	7	283
17:00	283	0	0	1	12	296
18:00	135	0	0	0	6	141
19:00	74	0	1	0	0	75
20:00	54	0	0	0	0	54
21:00	52	0	0	0	0	52
22:00	31	0	0	0	0	31
23:00	26	0	1	0	0	27
24:00	12	0	0	0	0	12
Totals	1885	0	13	9	46	1953

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Tue 13.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	3	0	0	0	0	3
02:00	1	0	0	0	0	1
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	7	0	0	0	0	7
07:00	18	0	0	0	0	18
08:00	45	0	0	0	0	45
09:00	82	0	4	3	2	91
10:00	94	0	10	5	5	114
11:00	108	0	7	4	1	120
12:00	132	1	8	1	0	142
13:00	152	0	4	0	1	157
14:00	164	0	9	2	1	176
15:00	156	0	9	2	0	167
16:00	283	0	5	2	3	293
17:00	287	0	10	4	3	304
18:00	319	0	5	3	2	329
19:00	216	0	1	4	2	223
20:00	60	0	0	1	1	62
21:00	8	0	0	0	0	8
22:00	31	0	0	0	1	32
23:00	15	0	1	0	0	16
24:00	7	0	1	0	0	8
Totals	2188	1	74	31	22	2316

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Tue 13.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	7	0	0	0	0	7
02:00	7	0	1	2	0	10
03:00	1	0	0	0	0	1
04:00	6	0	1	0	0	7
05:00	13	0	3	2	0	18
06:00	67	2	3	1	8	81
07:00	201	1	5	6	14	227
08:00	246	2	4	7	25	284
09:00	173	1	3	8	15	200
10:00	123	1	3	5	2	134
11:00	101	0	8	8	2	119
12:00	66	1	8	5	3	83
13:00	94	0	3	6	7	110
14:00	126	0	9	4	5	144
15:00	125	2	7	1	3	138
16:00	100	1	3	2	0	106
17:00	141	0	8	2	3	154
18:00	137	1	1	4	3	146
19:00	64	0	0	3	0	67
20:00	43	0	0	1	0	44
21:00	28	0	0	1	0	29
22:00	29	0	0	0	0	29
23:00	14	0	1	1	0	16
24:00	8	0	0	0	0	8
Totals	1920	12	71	69	90	2162

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Wed 14.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	2	0	0	0	0	2
02:00	0	0	0	0	0	0
03:00	1	0	0	0	0	1
04:00	0	0	0	0	0	0
05:00	1	0	0	0	0	1
06:00	0	0	0	0	0	0
07:00	2	0	0	0	0	2
08:00	33	2	3	3	0	41
09:00	37	2	1	1	2	43
10:00	101	1	5	5	4	116
11:00	105	0	8	5	1	119
12:00	101	0	5	3	1	110
13:00	112	0	8	8	2	130
14:00	113	0	11	3	4	131
15:00	132	0	6	4	2	144
16:00	229	0	8	5	4	246
17:00	314	1	11	11	6	343
18:00	332	0	8	5	5	350
19:00	217	0	2	1	3	223
20:00	101	0	1	1	1	104
21:00	43	0	1	0	1	45
22:00	36	0	0	0	0	36
23:00	41	0	1	0	0	42
24:00	24	0	0	0	0	24
Totals	2077	6	79	55	36	2253

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Wed 14.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	5	0	0	0	0	5
02:00	4	0	1	0	0	5
03:00	3	0	0	0	0	3
04:00	10	0	0	0	1	11
05:00	16	0	1	1	0	18
06:00	93	0	10	3	0	106
07:00	225	2	9	8	15	259
08:00	299	1	9	4	15	328
09:00	208	2	8	4	11	233
10:00	114	0	4	2	5	125
11:00	87	0	7	4	3	101
12:00	98	0	4	3	4	109
13:00	84	1	7	5	6	103
14:00	92	1	7	5	1	106
15:00	111	0	7	4	5	127
16:00	116	1	8	5	2	132
17:00	144	0	9	7	2	162
18:00	127	0	1	1	1	130
19:00	72	0	3	4	2	81
20:00	32	0	2	1	1	36
21:00	29	0	1	0	0	30
22:00	26	0	1	0	1	28
23:00	28	0	0	0	0	28
24:00	8	0	0	0	0	8
Totals	2031	8	99	61	75	2274

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Thu 15.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	8	0	0	0	0	8
02:00	5	0	0	0	0	5
03:00	4	0	0	1	0	5
04:00	6	0	0	0	0	6
05:00	0	0	1	0	0	1
06:00	1	0	0	0	0	1
07:00	2	0	0	0	1	3
08:00	7	1	0	1	0	9
09:00	95	0	10	6	1	112
10:00	99	0	6	7	4	116
11:00	119	0	12	11	3	145
12:00	99	0	7	9	2	117
13:00	107	0	8	9	2	126
14:00	144	0	5	5	2	156
15:00	133	0	11	10	4	158
16:00	200	0	11	10	5	226
17:00	275	1	12	14	5	307
18:00	345	2	8	10	10	375
19:00	241	0	4	3	3	251
20:00	73	1	1	3	3	81
21:00	15	0	0	0	0	15
22:00	33	0	1	0	0	34
23:00	8	0	1	0	0	9
24:00	2	0	0	0	0	2
Totals	2021	5	98	99	45	2268

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Thu 15.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	8	0	0	2	0	10
02:00	2	0	0	0	0	2
03:00	5	0	0	1	0	6
04:00	10	0	0	0	0	10
05:00	18	0	1	1	0	20
06:00	106	0	9	10	6	131
07:00	231	0	5	5	17	258
08:00	292	0	7	7	16	322
09:00	220	1	4	9	10	244
10:00	132	1	5	7	4	149
11:00	100	1	11	7	8	127
12:00	92	1	6	10	7	116
13:00	103	0	4	8	4	119
14:00	89	1	10	7	3	110
15:00	104	1	9	11	6	131
16:00	108	1	7	7	6	129
17:00	115	0	5	7	5	132
18:00	133	0	0	4	1	138
19:00	55	0	2	3	2	62
20:00	46	0	0	1	0	47
21:00	41	0	0	0	1	42
22:00	31	0	1	2	1	35
23:00	25	0	0	0	0	25
24:00	13	0	0	0	0	13
Totals	2079	7	86	109	97	2378

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Fri 16.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	3	0	0	0	0	3
02:00	0	0	0	0	1	1
03:00	2	0	0	0	0	2
04:00	3	0	0	0	0	3
05:00	1	0	0	0	0	1
06:00	1	0	0	0	0	1
07:00	12	0	0	0	0	12
08:00	18	0	0	0	1	19
09:00	64	1	3	0	0	68
10:00	89	1	7	3	4	104
11:00	107	4	7	6	2	126
12:00	105	0	12	1	4	122
13:00	105	0	7	1	1	114
14:00	126	0	4	3	5	138
15:00	151	0	7	5	3	166
16:00	250	0	4	10	4	268
17:00	263	0	13	5	5	286
18:00	332	1	6	1	7	347
19:00	223	0	2	5	4	234
20:00	101	0	0	0	2	103
21:00	54	0	0	0	0	54
22:00	21	0	0	0	0	21
23:00	24	0	0	0	0	24
24:00	20	0	0	0	0	20
Totals	2075	7	72	40	43	2237

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Fri 16.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	3	0	2	0	0	5
02:00	11	0	1	1	0	13
03:00	4	0	0	0	0	4
04:00	9	0	0	0	0	9
05:00	13	0	4	6	0	23
06:00	96	0	7	8	3	114
07:00	242	0	4	6	10	262
08:00	367	2	3	3	8	383
09:00	217	0	2	2	9	230
10:00	131	1	6	5	1	144
11:00	105	0	2	2	6	115
12:00	89	2	11	4	8	114
13:00	81	0	6	0	4	91
14:00	118	0	4	1	2	125
15:00	113	0	2	3	6	124
16:00	104	0	7	2	7	120
17:00	155	0	4	4	6	169
18:00	124	0	1	1	4	130
19:00	100	0	3	3	1	107
20:00	63	0	3	0	2	68
21:00	42	0	0	0	0	42
22:00	25	0	0	0	0	25
23:00	35	0	1	0	0	36
24:00	20	0	0	0	1	21
Totals	2267	5	73	51	78	2474

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sat 17.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	14	0	0	0	0	14
02:00	2	0	0	0	0	2
03:00	2	0	0	0	0	2
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	4	0	0	0	0	4
08:00	15	0	0	0	0	15
09:00	33	0	0	0	0	33
10:00	108	0	2	0	0	110
11:00	129	0	0	1	0	130
12:00	171	0	3	1	1	176
13:00	158	0	3	3	5	169
14:00	185	0	4	0	2	191
15:00	151	1	3	0	4	159
16:00	173	0	2	2	0	177
17:00	170	0	2	1	1	174
18:00	103	0	1	0	3	107
19:00	58	0	0	0	0	58
20:00	44	0	0	0	0	44
21:00	33	0	0	0	0	33
22:00	35	0	0	0	0	35
23:00	38	0	0	0	0	38
24:00	19	0	0	0	0	19
Totals	1645	1	20	8	16	1690

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sat 17.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	8	0	0	0	0	8
02:00	13	0	0	0	0	13
03:00	6	0	0	0	0	6
04:00	8	0	0	0	0	8
05:00	8	0	0	0	1	9
06:00	51	0	1	0	4	56
07:00	75	0	4	0	5	84
08:00	75	0	3	3	3	84
09:00	84	0	1	1	4	90
10:00	99	0	3	0	3	105
11:00	127	1	4	1	2	135
12:00	129	0	1	2	3	135
13:00	128	0	0	0	5	133
14:00	125	0	1	2	2	130
15:00	129	0	2	2	3	136
16:00	119	0	0	1	1	121
17:00	143	0	0	0	1	144
18:00	139	0	0	0	6	145
19:00	84	0	1	0	3	88
20:00	51	0	0	1	3	55
21:00	42	0	1	1	1	45
22:00	32	0	0	0	0	32
23:00	29	0	0	0	0	29
24:00	36	1	0	0	0	37
Totals	1740	2	22	14	50	1828

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sun 18.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	14	0	0	0	0	14
02:00	10	0	0	0	0	10
03:00	6	0	0	0	0	6
04:00	2	0	0	0	0	2
05:00	0	0	0	0	0	0
06:00	0	0	1	0	0	1
07:00	11	0	0	0	0	11
08:00	20	0	0	0	0	20
09:00	58	0	0	0	0	58
10:00	139	1	1	2	0	143
11:00	229	0	1	3	0	233
12:00	250	1	4	0	2	257
13:00	248	0	4	0	1	253
14:00	195	0	3	0	2	200
15:00	198	0	0	0	2	200
16:00	164	0	2	1	3	170
17:00	173	0	0	0	2	175
18:00	165	0	4	0	2	171
19:00	113	2	1	0	0	116
20:00	22	0	0	0	0	22
21:00	1	0	0	0	0	1
22:00	3	0	0	0	0	3
23:00	0	0	0	0	0	0
24:00	1	0	0	0	0	1
Totals	2022	4	21	6	14	2067

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Sun 18.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	29	0	0	0	0	29
02:00	12	0	0	0	0	12
03:00	12	0	0	0	0	12
04:00	6	0	0	0	0	6
05:00	3	0	0	0	0	3
06:00	11	0	2	0	0	13
07:00	20	0	3	0	1	24
08:00	35	0	2	1	2	40
09:00	71	0	1	0	3	75
10:00	94	0	0	0	2	96
11:00	123	0	0	0	2	125
12:00	137	0	2	0	4	143
13:00	212	0	0	1	9	222
14:00	172	0	1	1	4	178
15:00	190	0	1	0	6	197
16:00	202	0	3	0	2	207
17:00	213	0	0	1	4	218
18:00	156	0	0	1	3	160
19:00	90	0	1	1	3	95
20:00	45	0	0	0	1	46
21:00	55	0	0	0	1	56
22:00	26	0	1	0	1	28
23:00	20	0	2	0	0	22
24:00	14	0	1	2	1	18
Totals	1948	0	20	8	49	2025

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Mon 19.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	1	0	0	0	0	1
05:00	4	0	0	0	0	4
06:00	5	0	0	0	0	5
07:00	10	0	0	0	0	10
08:00	19	0	0	0	0	19
09:00	66	2	4	5	1	78
10:00	98	1	9	11	4	123
11:00	110	0	9	4	3	126
12:00	105	3	6	13	5	132
13:00	99	1	5	11	1	117
14:00	137	0	6	11	2	156
15:00	130	1	7	9	4	151
16:00	221	1	15	6	3	246
17:00	279	2	15	11	8	315
18:00	311	0	12	1	2	326
19:00	209	0	0	5	2	216
20:00	113	0	2	0	0	115
21:00	59	0	0	0	0	59
22:00	28	0	0	0	0	28
23:00	10	0	0	0	0	10
24:00	9	0	0	0	0	9
Totals	2023	11	90	87	35	2246

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Mon 19.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	8	0	0	0	0	8
02:00	4	0	0	0	0	4
03:00	1	0	0	0	0	1
04:00	6	0	0	1	0	7
05:00	16	0	4	2	0	22
06:00	76	0	5	9	5	95
07:00	205	0	3	3	19	230
08:00	282	1	5	6	20	314
09:00	215	0	7	10	12	244
10:00	109	2	5	9	3	128
11:00	72	0	3	8	1	84
12:00	83	1	6	7	4	101
13:00	92	3	3	8	2	108
14:00	96	2	7	8	6	119
15:00	117	3	6	6	1	133
16:00	108	0	8	11	3	130
17:00	131	2	5	3	3	144
18:00	138	0	2	2	5	147
19:00	59	0	1	1	0	61
20:00	51	0	2	1	0	54
21:00	23	0	0	0	0	23
22:00	25	0	1	0	0	26
23:00	17	0	0	1	0	18
24:00	13	0	1	0	0	14
Totals	1947	14	74	96	84	2215

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Tue 20.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	4	0	0	0	0	4
02:00	1	0	0	0	0	1
03:00	1	0	0	0	0	1
04:00	1	0	0	0	0	1
05:00	2	0	0	0	0	2
06:00	7	0	1	0	0	8
07:00	12	0	1	0	0	13
08:00	25	0	0	0	0	25
09:00	83	0	4	2	2	91
10:00	101	0	12	7	4	124
11:00	112	0	6	2	3	123
12:00	101	1	9	2	2	115
13:00	119	0	10	9	3	141
14:00	108	1	6	6	5	126
15:00	132	0	8	6	5	151
16:00	200	0	8	5	6	219
17:00	364	1	8	10	6	389
18:00	375	0	7	5	2	389
19:00	229	2	2	5	3	241
20:00	98	0	1	1	0	100
21:00	60	0	0	0	0	60
22:00	31	0	0	0	0	31
23:00	15	0	0	0	0	15
24:00	8	0	0	0	0	8
Totals	2189	5	83	60	41	2378

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Tue 20.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	8	0	0	0	0	8
02:00	4	0	1	0	1	6
03:00	3	0	4	0	0	7
04:00	9	0	0	0	0	9
05:00	9	0	2	2	0	13
06:00	81	1	7	10	5	104
07:00	254	1	7	1	9	272
08:00	304	0	8	3	23	338
09:00	214	0	0	3	10	227
10:00	136	1	5	2	5	149
11:00	103	0	8	2	0	113
12:00	98	2	6	6	6	118
13:00	80	0	3	3	1	87
14:00	90	0	8	5	4	107
15:00	105	2	7	7	2	123
16:00	122	0	10	9	6	147
17:00	126	0	5	3	3	137
18:00	133	1	3	2	3	142
19:00	65	0	2	1	2	70
20:00	35	0	0	1	0	36
21:00	19	0	1	0	0	20
22:00	25	0	1	1	0	27
23:00	24	0	1	1	1	27
24:00	13	0	1	0	0	14
Totals	2060	8	90	62	81	2301

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Wed 21.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	2	0	0	0	0	2
02:00	2	0	0	0	0	2
03:00	0	0	0	0	0	0
04:00	2	0	0	0	0	2
05:00	0	0	0	0	0	0
06:00	12	0	0	0	0	12
07:00	23	0	0	0	0	23
08:00	51	0	0	0	0	51
09:00	68	0	0	2	1	71
10:00	117	2	6	5	4	134
11:00	105	0	5	11	1	122
12:00	106	0	8	7	1	122
13:00	104	2	6	1	1	114
14:00	99	0	11	4	0	114
15:00	143	0	4	9	6	162
16:00	200	0	14	3	0	217
17:00	289	0	9	12	7	317
18:00	259	0	4	0	3	266
19:00	166	0	0	0	0	166
20:00	87	0	0	0	0	87
21:00	53	0	0	0	0	53
22:00	44	0	0	0	0	44
23:00	21	0	0	0	0	21
24:00	8	0	0	0	0	8
Totals	1961	4	67	54	24	2110

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - East of Taylor Road
Date : Wed 21.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	5	0	0	0	0	5
02:00	4	0	0	0	0	4
03:00	2	0	0	1	0	3
04:00	6	0	0	0	0	6
05:00	13	0	4	2	0	19
06:00	79	0	8	6	7	100
07:00	211	1	4	3	15	234
08:00	286	0	3	5	26	320
09:00	188	2	7	8	11	216
10:00	121	0	3	4	7	135
11:00	105	0	7	3	5	120
12:00	88	0	9	7	5	109
13:00	92	1	6	4	2	105
14:00	89	3	7	3	2	104
15:00	115	1	5	2	5	128
16:00	114	0	15	4	4	137
17:00	150	0	3	4	4	161
18:00	119	0	1	2	0	122
19:00	75	1	1	1	3	81
20:00	47	0	1	0	1	49
21:00	25	0	0	0	0	25
22:00	22	0	0	0	2	24
23:00	23	0	0	0	0	23
24:00	10	0	0	0	1	11
Totals	1989	9	84	59	100	2241

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 8.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	36	0	1	0	0	37
02:00	12	0	2	1	1	16
03:00	5	0	0	0	0	5
04:00	10	0	3	2	1	16
05:00	13	0	5	3	0	21
06:00	83	0	4	2	2	91
07:00	319	0	18	4	6	347
08:00	397	1	22	3	8	431
09:00	300	0	28	12	12	352
10:00	254	1	14	7	10	286
11:00	248	1	27	9	14	299
12:00	305	0	11	7	12	335
13:00	252	1	24	6	16	299
14:00	294	2	27	8	11	342
15:00	339	0	30	6	16	391
16:00	507	0	26	13	14	560
17:00	583	0	45	8	13	649
18:00	720	2	34	14	17	787
19:00	422	0	10	2	1	435
20:00	246	0	7	3	1	257
21:00	160	0	6	3	0	169
22:00	133	0	4	0	2	139
23:00	96	0	2	1	2	101
24:00	54	0	3	0	1	58
Totals	5788	8	353	114	160	6423

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 8.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	17	1	4	2	0	24
02:00	13	0	0	1	0	14
03:00	13	0	0	1	2	16
04:00	22	0	3	1	0	26
05:00	22	0	4	2	0	28
06:00	173	1	21	16	6	217
07:00	421	3	24	13	10	471
08:00	572	1	28	9	20	630
09:00	510	0	24	16	16	566
10:00	275	3	15	22	9	324
11:00	241	0	23	20	11	295
12:00	235	0	21	19	10	285
13:00	218	2	23	16	9	268
14:00	269	1	27	14	7	318
15:00	253	3	17	24	8	305
16:00	359	2	18	15	10	404
17:00	390	1	24	9	6	430
18:00	429	0	7	5	4	445
19:00	228	1	3	1	1	234
20:00	158	2	2	3	0	165
21:00	93	0	2	1	2	98
22:00	86	0	3	1	1	91
23:00	45	0	2	2	1	50
24:00	33	0	2	3	0	38
Totals	5075	21	297	216	133	5742

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Fri 9.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	46	0	0	0	0	46
02:00	12	0	2	0	0	14
03:00	10	0	0	0	0	10
04:00	8	0	1	0	0	9
05:00	17	0	3	0	0	20
06:00	110	1	5	1	1	118
07:00	259	0	10	3	4	276
08:00	305	1	14	5	10	335
09:00	334	1	21	10	5	371
10:00	261	0	18	11	8	298
11:00	279	0	10	12	13	314
12:00	332	2	5	9	7	355
13:00	228	1	13	9	5	256
14:00	254	0	22	14	11	301
15:00	227	2	15	12	8	264
16:00	525	0	6	7	5	543
17:00	810	1	4	5	2	822
18:00	894	0	1	2	1	898
19:00	611	0	2	2	1	616
20:00	404	1	0	0	0	405
21:00	161	0	0	0	0	161
22:00	158	0	0	0	0	158
23:00	156	0	0	0	0	156
24:00	107	0	0	0	0	107
Totals	6508	10	152	102	81	6853

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Fri 9.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	17	0	2	3	0	22
02:00	25	0	8	0	0	33
03:00	11	0	0	2	0	13
04:00	25	0	2	0	0	27
05:00	25	0	4	3	1	33
06:00	181	2	12	9	6	210
07:00	386	2	23	15	17	443
08:00	549	0	21	16	16	602
09:00	497	0	22	10	12	541
10:00	284	2	27	11	9	333
11:00	255	1	14	13	7	290
12:00	217	3	21	20	6	267
13:00	261	2	18	5	7	293
14:00	256	2	19	15	11	303
15:00	324	4	17	12	14	371
16:00	338	2	23	17	12	392
17:00	393	3	7	5	10	418
18:00	363	2	11	7	5	388
19:00	283	2	6	5	5	301
20:00	202	0	0	0	1	203
21:00	130	0	3	2	1	136
22:00	95	0	0	1	0	96
23:00	64	0	0	2	0	66
24:00	52	0	0	0	0	52
Totals	5233	27	260	173	140	5833

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sat 10.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sat 10.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	35	0	0	1	0	36
02:00	20	0	1	3	0	24
03:00	15	0	2	1	1	19
04:00	20	0	2	2	0	24
05:00	23	1	1	0	0	25
06:00	89	1	8	4	0	102
07:00	130	1	12	1	7	151
08:00	171	3	11	5	2	192
09:00	255	0	7	5	4	271
10:00	277	2	8	3	4	294
11:00	294	0	9	4	4	311
12:00	307	0	10	2	5	324
13:00	283	0	6	3	2	294
14:00	319	1	9	5	5	339
15:00	280	1	7	4	3	295
16:00	304	0	9	6	2	321
17:00	304	0	4	0	0	308
18:00	280	1	2	2	1	286
19:00	226	1	1	1	0	229
20:00	145	1	2	0	1	149
21:00	96	0	0	2	0	98
22:00	77	1	0	0	0	78
23:00	76	1	0	0	0	77
24:00	84	0	1	0	1	86
Totals	4110	15	112	54	42	4333

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sun 11.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sun 11.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	53	0	1	0	0	54
02:00	32	0	0	0	0	32
03:00	20	0	1	0	0	21
04:00	12	0	0	0	0	12
05:00	14	0	0	0	0	14
06:00	22	1	3	0	1	27
07:00	46	0	1	0	0	47
08:00	97	1	2	0	0	100
09:00	173	1	2	0	0	176
10:00	256	0	4	1	0	261
11:00	286	0	2	0	0	288
12:00	333	0	3	1	2	339
13:00	297	1	1	0	3	302
14:00	327	0	4	1	2	334
15:00	342	1	2	1	0	346
16:00	373	1	1	0	3	378
17:00	454	0	6	0	4	464
18:00	444	2	2	3	5	456
19:00	234	1	4	1	3	243
20:00	164	0	2	0	1	167
21:00	135	1	0	0	0	136
22:00	80	1	1	0	0	82
23:00	93	0	0	0	1	94
24:00	43	0	4	0	0	47
Totals	4330	11	46	8	25	4420

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Mon 12.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Mon 12.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	43	0	1	1	0	45
02:00	18	0	0	0	0	18
03:00	13	0	0	0	0	13
04:00	10	0	1	0	0	11
05:00	8	0	2	0	0	10
06:00	41	0	1	0	0	42
07:00	56	0	2	0	2	60
08:00	75	0	3	1	0	79
09:00	133	0	6	1	0	140
10:00	188	4	3	2	1	198
11:00	293	0	1	4	3	301
12:00	368	0	3	2	5	378
13:00	319	1	7	1	1	329
14:00	298	0	2	5	2	307
15:00	354	1	4	5	2	366
16:00	401	1	1	6	5	414
17:00	539	1	2	3	4	549
18:00	353	0	2	2	3	360
19:00	224	0	6	1	1	232
20:00	138	0	1	1	1	141
21:00	102	0	0	1	0	103
22:00	75	0	3	0	1	79
23:00	58	1	1	2	0	62
24:00	25	0	1	0	0	26
Totals	4132	9	53	38	31	4263

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Tue 13.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Tue 13.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	18	0	1	1	0	20
02:00	11	0	6	0	0	17
03:00	9	0	1	0	1	11
04:00	15	0	4	2	0	21
05:00	29	0	7	3	1	40
06:00	157	2	15	10	7	191
07:00	373	1	19	10	9	412
08:00	573	1	25	5	13	617
09:00	451	0	15	15	17	498
10:00	288	3	18	16	6	331
11:00	226	0	16	16	11	269
12:00	209	1	19	15	12	256
13:00	245	1	12	11	7	276
14:00	228	0	14	14	12	268
15:00	278	1	30	10	10	329
16:00	309	2	17	8	6	342
17:00	392	1	10	6	12	421
18:00	393	1	10	4	6	414
19:00	248	1	6	4	4	263
20:00	149	0	5	6	0	160
21:00	89	1	2	2	0	94
22:00	57	0	3	0	0	60
23:00	48	0	1	4	0	53
24:00	26	0	2	4	0	32
Totals	4821	16	258	166	134	5395

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Wed 14.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Wed 14.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	15	0	0	1	0	16
02:00	13	0	1	1	1	16
03:00	9	0	2	2	0	13
04:00	20	0	2	0	0	22
05:00	36	0	7	3	2	48
06:00	181	2	17	10	3	213
07:00	398	2	20	16	12	448
08:00	580	2	23	13	12	630
09:00	465	0	15	12	10	502
10:00	296	1	13	21	5	336
11:00	246	0	19	14	10	289
12:00	222	2	17	10	8	259
13:00	209	0	19	20	13	261
14:00	199	2	18	11	10	240
15:00	269	1	14	10	7	301
16:00	322	5	10	11	12	360
17:00	393	2	20	5	5	425
18:00	383	1	11	4	6	405
19:00	224	0	7	5	3	239
20:00	134	0	4	2	3	143
21:00	79	0	4	5	0	88
22:00	73	0	2	2	0	77
23:00	55	0	1	2	0	58
24:00	22	0	3	1	0	26
Totals	4843	20	249	181	122	5415

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 15.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 15.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	14	0	1	3	0	18
02:00	13	0	2	0	0	15
03:00	15	0	1	1	1	18
04:00	17	0	3	2	1	23
05:00	33	0	7	3	0	43
06:00	183	2	13	18	6	222
07:00	397	2	29	15	10	453
08:00	549	0	25	9	13	596
09:00	489	3	16	15	10	533
10:00	311	2	14	20	8	355
11:00	194	1	18	18	13	244
12:00	245	1	15	25	12	298
13:00	231	1	19	16	10	277
14:00	200	3	18	20	15	256
15:00	251	0	21	17	7	296
16:00	332	2	24	12	13	383
17:00	370	3	10	10	8	401
18:00	396	0	6	7	4	413
19:00	214	2	5	3	2	226
20:00	158	1	5	4	1	169
21:00	101	1	1	3	0	106
22:00	77	0	2	6	1	86
23:00	72	0	2	2	1	77
24:00	38	0	1	3	0	42
Totals	4900	24	258	232	136	5550

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Fri 16.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Fri 16.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	21	0	3	2	0	26
02:00	13	0	2	1	0	16
03:00	9	0	1	0	1	11
04:00	20	0	2	1	0	23
05:00	26	0	5	4	1	36
06:00	185	1	10	15	2	213
07:00	376	0	15	22	12	425
08:00	551	3	15	9	9	587
09:00	472	1	16	12	8	509
10:00	305	3	11	17	8	344
11:00	248	1	17	12	5	283
12:00	217	3	27	10	12	269
13:00	230	0	8	15	5	258
14:00	251	2	13	8	4	278
15:00	265	2	12	6	10	295
16:00	296	3	13	10	11	333
17:00	385	3	8	2	4	402
18:00	341	1	6	3	1	352
19:00	275	0	5	4	2	286
20:00	175	0	5	0	0	180
21:00	104	0	4	2	0	110
22:00	83	1	1	1	0	86
23:00	63	0	1	0	0	64
24:00	58	0	0	1	0	59
Totals	4969	24	200	157	95	5445

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sat 17.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sat 17.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	31	0	0	1	0	32
02:00	27	1	1	0	0	29
03:00	9	0	2	0	0	11
04:00	16	0	2	1	0	19
05:00	24	1	2	0	0	27
06:00	95	0	3	1	2	101
07:00	141	0	9	5	2	157
08:00	183	0	3	5	2	193
09:00	265	0	8	1	1	275
10:00	280	2	5	0	6	293
11:00	267	0	8	3	4	282
12:00	363	1	6	1	5	376
13:00	291	0	1	6	4	302
14:00	304	2	7	0	0	313
15:00	274	1	6	1	3	285
16:00	291	1	1	0	0	293
17:00	332	0	4	3	2	341
18:00	359	1	3	2	2	367
19:00	259	2	3	0	0	264
20:00	167	0	2	0	0	169
21:00	102	0	1	0	0	103
22:00	81	0	0	2	0	83
23:00	75	0	0	0	0	75
24:00	87	0	0	0	0	87
Totals	4323	12	77	32	33	4477

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sun 18.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sun 18.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	65	0	0	0	0	65
02:00	37	0	1	0	0	38
03:00	29	0	1	0	0	30
04:00	9	0	0	0	0	9
05:00	7	0	1	0	0	8
06:00	20	0	5	0	0	25
07:00	47	0	4	0	0	51
08:00	84	1	4	0	0	89
09:00	173	0	1	0	0	174
10:00	224	0	2	0	1	227
11:00	336	0	2	1	2	341
12:00	349	1	1	1	1	353
13:00	297	1	3	1	3	305
14:00	323	0	6	0	2	331
15:00	384	0	3	3	2	392
16:00	362	0	2	1	6	371
17:00	432	1	1	5	4	443
18:00	385	0	2	2	3	392
19:00	214	0	1	1	2	218
20:00	142	0	1	1	0	144
21:00	141	1	1	1	1	145
22:00	108	0	6	0	1	115
23:00	63	0	2	0	1	66
24:00	44	0	7	2	1	54
Totals	4275	5	57	19	30	4386

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Mon 19.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Mon 19.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	19	0	0	0	0	19
02:00	15	0	5	0	1	21
03:00	13	0	2	1	1	17
04:00	15	1	1	0	2	19
05:00	28	1	10	4	0	43
06:00	165	0	13	11	4	193
07:00	381	3	29	25	7	445
08:00	550	3	21	14	18	606
09:00	477	0	20	22	13	532
10:00	266	4	23	23	5	321
11:00	217	0	22	23	6	268
12:00	233	1	14	22	3	273
13:00	251	5	21	18	5	300
14:00	219	1	23	21	15	279
15:00	261	5	11	16	10	303
16:00	325	2	19	18	8	372
17:00	364	3	12	8	7	394
18:00	390	1	9	4	9	413
19:00	205	0	6	3	1	215
20:00	135	1	4	2	1	143
21:00	78	0	2	2	0	82
22:00	65	0	3	1	1	70
23:00	52	0	0	1	0	53
24:00	32	0	0	0	0	32
Totals	4756	31	270	239	117	5413

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Tue 20.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	28	0	1	3	0	32
02:00	5	0	4	0	1	10
03:00	8	0	0	0	0	8
04:00	13	0	1	2	0	16
05:00	22	0	6	0	0	28
06:00	79	0	5	4	3	91
07:00	318	0	11	2	3	334
08:00	464	2	2	2	4	474
09:00	327	1	24	7	10	369
10:00	306	0	16	8	14	344
11:00	287	0	25	14	7	333
12:00	292	1	11	8	7	319
13:00	242	1	19	8	11	281
14:00	504	0	14	3	4	525
15:00	419	0	22	6	10	457
16:00	509	1	33	17	18	578
17:00	563	0	12	8	20	603
18:00	751	1	24	11	14	801
19:00	435	1	16	3	2	457
20:00	222	0	5	2	0	229
21:00	158	0	1	4	2	165
22:00	129	0	6	1	3	139
23:00	105	0	6	1	1	113
24:00	66	0	5	1	2	74
Totals	6252	8	269	115	136	6780

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Tue 20.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	19	0	0	2	0	21
02:00	10	0	2	0	0	12
03:00	12	0	6	1	1	20
04:00	14	0	4	2	0	20
05:00	24	0	7	4	1	36
06:00	184	1	10	16	4	215
07:00	388	2	28	13	13	444
08:00	585	2	21	12	21	641
09:00	476	0	16	12	17	521
10:00	320	2	22	11	12	367
11:00	217	1	19	19	5	261
12:00	204	2	22	13	10	251
13:00	211	0	18	20	7	256
14:00	201	0	16	9	14	240
15:00	262	6	20	13	12	313
16:00	330	2	22	13	9	376
17:00	368	6	8	9	12	403
18:00	386	2	9	3	6	406
19:00	243	1	11	1	2	258
20:00	134	0	2	4	0	140
21:00	69	0	3	1	1	74
22:00	62	0	4	5	0	71
23:00	52	1	1	6	0	60
24:00	22	0	4	2	0	28
Totals	4793	28	275	191	147	5434

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Wed 21.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	37	0	0	0	0	37
02:00	13	0	0	0	0	13
03:00	12	0	0	0	0	12
04:00	17	0	0	0	0	17
05:00	31	0	0	0	0	31
06:00	96	0	6	2	2	106
07:00	288	0	12	8	5	313
08:00	316	1	23	5	15	360
09:00	331	0	22	14	8	375
10:00	289	1	21	17	10	338
11:00	250	1	28	12	14	305
12:00	270	1	23	12	13	319
13:00	288	0	20	5	12	325
14:00	246	0	31	22	17	316
15:00	392	0	27	10	17	446
16:00	488	1	21	15	16	541
17:00	742	0	24	11	12	789
18:00	739	2	39	8	15	803
19:00	526	0	5	0	2	533
20:00	269	0	7	0	0	276
21:00	191	0	1	2	0	194
22:00	144	0	0	0	0	144
23:00	115	0	3	3	0	121
24:00	71	0	2	0	1	74
Totals	6161	7	315	146	159	6788

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Wed 21.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	17	0	0	0	0	17
02:00	15	0	2	1	0	18
03:00	11	0	0	4	0	15
04:00	18	0	2	0	0	20
05:00	27	0	6	4	0	37
06:00	175	2	15	15	4	211
07:00	415	3	19	12	5	454
08:00	588	1	19	13	12	633
09:00	477	0	25	16	8	526
10:00	262	3	13	10	7	295
11:00	261	1	22	16	14	314
12:00	229	1	24	16	7	277
13:00	224	4	21	15	10	274
14:00	197	3	26	16	4	246
15:00	265	3	24	12	13	317
16:00	350	0	24	13	11	398
17:00	408	2	13	8	9	440
18:00	378	0	10	4	1	393
19:00	229	4	4	2	2	241
20:00	150	0	5	3	0	158
21:00	94	0	1	2	0	97
22:00	73	0	1	5	0	79
23:00	55	1	2	2	0	60
24:00	25	0	1	2	0	28
Totals	4943	28	279	191	107	5548

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 22.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	33	0	1	0	0	34
02:00	11	0	0	0	0	11
03:00	7	0	0	1	0	8
04:00	8	0	1	2	0	11
05:00	10	0	2	1	0	13
06:00	79	0	2	2	0	83
07:00	331	0	13	5	2	351
08:00	387	0	20	3	2	412
09:00	312	1	14	8	8	343
10:00	261	1	15	11	7	295
11:00	259	0	21	10	11	301
12:00	297	1	20	6	8	332
13:00	248	1	17	6	21	293
14:00	272	0	18	6	20	316
15:00	318	1	32	5	6	362
16:00	497	1	21	7	5	531
17:00	565	0	29	10	7	611
18:00	710	1	36	10	10	767
19:00	523	2	8	4	3	540
20:00	280	1	9	1	3	294
21:00	182	0	3	2	1	188
22:00	181	0	8	1	0	190
23:00	136	0	6	2	1	145
24:00	78	0	0	0	0	78
Totals	5985	10	296	103	115	6509

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Thu 22.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Fri 23.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	42	0	2	0	1	45
02:00	10	0	1	0	0	11
03:00	8	0	0	0	0	8
04:00	6	0	0	0	0	6
05:00	11	0	2	1	1	15
06:00	89	0	4	2	1	96
07:00	275	1	9	2	2	289
08:00	296	0	10	6	2	314
09:00	318	1	18	15	8	360
10:00	284	2	14	8	4	312
11:00	278	0	15	7	3	303
12:00	318	1	10	10	10	349
13:00	265	1	11	10	3	290
14:00	244	0	15	15	3	277
15:00	245	0	12	11	7	275
16:00	509	1	9	9	17	545
17:00	728	2	8	10	18	766
18:00	764	0	5	3	15	787
19:00	569	0	2	3	3	577
20:00	387	0	2	1	2	392
21:00	154	0	2	0	0	156
22:00	152	0	0	0	0	152
23:00	143	0	0	0	0	143
24:00	98	0	0	0	0	98
Totals	6193	9	151	113	100	6566

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Fri 23.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sat 24.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	49	0	0	0	0	49
02:00	44	0	0	0	0	44
03:00	28	0	0	0	0	28
04:00	18	0	0	0	0	18
05:00	20	0	0	1	0	21
06:00	83	0	1	0	1	85
07:00	172	0	4	2	2	180
08:00	230	0	4	2	2	238
09:00	252	1	8	4	1	266
10:00	383	2	13	5	3	406
11:00	453	0	11	5	5	474
12:00	419	1	11	2	4	437
13:00	536	0	5	7	6	554
14:00	389	0	10	6	2	407
15:00	355	0	8	4	3	370
16:00	319	1	7	4	5	336
17:00	299	1	5	3	1	309
18:00	287	1	0	2	2	292
19:00	224	0	2	2	0	228
20:00	158	0	3	1	0	162
21:00	87	0	0	0	2	89
22:00	50	0	1	0	2	53
23:00	22	0	1	0	0	23
24:00	14	0	0	0	0	14
Totals	4891	7	94	50	41	5083

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sat 24.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sun 25.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	122	0	0	0	0	122
02:00	56	0	3	0	0	59
03:00	37	0	0	0	0	37
04:00	32	0	0	0	0	32
05:00	20	0	0	0	0	20
06:00	36	0	0	0	0	36
07:00	63	0	0	0	0	63
08:00	111	0	1	0	0	112
09:00	159	0	2	2	3	166
10:00	232	0	2	0	3	237
11:00	418	1	4	1	1	425
12:00	506	1	6	1	1	515
13:00	413	0	5	0	4	422
14:00	421	0	3	2	7	433
15:00	451	0	5	2	4	462
16:00	450	1	4	1	1	457
17:00	381	0	3	0	10	394
18:00	343	0	4	4	10	361
19:00	270	0	7	0	1	278
20:00	193	0	6	1	1	201
21:00	158	0	5	0	1	164
22:00	119	0	2	0	1	122
23:00	78	0	2	0	1	81
24:00	66	0	0	0	0	66
Totals	5135	3	64	14	49	5265

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Sun 25.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Mon 26.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	33	0	0	0	0	33
02:00	23	0	0	0	0	23
03:00	8	0	4	0	0	12
04:00	7	0	2	0	1	10
05:00	18	0	3	0	0	21
06:00	102	0	1	0	1	104
07:00	264	0	20	2	12	298
08:00	328	0	17	8	11	364
09:00	314	2	13	12	10	351
10:00	220	0	24	18	19	281
11:00	309	1	15	7	6	338
12:00	351	1	9	4	8	373
13:00	216	0	20	13	18	267
14:00	239	0	14	10	17	280
15:00	206	2	8	6	1	223
16:00	505	0	11	11	10	537
17:00	526	0	26	9	23	584
18:00	756	0	28	6	11	801
19:00	460	1	11	1	10	483
20:00	237	0	5	1	2	245
21:00	144	1	0	0	0	145
22:00	113	0	1	2	0	116
23:00	103	0	4	1	0	108
24:00	63	0	2	0	1	66
Totals	5545	8	238	111	161	6063

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Mon 26.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Tue 27.6.95
Direction : Westbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	31	0	0	0	0	31
02:00	8	0	1	1	0	10
03:00	4	0	0	0	0	4
04:00	9	0	0	1	0	10
05:00	16	0	2	1	1	20
06:00	65	0	8	2	2	77
07:00	322	1	12	5	2	342
08:00	457	1	15	5	6	484
09:00	345	2	20	4	6	377
10:00	296	1	17	10	8	332
11:00	288	0	15	7	10	320
12:00	287	0	21	12	9	329
13:00	251	1	20	13	8	293
14:00	483	1	10	6	11	511
15:00	428	0	18	5	12	463
16:00	499	1	24	4	15	543
17:00	647	1	11	8	21	688
18:00	789	0	17	8	22	836
19:00	455	2	14	2	8	481
20:00	182	0	8	1	4	195
21:00	145	0	3	2	0	150
22:00	130	0	2	0	2	134
23:00	97	0	1	1	1	100
24:00	64	0	0	1	0	65
Totals	6298	11	239	99	148	6795

Traffic And Transport Surveys Pty Ltd

Client : Rust PPK
Job : Western Sydney Orbital
Location : Elizabeth Dve - West of Mamre Road
Date : Tue 27.6.95
Direction : Eastbound

Time	Cars Lights	Buses	Rigid Trucks	Semi-Trailers	Unclass-ified	Totals
01:00	0	0	0	0	0	0
02:00	0	0	0	0	0	0
03:00	0	0	0	0	0	0
04:00	0	0	0	0	0	0
05:00	0	0	0	0	0	0
06:00	0	0	0	0	0	0
07:00	0	0	0	0	0	0
08:00	0	0	0	0	0	0
09:00	0	0	0	0	0	0
10:00	0	0	0	0	0	0
11:00	0	0	0	0	0	0
12:00	0	0	0	0	0	0
13:00	0	0	0	0	0	0
14:00	0	0	0	0	0	0
15:00	0	0	0	0	0	0
16:00	0	0	0	0	0	0
17:00	0	0	0	0	0	0
18:00	0	0	0	0	0	0
19:00	0	0	0	0	0	0
20:00	0	0	0	0	0	0
21:00	0	0	0	0	0	0
22:00	0	0	0	0	0	0
23:00	0	0	0	0	0	0
24:00	0	0	0	0	0	0
Totals	0	0	0	0	0	0

SECTION 4

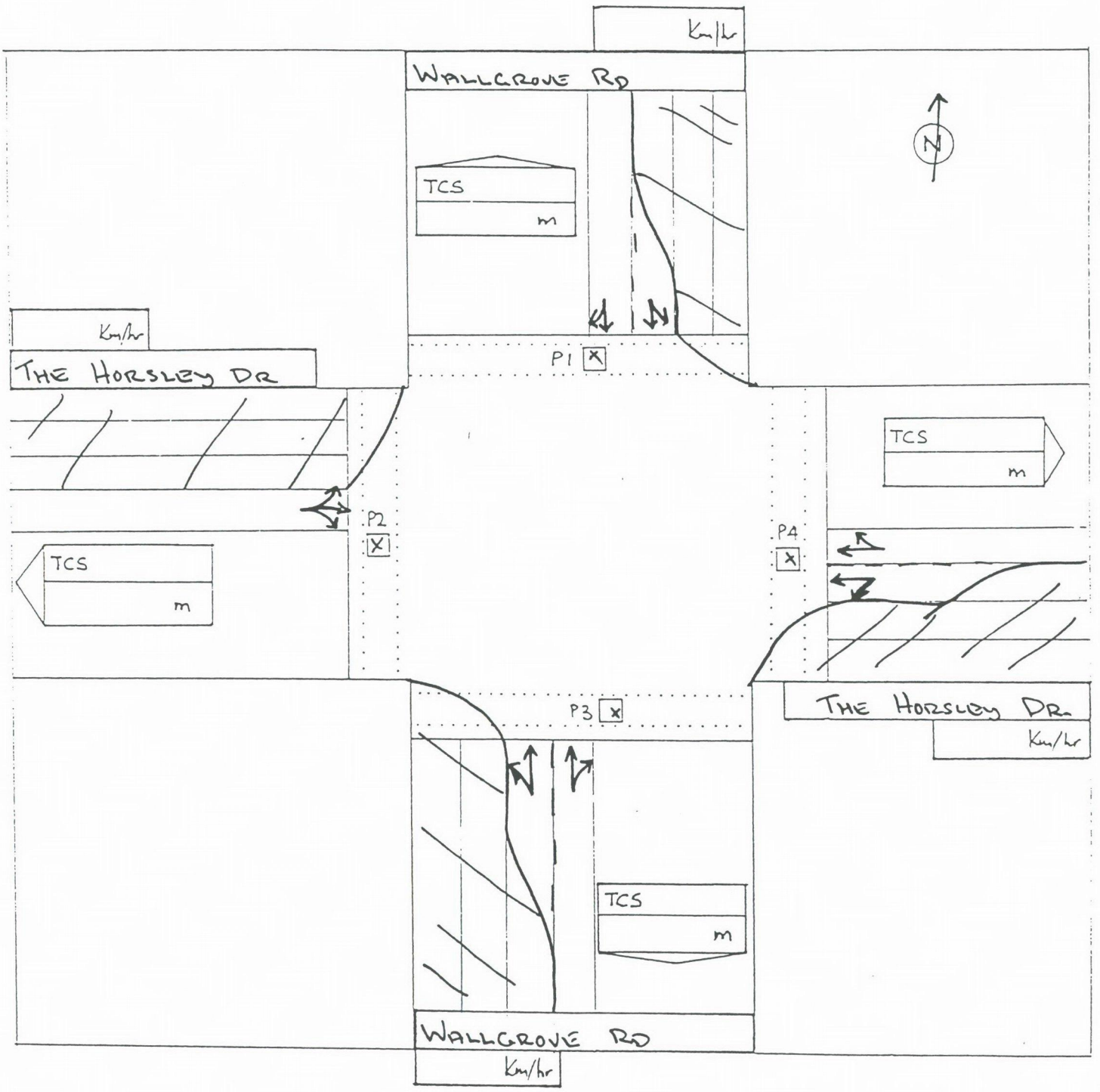
Intersection Diagrams

INTERSECTION : THE HORSLEY DR / WALLGROVE

SUBURB : HORSLEY PARK

TCS N° : ROUNDABOUT

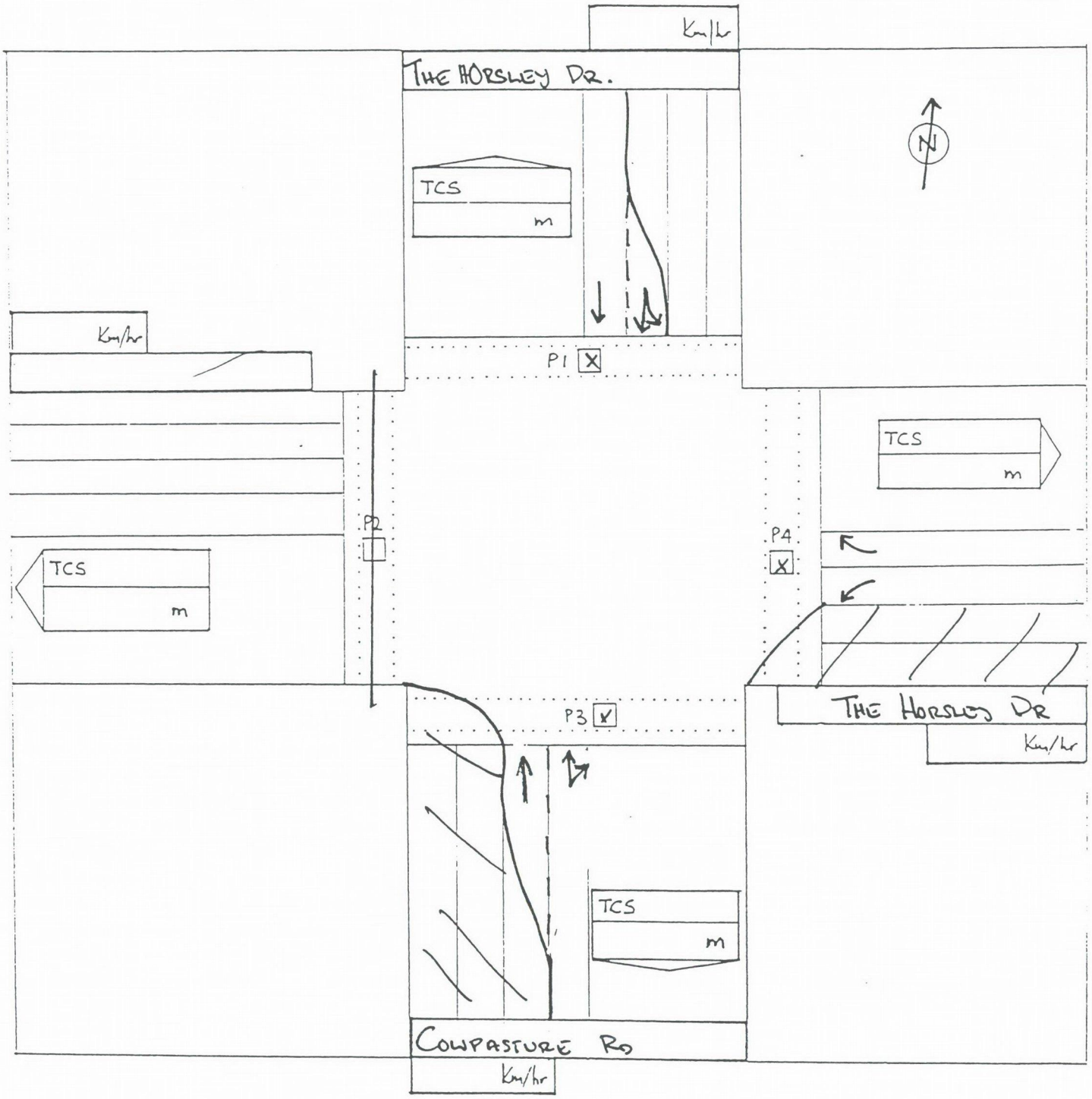
1



INTERSECTION : THE HORSLEY DR / COWPASTURE RD

SUBURB : BOSSLEY PARK

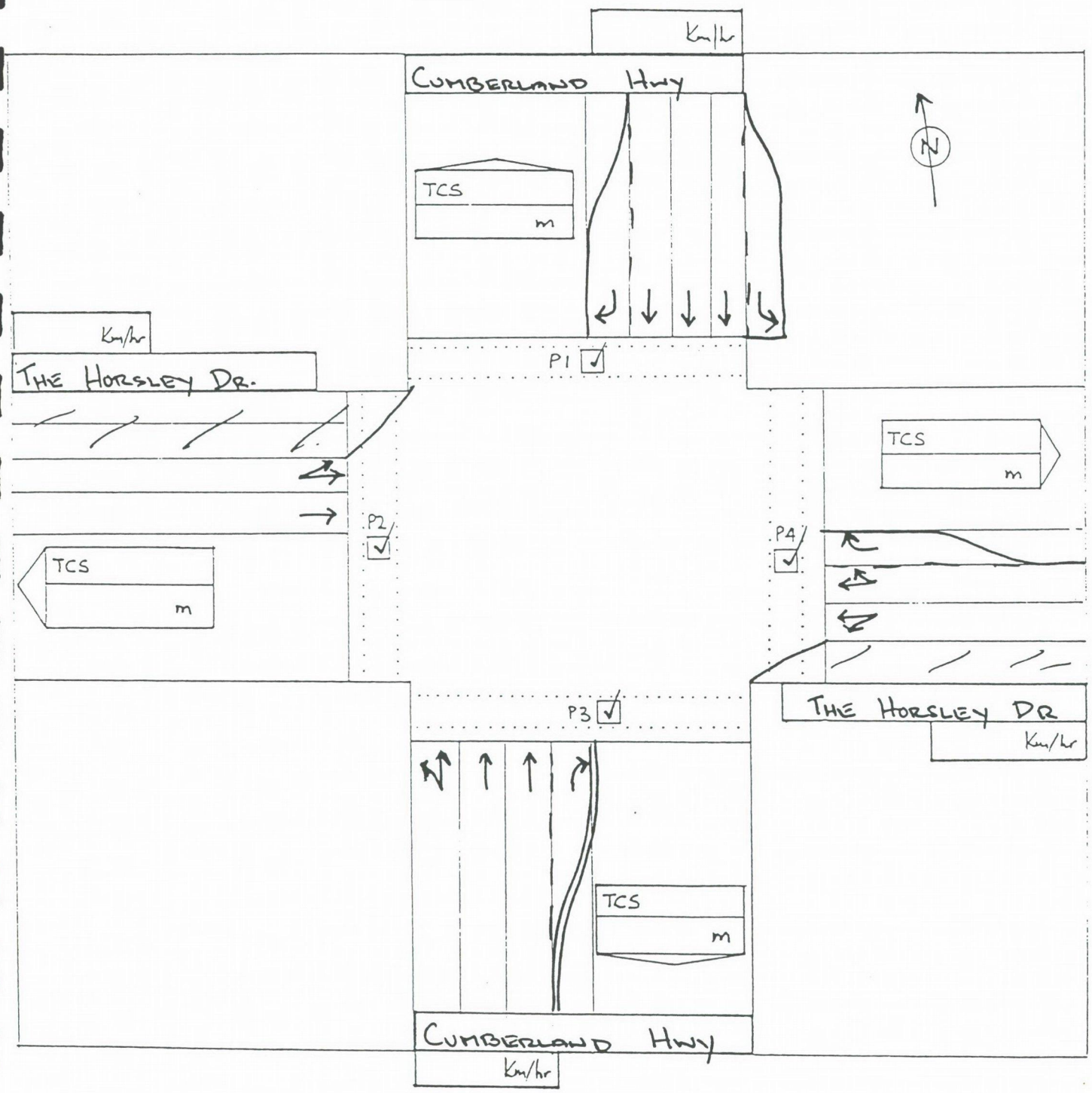
TCS N° : ROUNDABOUT 2



INTERSECTION : THE HORSLEY DR / CUMBERLAND HWY

SUBURB : SMITHFIELD

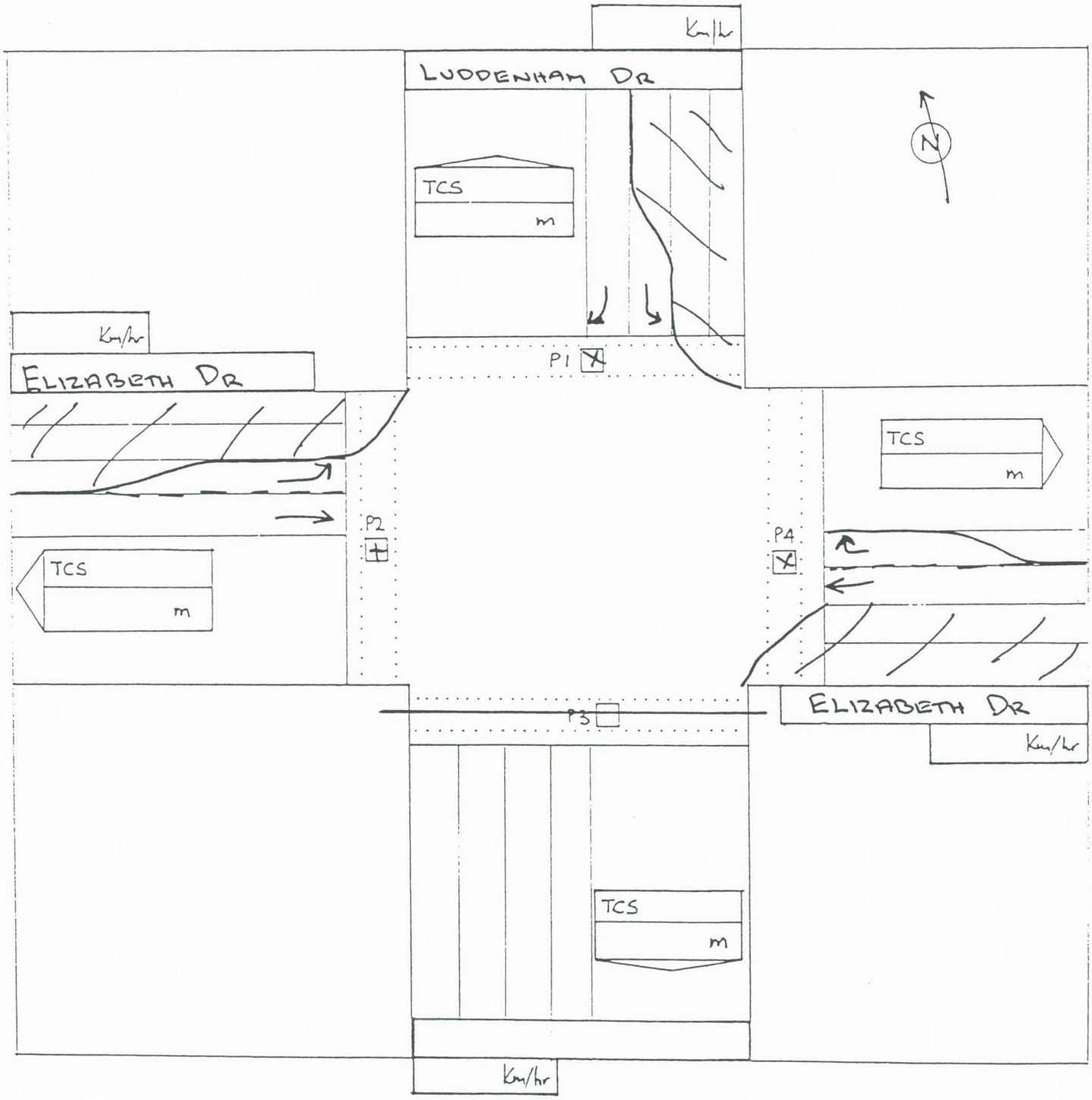
TCS Nº : SIGNALS 3



INTERSECTION : ELIZABETH DR / LUDDENHAM RD

SUBURB : LUDDENHAM

TCS Nº : NO SIGNS LANEMARKING 4

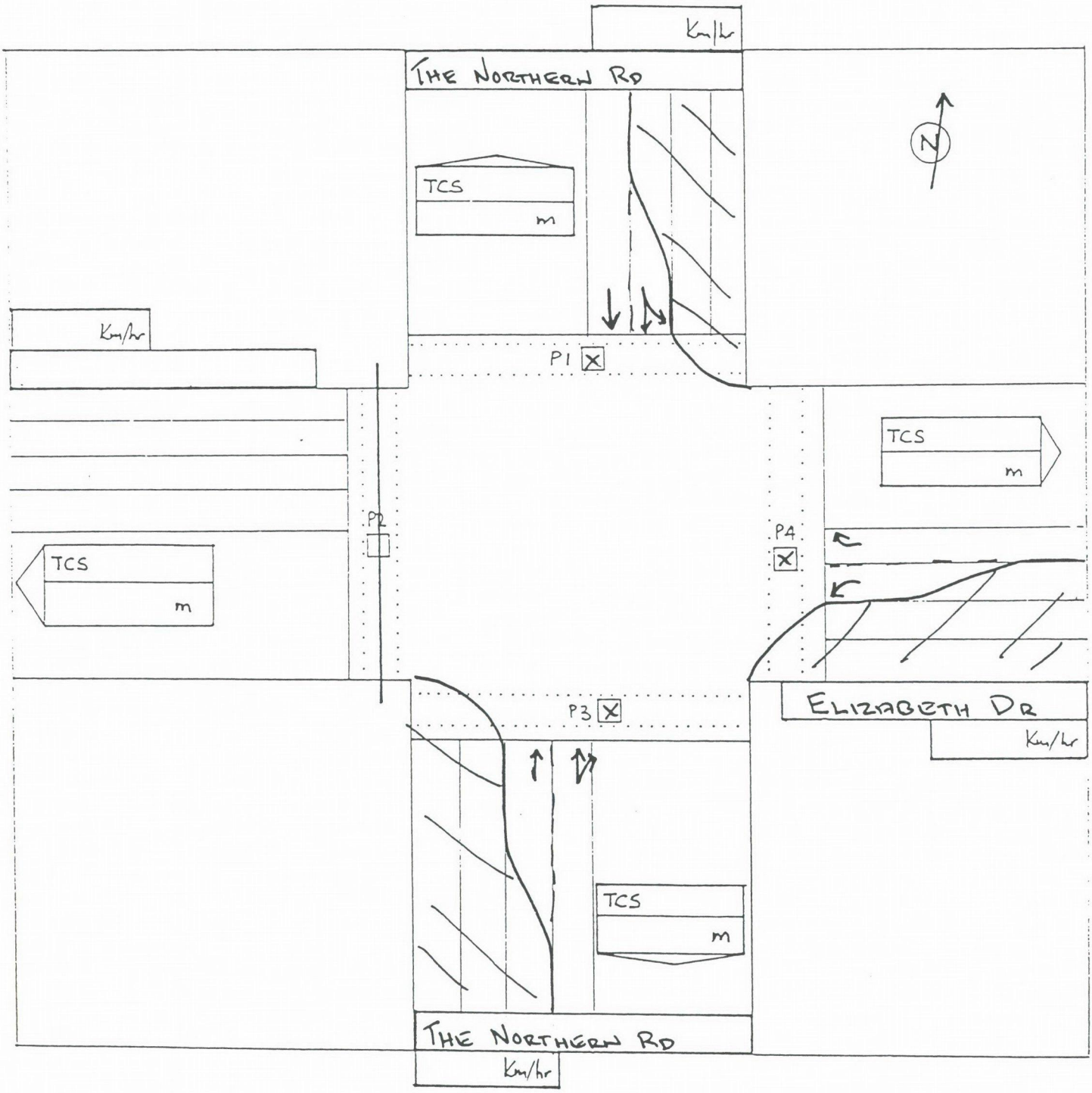


INTERSECTION : ELIZABETH DR / THE NORTHERN RD

SUBURB : LUDDENHAM

TCS N° : ROUNDABOUT

5

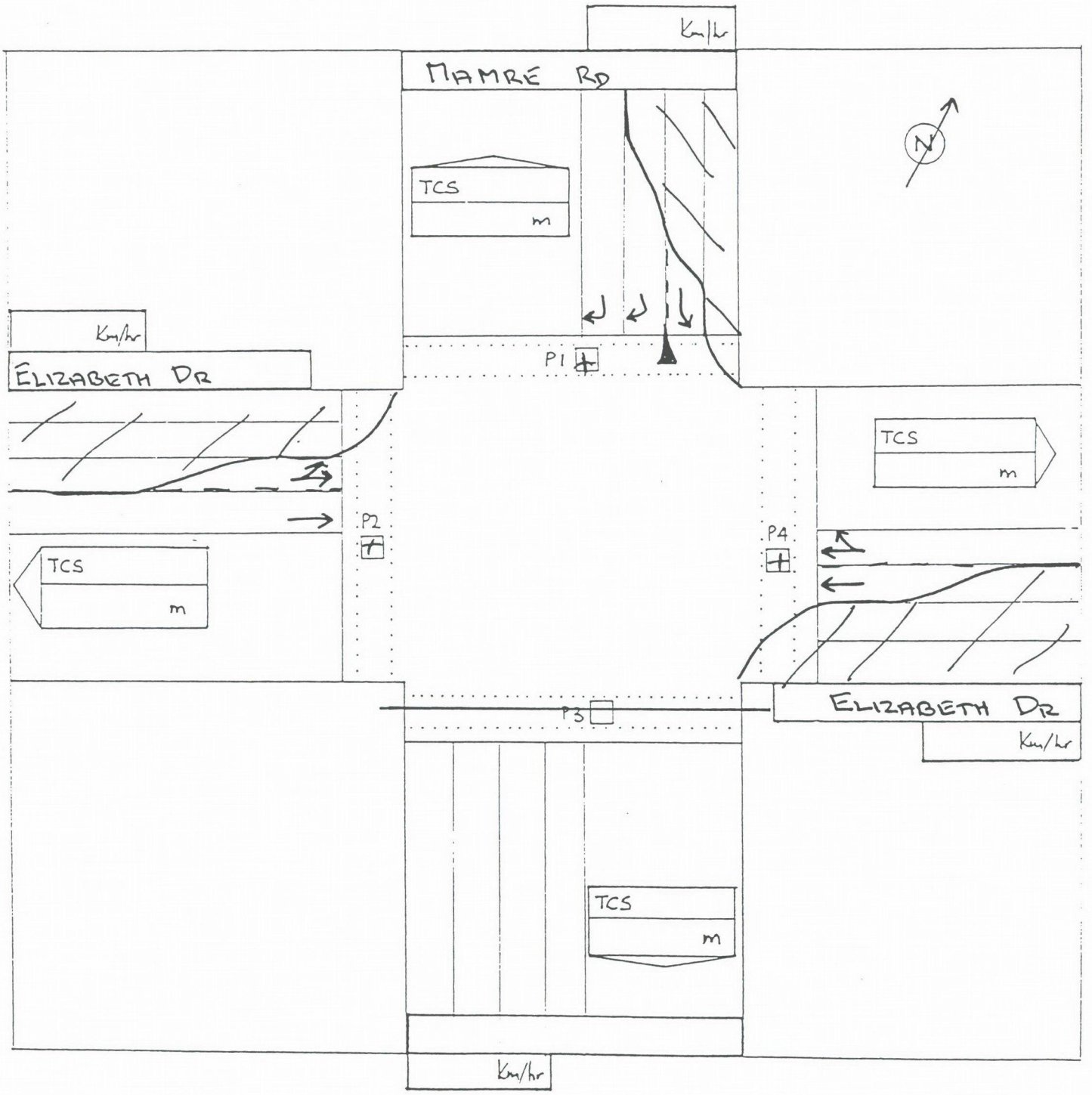


INTERSECTION : ELIZABETH DR / MAMRE RD

SUBURB : KEMPS CREEK

TCS Nº : ROUNDABOUT

6

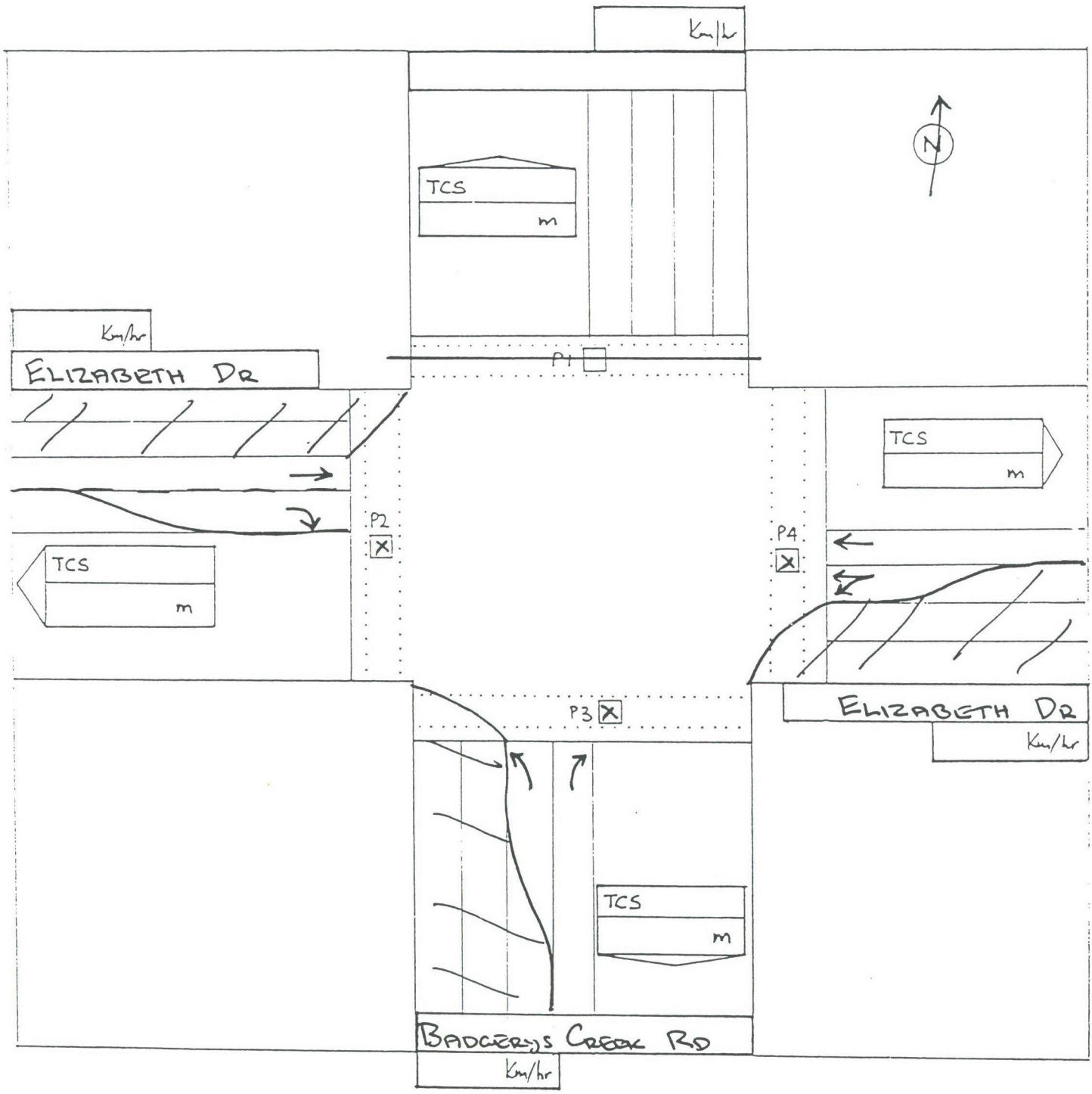


INTERSECTION : ELIZABETH DR / BADGERYS CREEK RD

SUBURB : BADGERYS CREEK

TCS N° : NO SIGNS LANDMARKING.

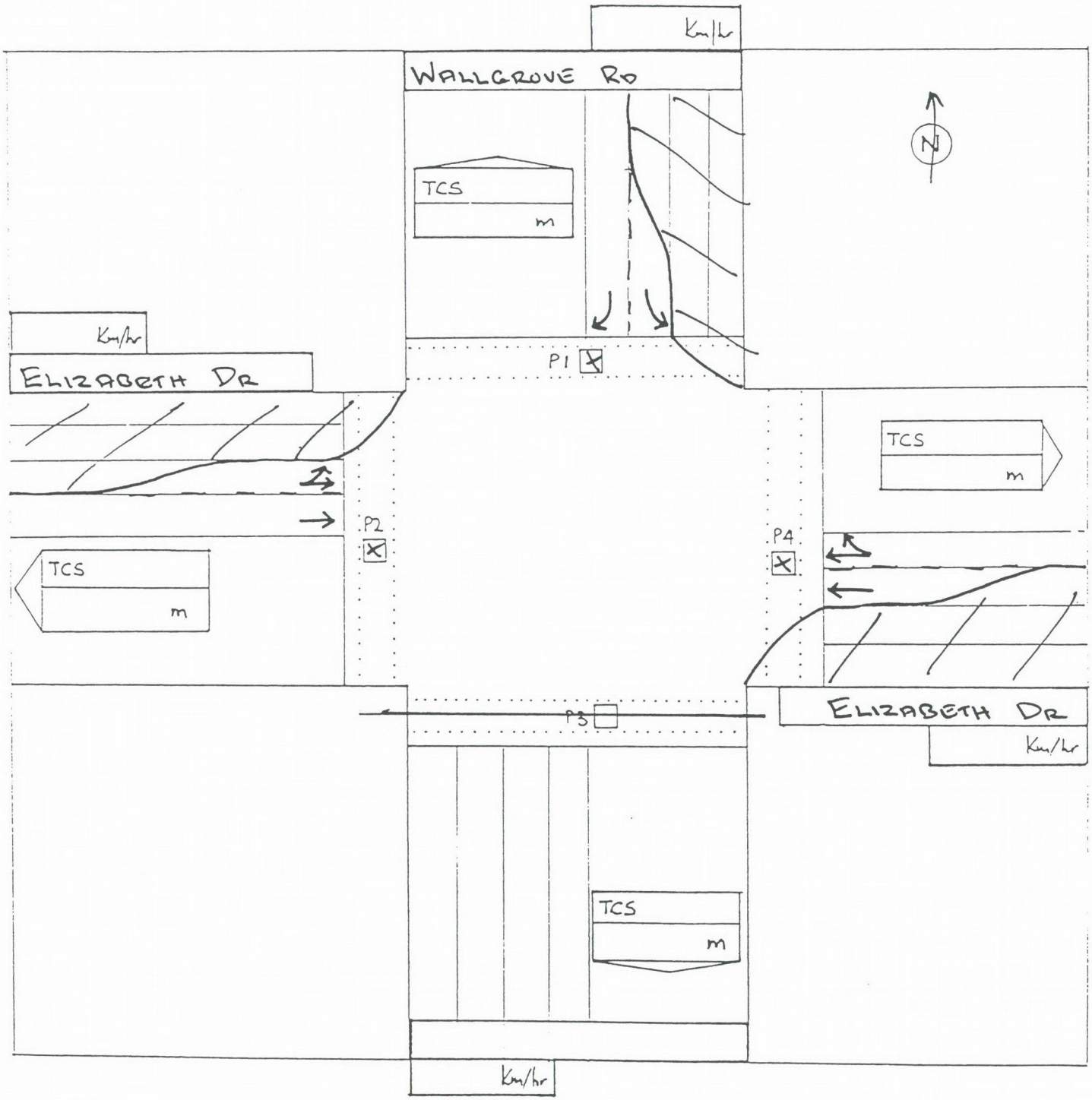
7



INTERSECTION : ELIZABETH DR / WALLGROVE RD

SUBURB : CECIL PARK

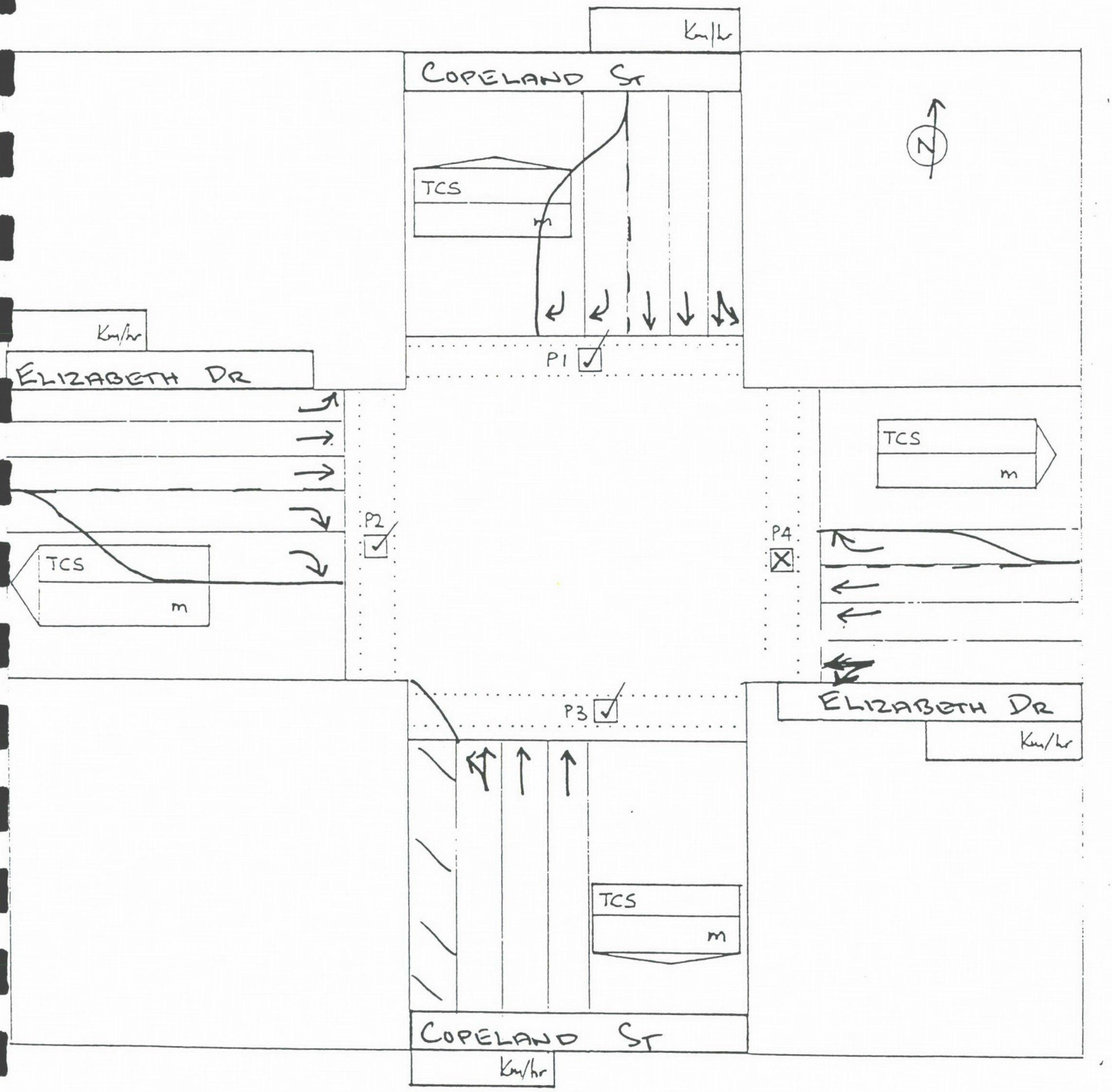
TCS N° : ROUNDABOUT 8



INTERSECTION : ELIZABETH DR / COPELAND ST

SUBURB : LIVERPOOL 9

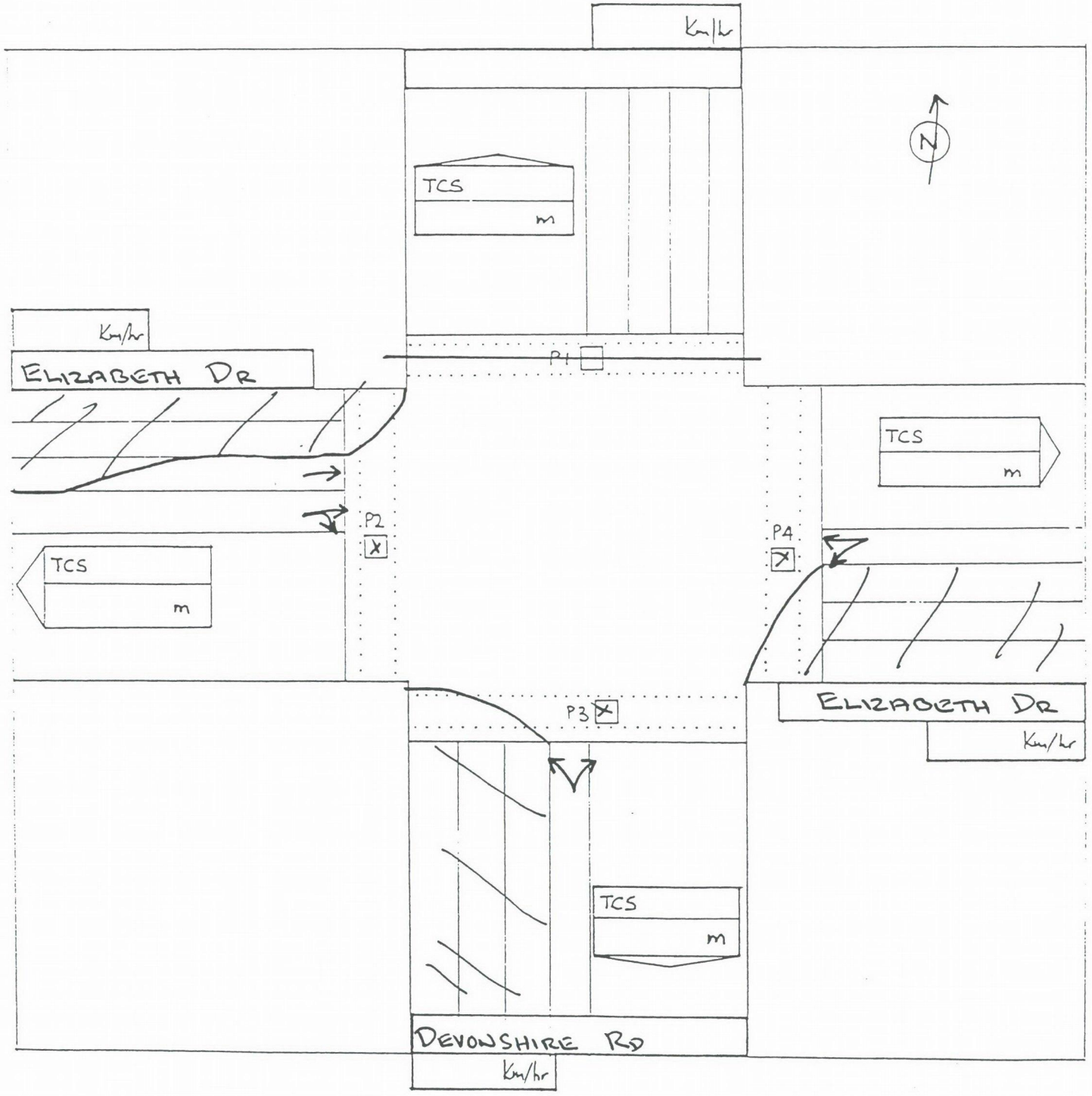
TCS N° : SIGNALS



INTERSECTION : ELIZABETH DR / DEVONSHIRE RD

SUBURB : KEMPS CREEK

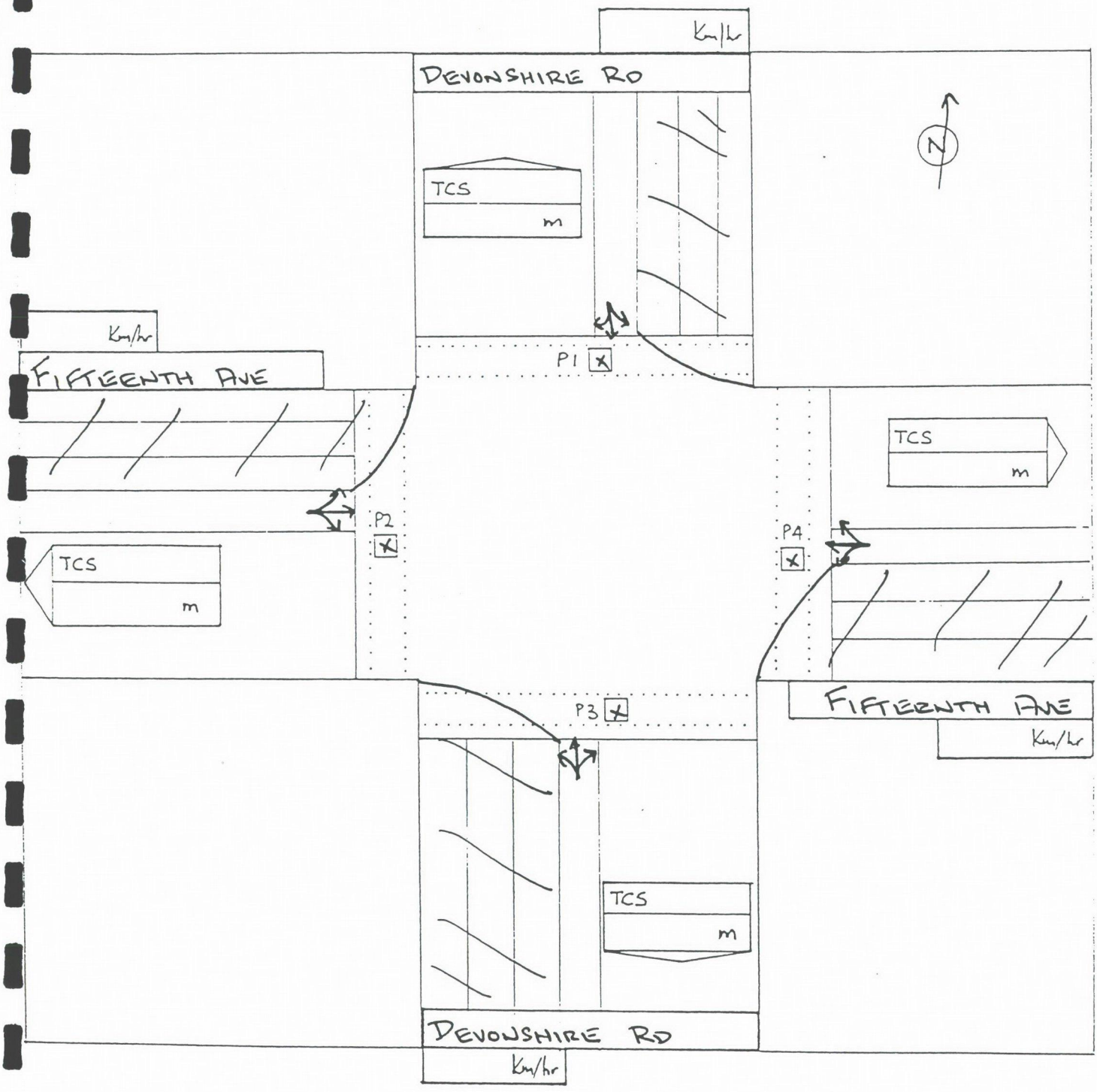
TCS N° : NO SIGNS NO LANEMARKING. 10



INTERSECTION : FIFTEENTH AVE / DEVONSHIRE RD

SUBURB : KEMPS CREEK

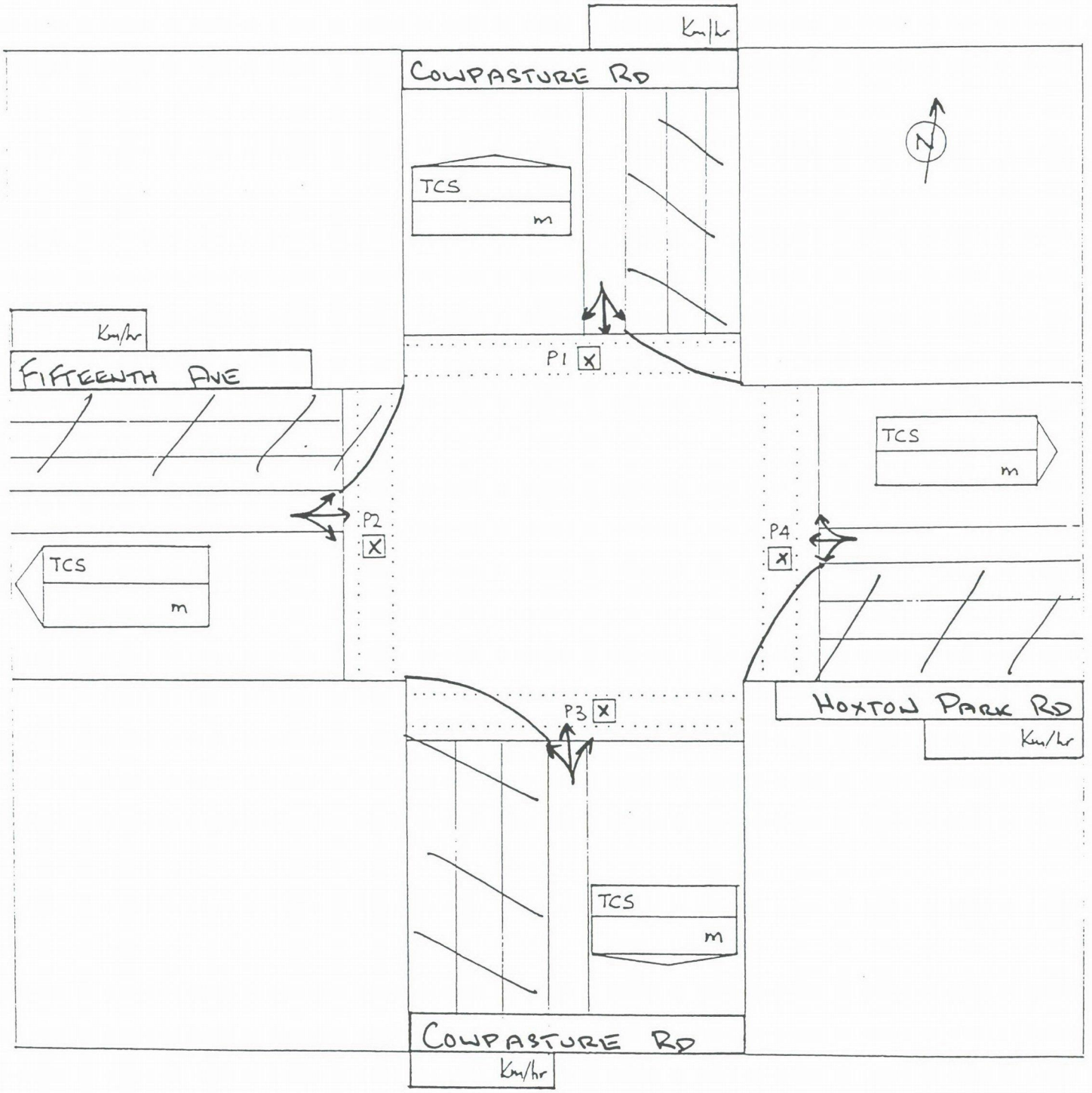
TCS N° : SIGNS 11



INTERSECTION : FIFTEENTH AVE / HOXTON PARK RD / COWPASTURE

SUBURB : WEST HOXTEN

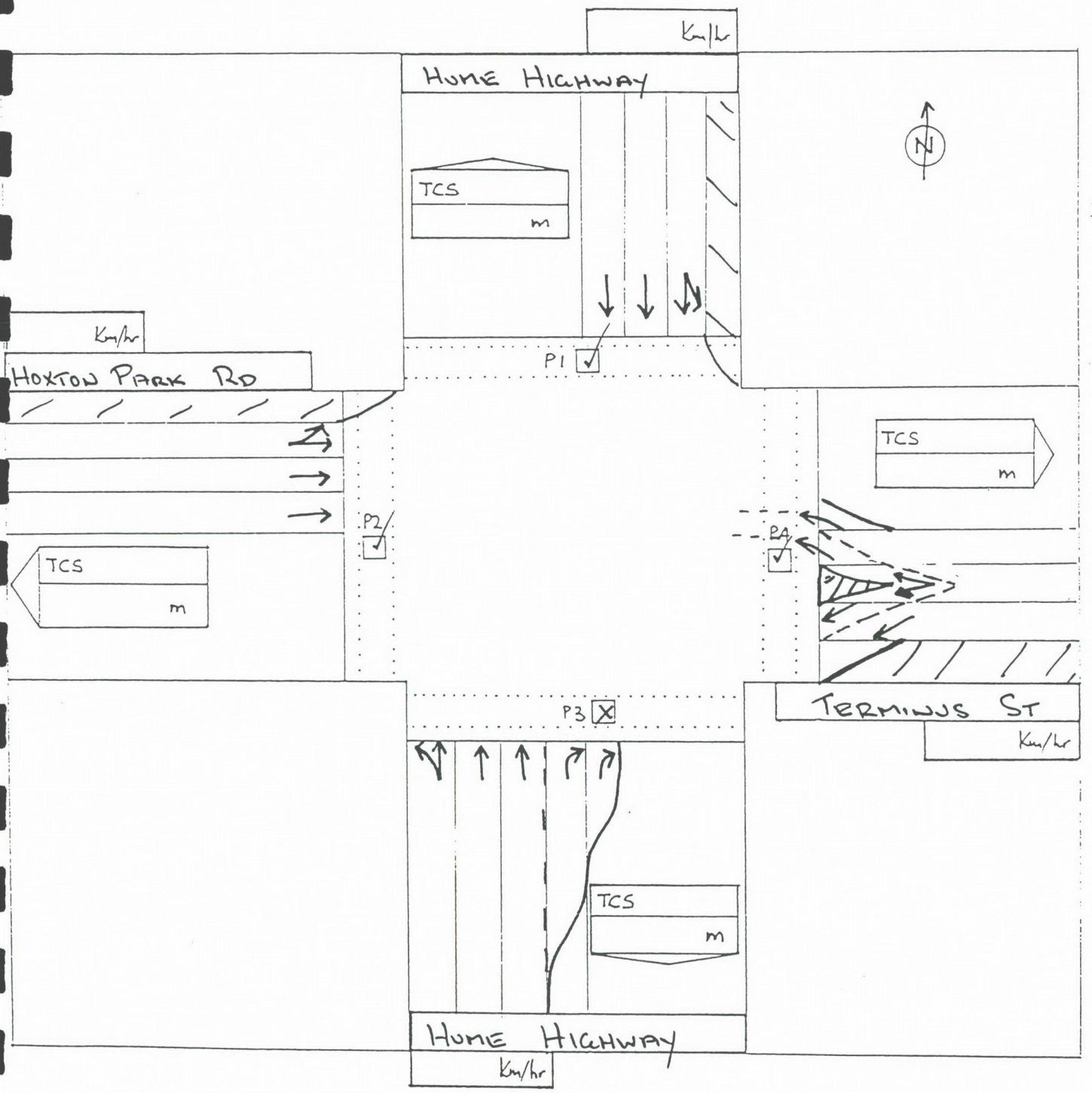
TCS N° : ROUNDABOUT 12



INTERSECTION : HOXTON PARK RD / HUME HWY

SUBURB : LIVERPOOL

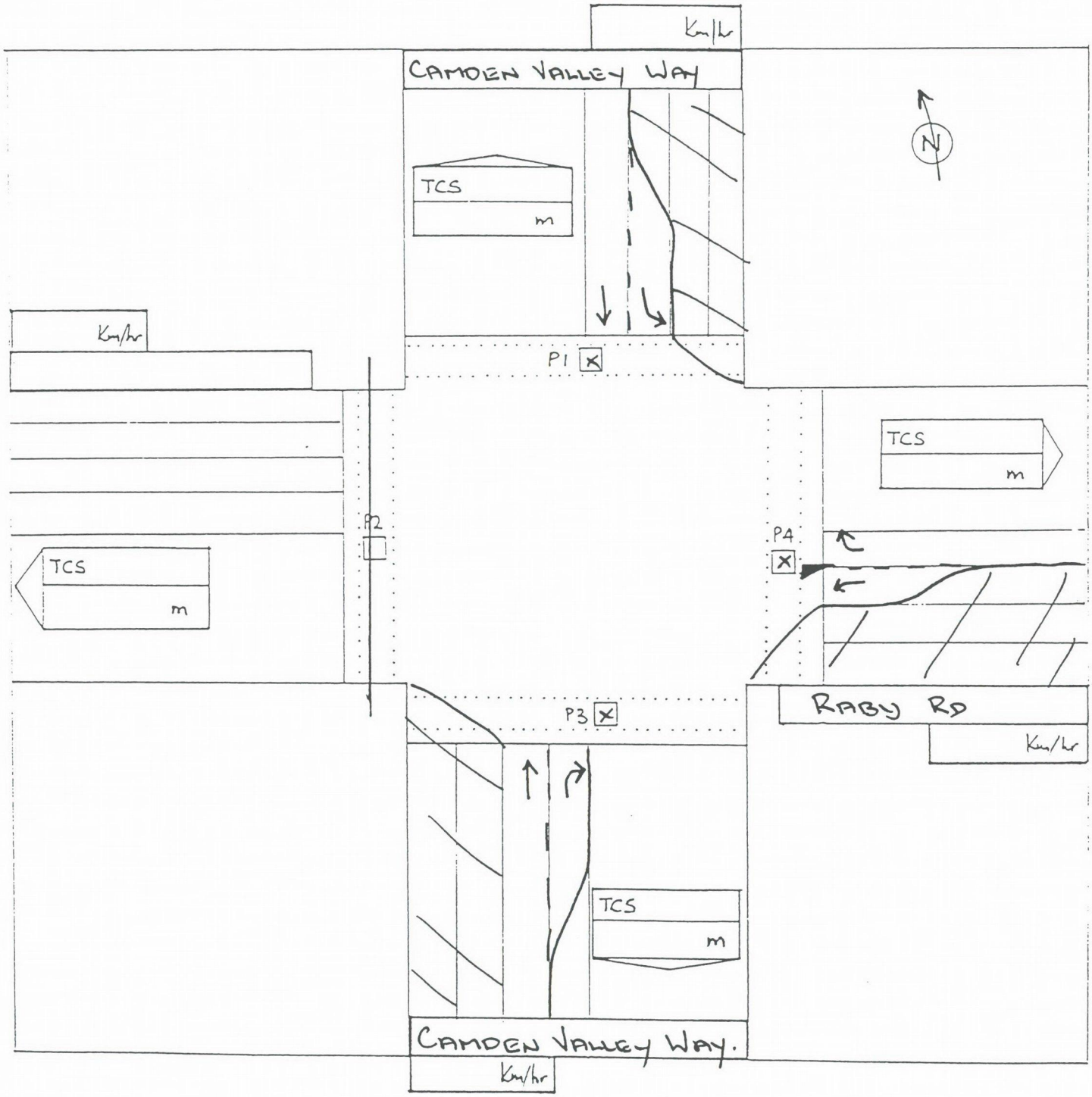
TCS Nº : SIGNALS 13



INTERSECTION : CAMDEN VALLEY WAY / RABY RD

SUBURB : LEPPINGTON

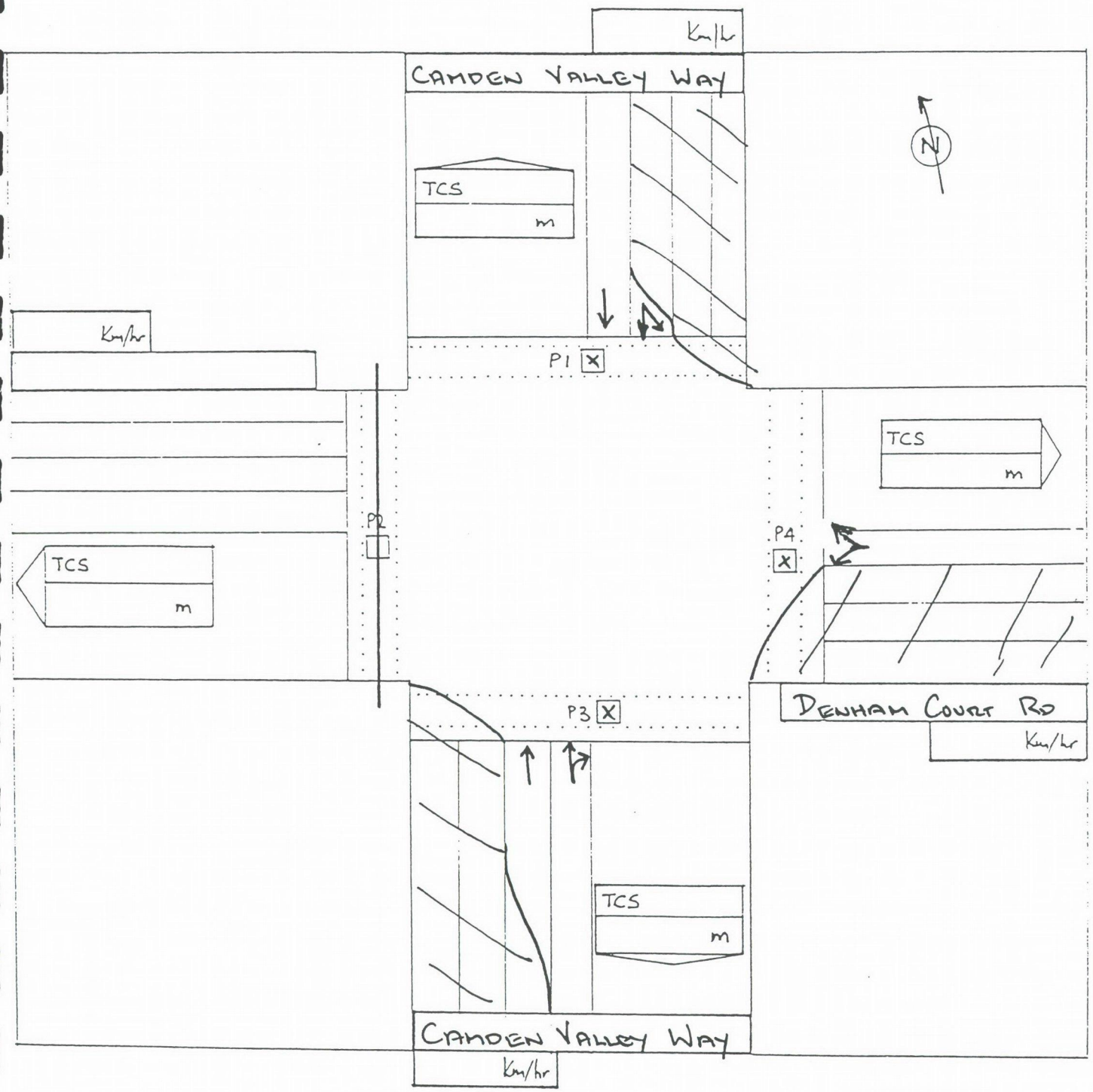
TCS Nº : NO SIGNS NO LANEMARKING 14



INTERSECTION : CAMDEN VALLEY WAY / DENHAM COURT RD

SUBURB : DENHAM COURT

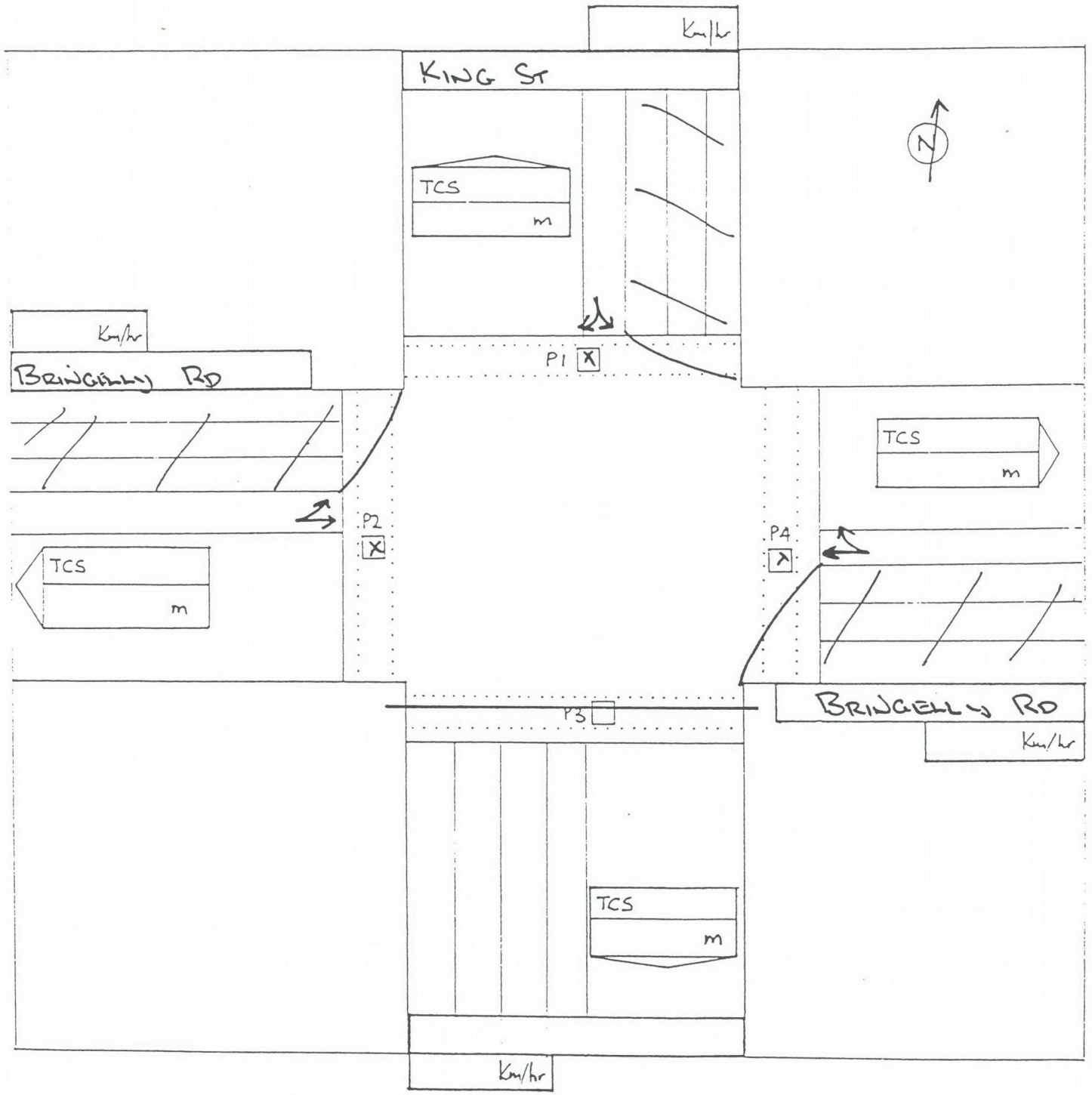
TCS N° : NO SIGNS - LANEMARKING. 15



INTERSECTION : BRINGELLY RD / KING ST

SUBURB : LEPPINGTON

TCS Nº : Nº SIGNS NO LANEMARKING. 16

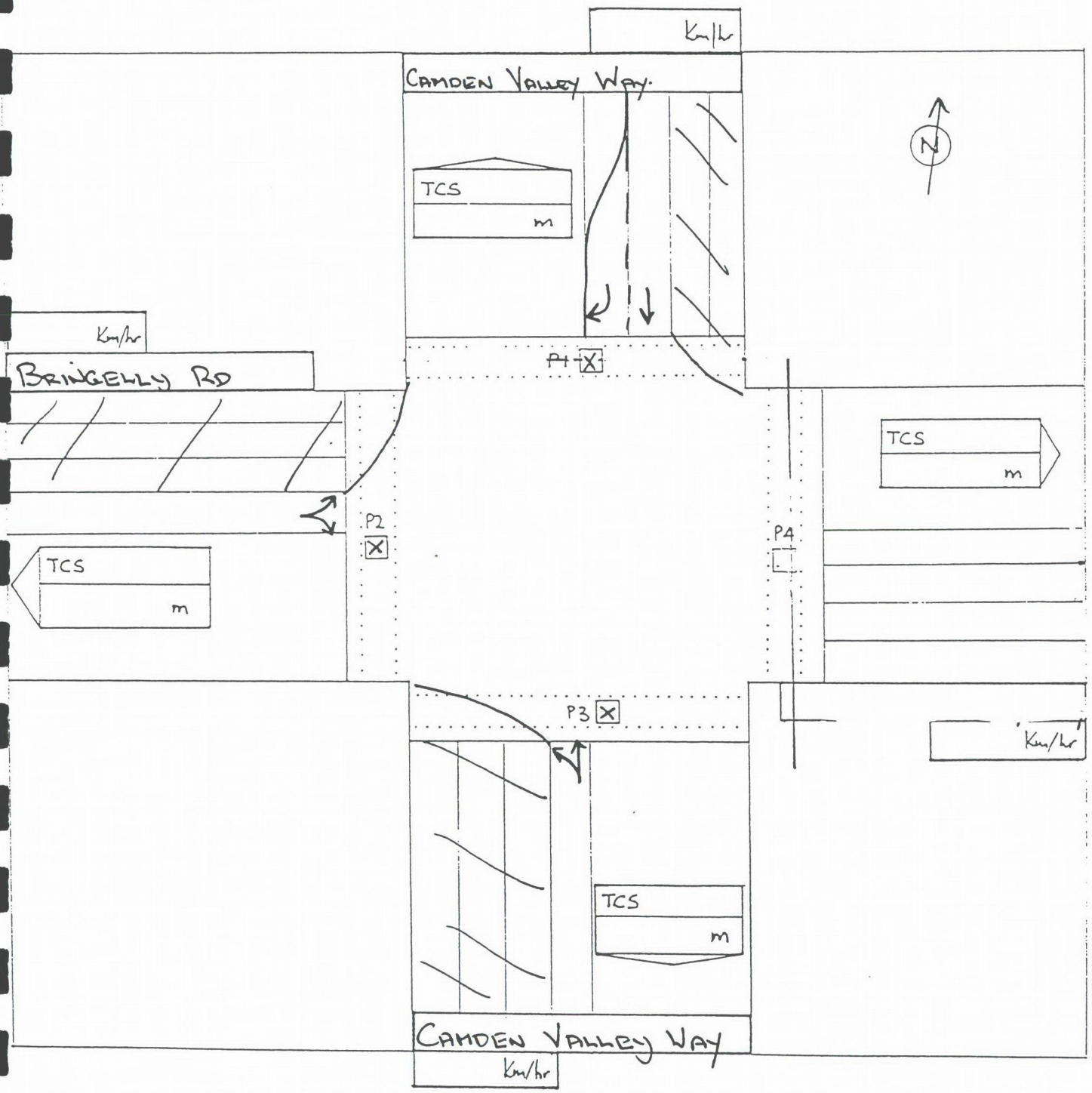


INTERSECTION : BRINGELLY RD / CAMDEN VALLEY WAY

SUBURB : HOXTON PARK

TCS Nº : SIGNS

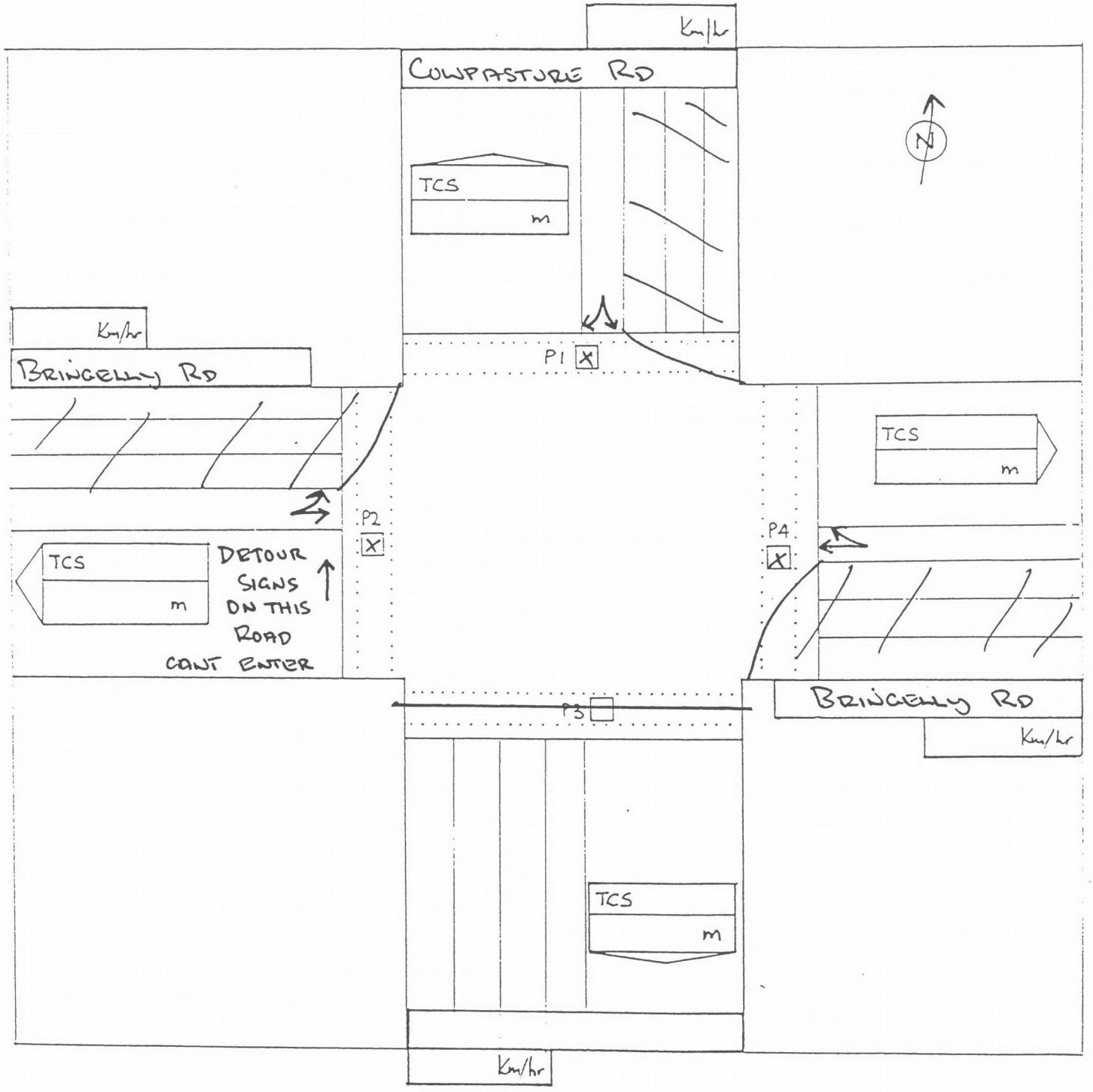
17



INTERSECTION : BRINGELLY RD / COWPASTURE RD

SUBURB : LEPPINGTON

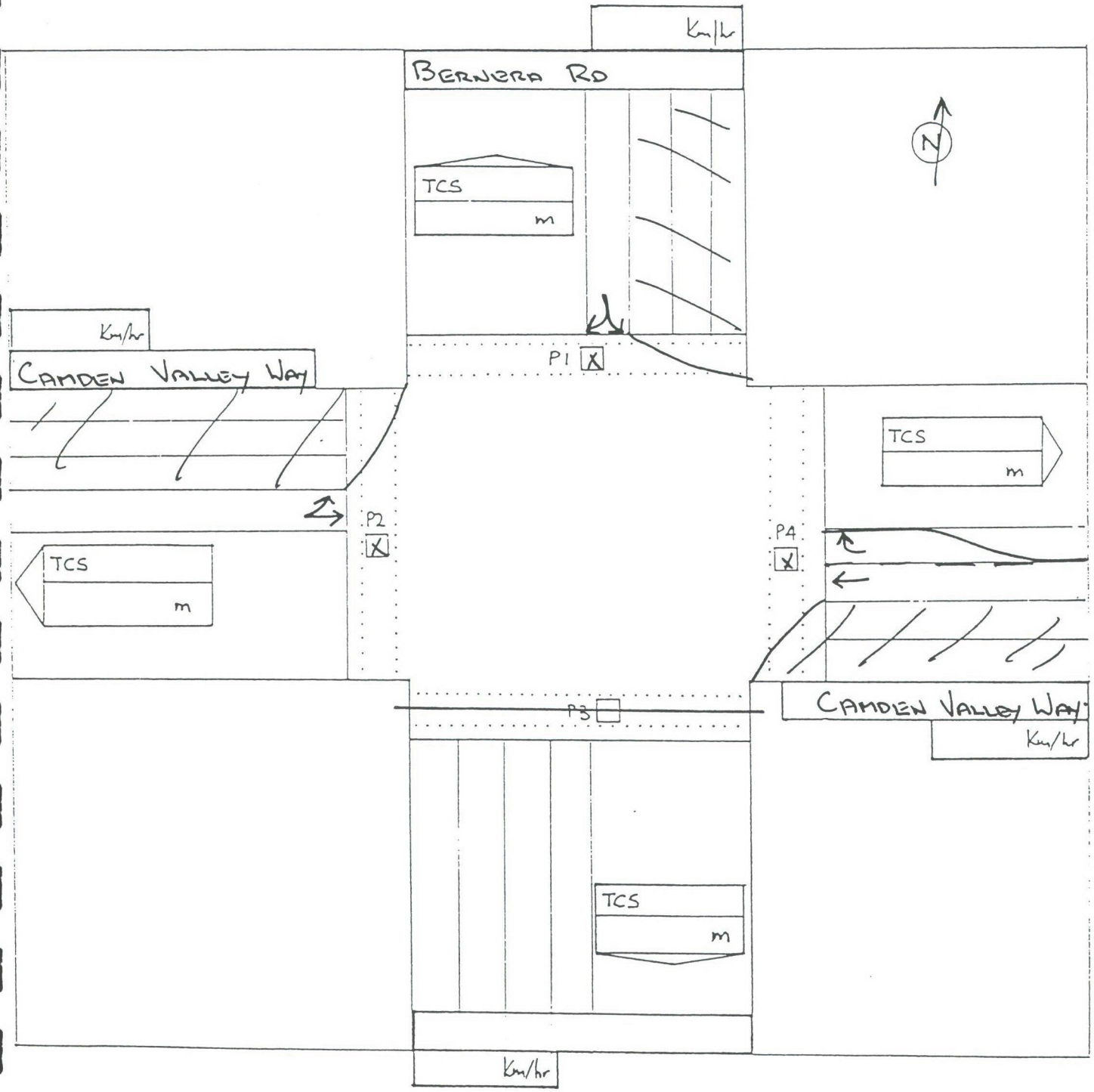
TCS N° : NO SIGNS NO LANEMARKING 18



INTERSECTION : CAMDEN VALLEY WAY / BERNERA RD

SUBURB : PRESTONS

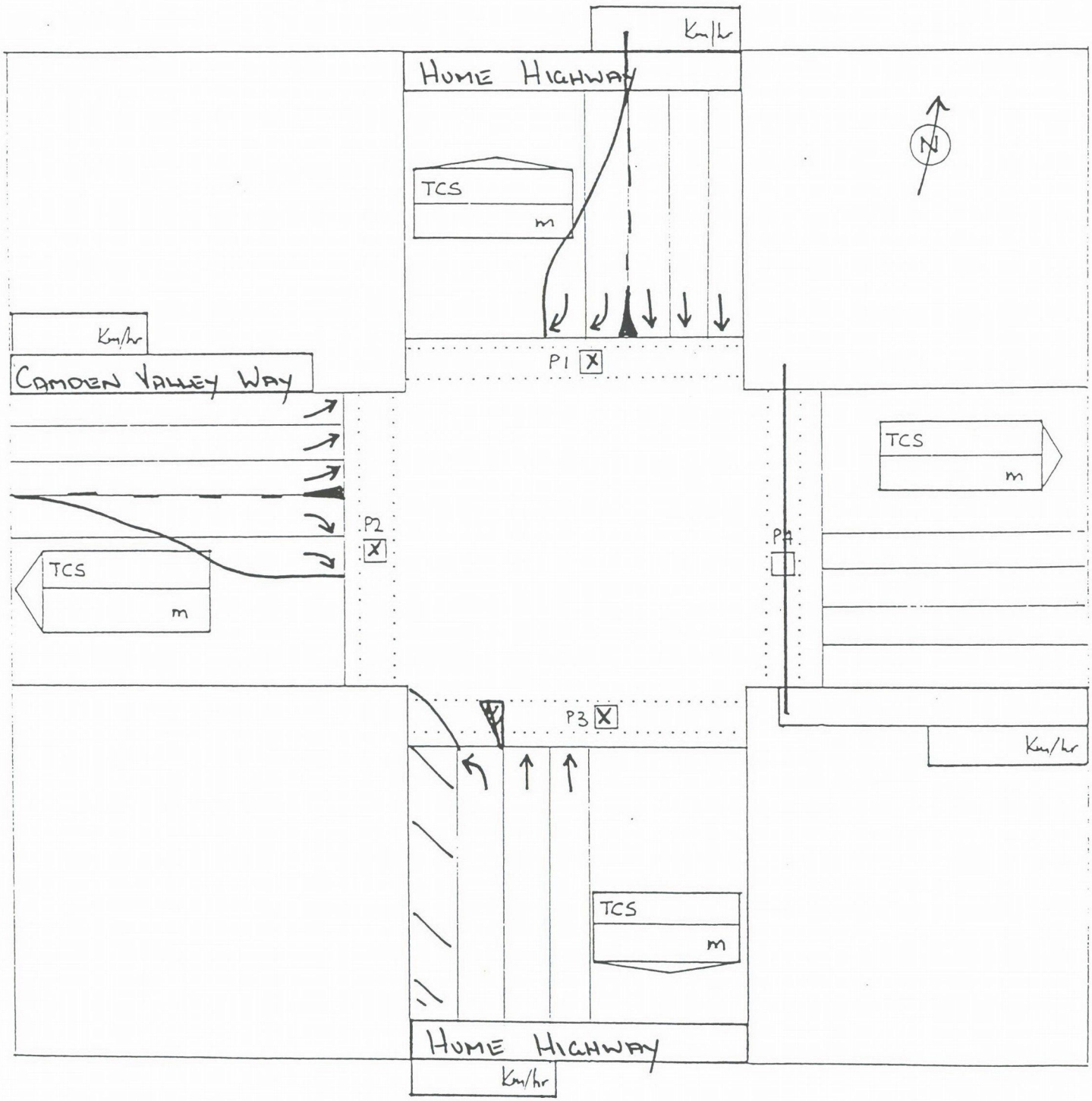
TCS N° : NO SIGNS (LANDMARKING) 19



INTERSECTION : CAMDEN VALLEY WAY / HUME HWY

SUBURB : GLENFIELD

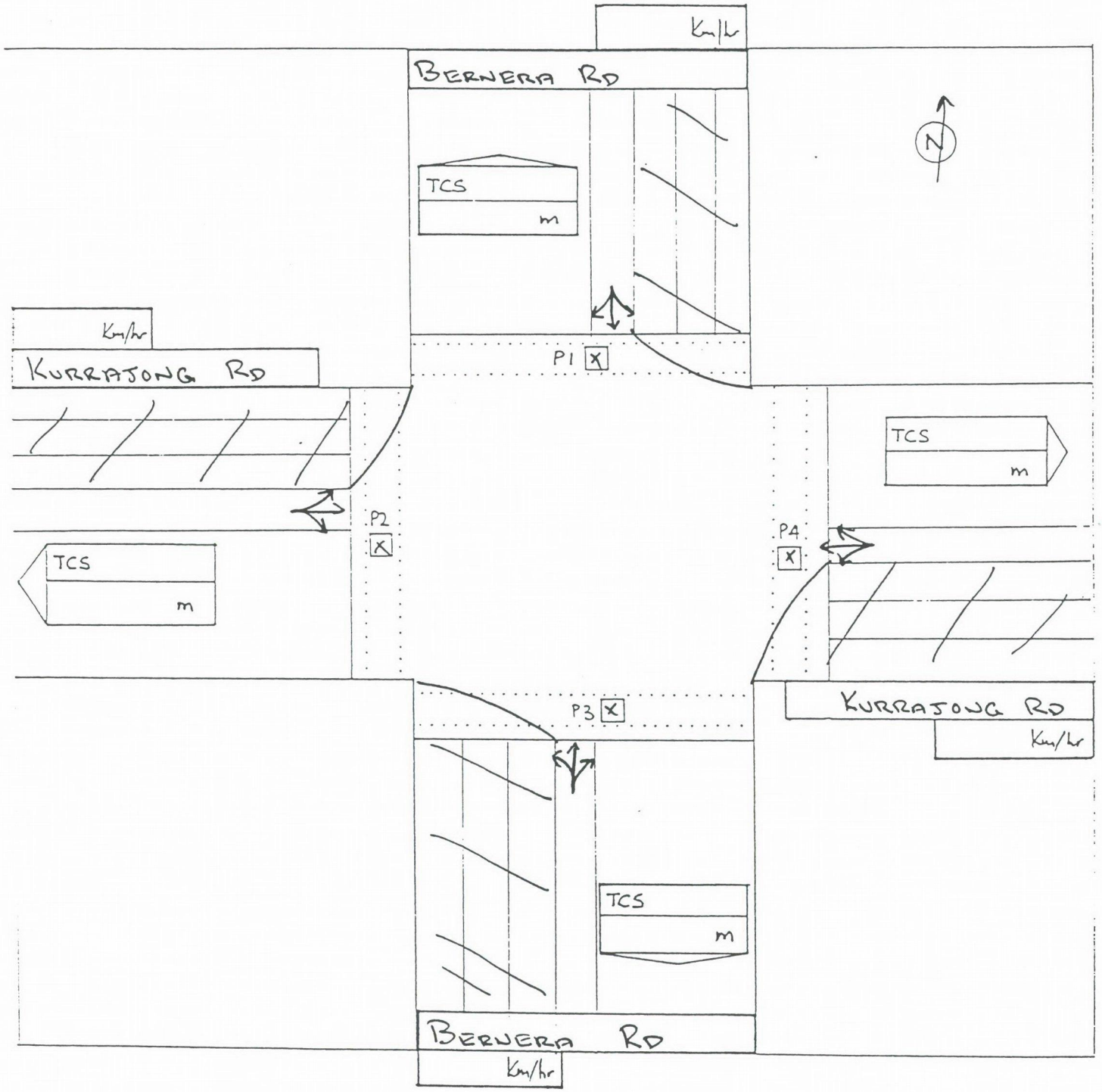
TCS N° : SIGNALS 20



INTERSECTION : BERNERA RD / KURRAJONG RD

SUBURB : PRESTONS

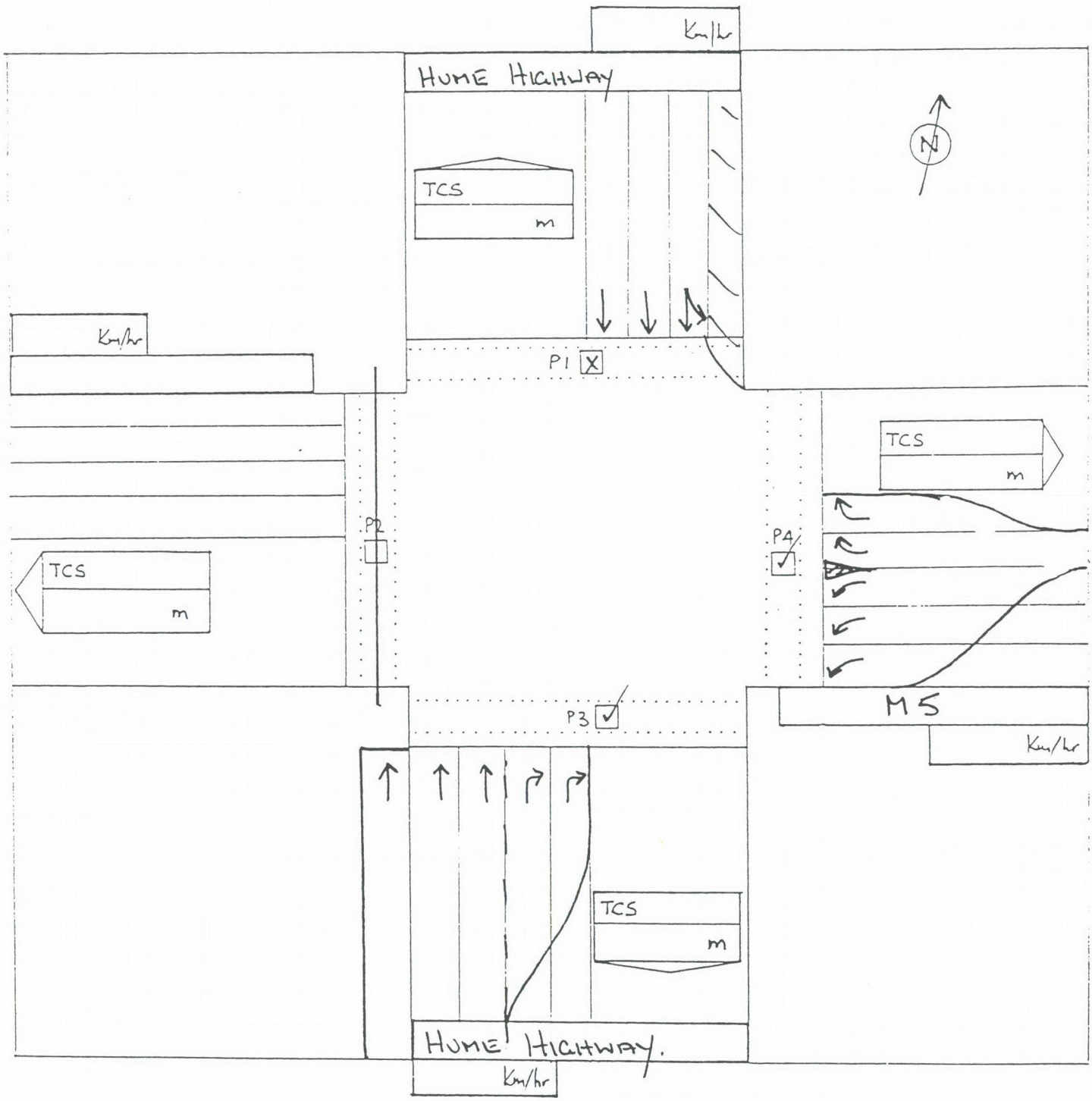
TCS N° : ROUNDABOUT 21



INTERSECTION : HUME HIGHWAY / M5

SUBURB : LIVERPOOL

TCS Nº : SIGNALS 22



INTERSECTION : CAMPBELLTOWN RD / GLENFIELD RD

SUBURB : GLENFIELD

TCS N° : SIGNALS 23