CAPITA

Treforest Industrial Estate Local Development Order

Traffic Study
March 2015

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Quality Management

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1. Study Background

1.1 Introduction

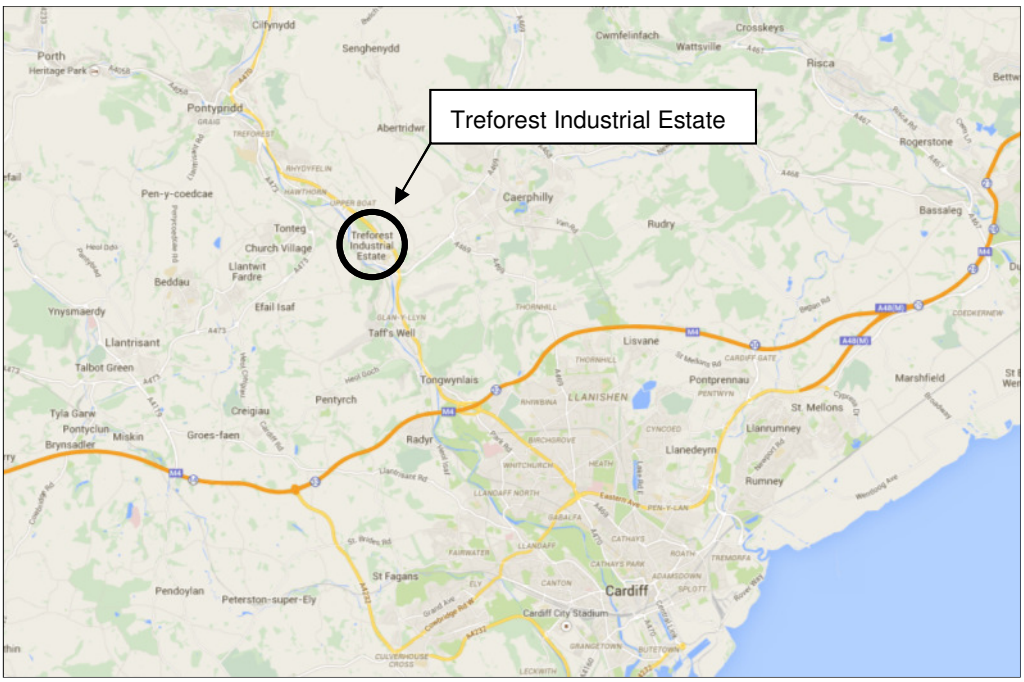
1.1.1 A local development order (LDO) grants permission for a type of development specified so the developer does not need to submit planning applications. The Welsh Government guidance has been developed from the Planning Advisory Service Local Development Orders Stage 1 Research Report on Stakeholder views and Practice issues. The guidance covers practical and policy aspects of implementing the regime. It sets out our position on the key stages and issues in the LDO process as contained in *"Welsh Government, Guidance on Using a Local Development Order, Circular Number 003/2012, 30th April 2012".*

1.1.2 RCT required a Traffic Study of Treforest Industrial Estate with regard to the implications of making a Local Development Order (LDO) for the estate to include seven sites currently vacant. An LDO removes the requirement for a Planning Application for business developments (B1, B2 and B8) with certain caveats that will apply.

1.2 Treforest Industrial Estate Location

1.2.1 Treforest Industrial Estate is considered to be excellently located to maximise its potential for employment being located direct west of the A470 and connecting to the M4 to the south and to Pontypridd and the Valleys to the north via the A470. The estate has regular bus and rail services the latter being on the South Wales Valleys Line with routes to Pontypridd, Aberdare, Merthyr and Cardiff. **Figure 1.2.1** illustrates the location of the estate in strategic terms.

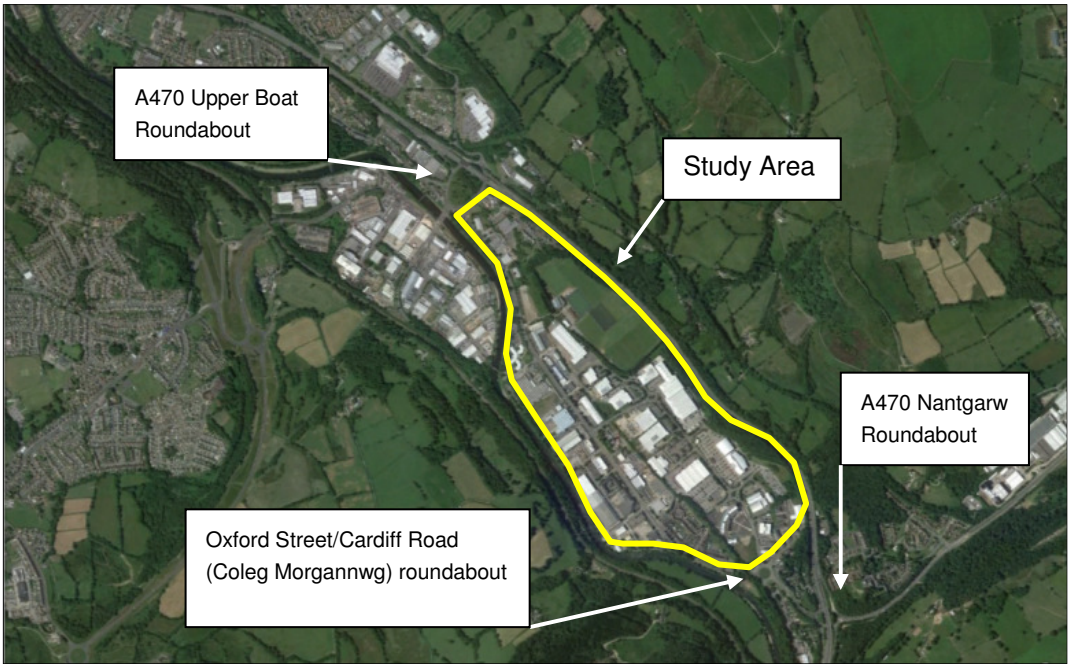
Figure 1.2.1. Treforest Industrial Estate strategic location



1.3 Treforest Study Area

1.3.1 For the purposes of this assessment Treforest Industrial Estate is defined as the study area to the west of the A470 and east of the River Taff off the spinal road of Main Avenue. Access to the estate is via the A470 Upper Boat roundabout to the north and both the Oxford Street/Cardiff Road (Coleg Morgannwg) Roundabout and A470 Nantgarw Roundabouts to the south as shown in **Figure 1.3.1**.

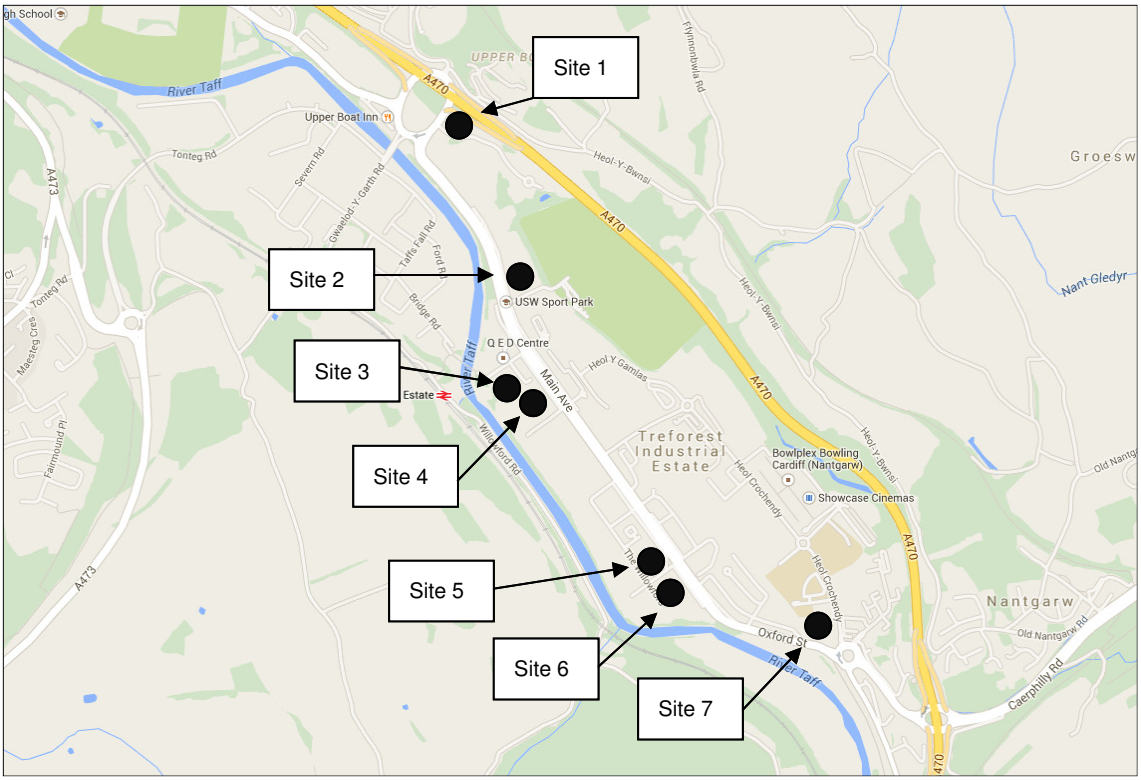
Figure 1.3.1. Treforest Industrial Estate study area



2. Development Proposals

2.1 RCT have identified seven vacant potential B1, B2 and B8 business sites within the study area that are currently vacant as shown in **Figure 2.1** and listed in **Table 2.2**.

Figure 2.1. Vacant sites in Treforest Industrial Estate



2.2 Table **2.2** lists the currently vacant sites in the Industrial Estate with the total Gross Floor Areas (GFA) of 21,880sqm.

Table 2.2. List of currently vacant B1, B2 and B8 business sites.

Trip rates and trip generation		GFA sqm at 40% plot ratio
1	Heol Groeswen	1000
2	Site of Unit C9 demolished and land to rear	7280
3	Powys Road yard	1000
4	Gwent Road	3000
5	Site of Unit G13 demolished 2014	3000
6	Willowford	3000
7	Gateway Site	3600

2.1 Development Trip Rates and Trip Generation

2.1.1 The Trip Rate Information Computer System (TRICS) can provide the average trip rate (50th percentile) and the 85th percentile (85th%ile), based on a series of traffic surveys at sites of a similar land use and size. The 85th%ile is preferable to Highway Authorities being the most robust prediction.

2.1.2 In order to establish the potential trip generation to and from the study area by introducing various possible businesses to the seven sites, a range of possible trip rates and trip generation options was provide to RCT for consideration, as contained in **Appendix A** with the associated TRICS data. From the list the 85th%ile trip rates and trip generation option 6 was chosen to use as the preferred most applicable and robust profile as summarised in the trip rates in **Table 2.1.2** and the trip generation in **Table 2.1.3**.

Table 2.1.2. Land use trip rates

Description	AM peak hour			PM peak hour			AM & PM Total
	Arr.	Dep.	Total	Arr.	Dep.	Total	
Office	3.25	0.353	3.603	0.458	4.000	4.458	8.061
Business park	2.211	0.581	2.793	0.238	1.681	1.918	4.711
Industrial estate	1.383	1.026	2.409	0.627	1.395	2.022	4.431
Industrial unit	1.311	0.406	1.7165	0.175	1.322	1.497	3.213
Parcel distribution centre*	0.298	0.768	1.066	0.942	0.967	1.909	2.975
Warehousing commercial	0.466	0.320	0.785	0.235	0.365	0.600	1.385
Warehousing self storage	0.315	0.206	0.521	0.183	0.261	0.444	0.965

** Average used as too few sites to determine 85th percentile*

Table 2.1.3. Land use trip generation

Site No.	Trip rates and trip generation	GFA sqm at 40% plot ratio	Land use	Option 6				**Total**
				AM		PM		
				Arr.	Dep	Arr.	Dep	
2	Site of Unit C9 demolished and land to rear	7280	Business park	161	42	17	122	**343**
7	Gateway Site	3600	Industrial estate	50	37	23	50	**160**
4	Gwent Road	3000	Office	98	11	14	120	**242**
5	Site of Unit G13 demolished 2014	3000	Office	98	11	14	120	**242**
6	Willowford	3000	Industrial unit	39	12	5	40	**96**
1	Heol Groeswen	1000	Industrial unit	13	4	2	13	**32**
3	Powys Road yard	1000	Industrial unit	13	4	2	13	**32**
			Total	**471**	**121**	**76**	**479**	**1147**

2.1.3 The total AM and PM peak hour and arrivals and departure in **Table 2.1.3** have been include as robust predicted development traffic in this assessment.

2.2 Development Impact

RCT required an impact assessment for an opening year of 2018 and future year 2028. As such the following three junctions have been assesses for an opening year of 2018 and a future year 2028, with and without the development traffic, using industry standard traffic models TRANSYT and ARCADY as summarised below;

- A470 Upper Boat Roundabout (TRANSYT model);
- Oxford Street/Cardiff Road (Coleg Morgannwg) Roundabout (ARCADY);
- A470 Nantgarw Roundabout (ARCADY).

2.3 Development Traffic Distribution

The development traffic distribution to and from each LDO site within the study area was derived using the traffic distribution identified within an Automatic Number Plate Recognition (ANPR) survey for Treforest Industrial Estate and assigned within the PARAMICS model. Development traffic distribution is described further in Chapter 4: Paramics Traffic Modelling.

2.4 Traffic Growth Forecasts

2.4.1 It is suggested by RCT that the regeneration program is to be reviewed after three years. Therefore, as agreed with RCT, traffic forecast for a 2018 opening year and 2028 future year opening and for a do minimum scenario and a do something scenario have been assessed. The do minimum scenario will include an element of background growth. The do something scenario will contain background growth plus traffic from the development sites within the industrial estate.

2.4.2 TEMPRO V6.2 has been used to produce background traffic growth for the opening year 2018 and future year 2028 for Pontypridd, principal urban roads, as shown in **Table 2.4.2**.

Table 2.4.2. TEMPRO V6.2 background traffic growth

Period	AM Peak	PM Peak
2015-2018	1.044	1.044
2015-2028	1.186	1.186

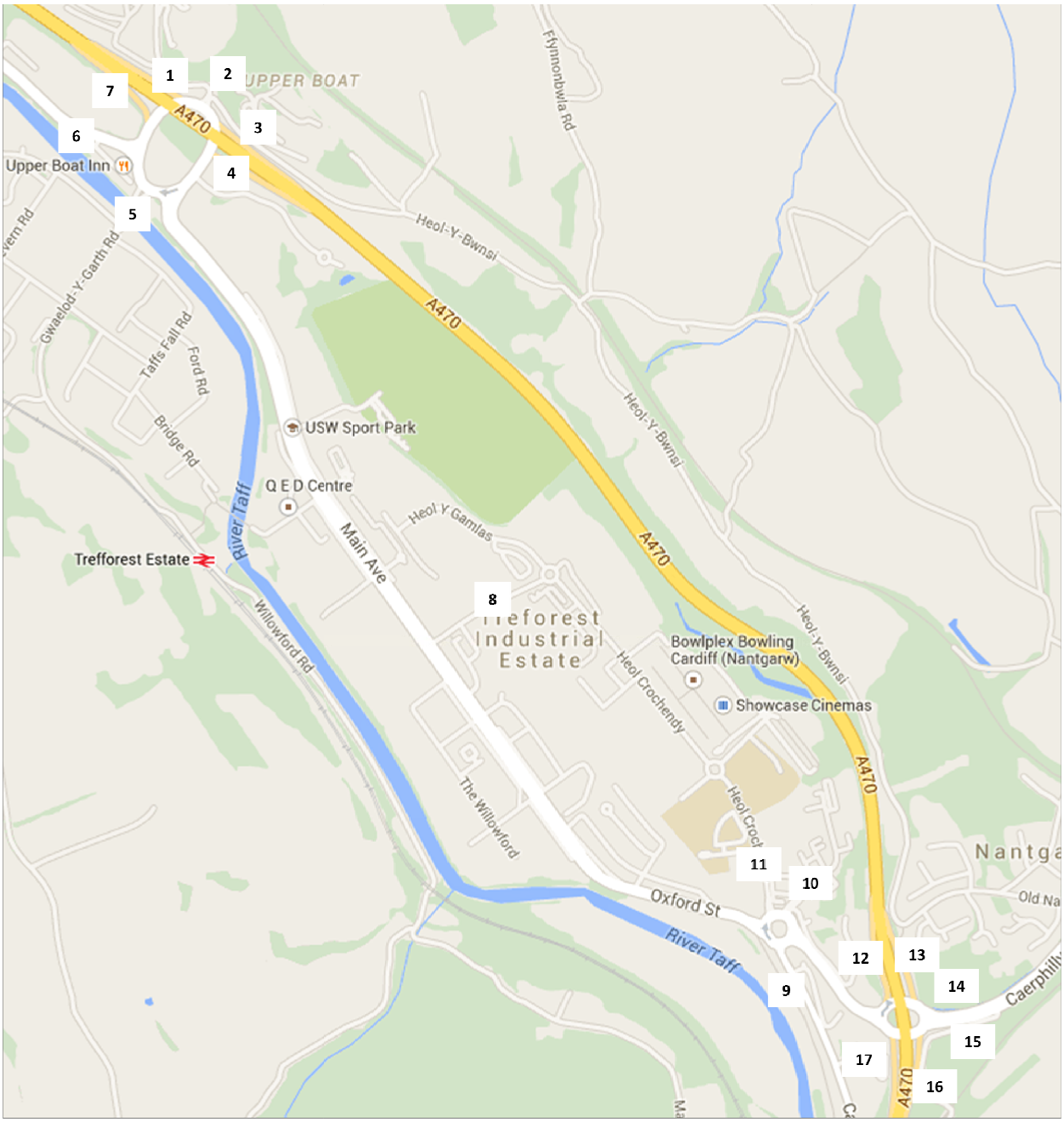
3. Traffic Survey Data

3.1 Introduction

3.1.1 The following traffic surveys were undertaken on Thursday 12th February 2015;

- Queue length surveys at the A470 Upper Boat and Nantgarw Roundabouts;
- Link flow counts at the A470 Upper Boat Roundabout, Nantgarw Roundabout, Coleg Morgannwg Roundabout, and the Main Avenue/Heol Crochendy signalised junction;
- Automatic Number Plate Recognition (ANPR) survey with locations shown in **Figure 3.1**.

Figure 3.1. ANPR survey locations



3.1.2 The surveys were undertaken for 2 hours in the morning peak (07:00-09:00) and 2 hours in the evening peak (16:00-18:00). It was discovered that on the day of the traffic surveys a traffic incident is likely to have occurred during the PM period which resulted in heavy congestion and significant queuing on the local road network. Following discussions held with RCT a decision was made to use 2010 traffic survey data for the PM peak period where possible.

3.2 Survey Analysis

3.2.1 The profile of traffic volumes through the cordon have been analysed to determine the AM and PM peak hours. The peak traffic flow in the AM occurred between 08:00 - 09:00, and the PM peak traffic flow occurred between 16:15 - 17:15.

3.2.2 The ANPR camera sites formed a cordon around the study area. Analysis of the ANPR data matched number plates passing through two ANPR sites within each AM and PM time period. This enabled a trip matrix to be created of matched number plate trips between each ANPR site inside the cordon. The trip matrix was then expanded to match the observed link flow counts using a matrix Furnessing process. The number plate match percentage is provided in **Table 3.1.2** and the ANPR survey results are provided in **Appendix B**.

Table 3.1.2. ANPR Number Plate Match %

				07:00-09:00				16:00-18:00			
Area	Site	Road Name	IN/OUT	MCC AM	MATCHED AM	UNMATCHED AM	AM MACTH PERCENTAGE	MCC PM	MATCHED PM	UNMATCHED PM	PM MATCH PERCENTAGE
1	A	Site A - Heol-Y-Bwnsi	Inbound	347	261	84	75.22%	827	878	163	106.17%
1	A	Site A - Heol-Y-Bwnsi	Outbound	465	371	81	79.78%	1162	1028	292	88.47%
1	B	Site B - A470 Slip Road	Inbound	978	772	270	78.94%	1490	1360	185	91.28%
1	B	Site B - A470 Slip Road	Outbound	1483	1454	196	98.04%	1258	1322	227	105.09%
1	C	Site C - Gwaedlod-Y-Garth Road	Inbound	2512	1717	592	68.35%	1725	1229	264	71.25%
1	C	Site C - Gwaedlod-Y-Garth Road	Outbound	1987	1325	465	66.68%	2655	1849	1045	69.64%
1	D	Site D - A4054	Inbound	1335	968	402	72.51%	815	768	160	94.23%
1	D	Site D - A4055	Outbound	647	571	116	88.25%	2291	1660	675	72.46%
1	E	Site E - A470 Slip Road	Inbound	1473	747	584	50.71%	1474	906	256	61.47%
1	E	Site E - A470 Slip Road	Outbound	944	648	238	68.64%	952	511	356	53.68%
2	F	Site F - Heol Crochendy	Inbound	219	205	61	93.61%	1040	1067	207	102.60%
2	F	Site F - Heol Crochendy	Outbound	585	484	216	82.74%	319	202	140	63.32%
3	G	Site G - Heol Crochendy	Inbound	367	434	96	118.26%	1033	809	344	78.32%
3	G	Site G - Heol Crochendy	Outbound	1053	888	140	84.33%	967	1155	186	119.44%
3	H	Site H - Cefn Coed	Inbound	42	45	18	107.14%	284	198	91	69.72%
3	H	Site H - Cefn Coed	Outbound	357	230	86	64.43%	57	56	31	98.25%
3	J	Site J - Cardiff Road	Inbound	471	423	314	89.81%	326	622	355	190.80%
3	J	Site J - Cardiff Road	Outbound	968	616	363	63.64%	356	745	128	209.27%
4	K	Site K - A470 Slip Road	Inbound	1649	1460	433	88.54%	1349	1325	311	98.22%
4	K	Site K - A470 Slip Road	Outbound	1059	838	212	79.13%	1091	1071	424	98.17%
4	L	Site L - Caeerphilly Road	Inbound	3782	2589	1160	68.46%	3832	2866	1025	74.79%
4	L	Site L - Caeerphilly Road	Outbound	3283	1756	1138	53.49%	3377	1932	1105	57.21%
4	M	Site M - A470 Slip Road	Inbound	2020	838	1174	41.49%	1904	1080	735	56.72%
4	M	Site M - A470 Slip Road	Outbound	1915	1278	584	66.74%	2340	1486	1072	63.50%
				29941	20918	69.86%		32924	26125	79.35%	

3.2.3 It can be seen in Table 3.1.2 that the number plate accuracy percentage varies between 42% and 120%. However this is considered to provide a reliable sample of journey decisions within Treforest Industrial Estate and the surrounding area.

3.2.4 The resultant flow on roads within the cordon identified within the ANPR survey was compared to the link flow count survey. A matrix estimation procedure was used to balance the trip matrix to match inbound and outbound flows as well as internal link flows in order to provide a best estimate of trips into and out of the study area. The resultant trip matrices are provided in **Table 3.1.5a and Table 3.1.5b.** The zone plan is based on the ANPR survey locations illustrated in **Figure 3.1.**

Table 3.1.5a. AM matrix

Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	161	2	0	362	38	19	147	0	0	0	0	0	25	0	40	0	**795**
2	0	2	90	0	26	2	39	12	0	0	0	0	0	14	0	0	0	**184**
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4	0	39	2	0	289	136	2	15	0	0	0	0	0	22	0	12	0	**516**
5	0	50	482	0	15	103	280	106	0	0	0	0	0	207	0	20	0	**1263**
6	0	18	172	0	174	5	92	50	0	0	0	9	0	121	0	0	0	**641**
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8	0	4	0	0	31	15	28	59	0	0	0	0	0	0	0	28	0	**164**
9	0	27	0	0	204	99	55	0	7	55	86	0	0	0	0	0	0	**532**
10	0	0	0	0	8	0	0	0	14	0	9	0	0	0	0	0	0	**31**
11	0	0	0	0	40	19	0	0	126	46	6	0	0	0	0	0	0	**236**
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
13	0	0	0	0	0	0	0	0	87	31	110	7	0	698	0	3	0	**937**
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
15	0	0	0	0	0	0	0	0	154	41	291	604	0	11	0	818	0	**1920**
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
17	0	0	0	0	0	0	0	0	7	111	267	0	0	625	0	11	0	**1021**
Total	**0**	**302**	**748**	**0**	**1149**	**415**	**515**	**389**	**396**	**285**	**768**	**620**	**0**	**1723**	**0**	**931**	**0**	**8241**

Table 3.1.5b. PM matrix

Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
1	0	266	12	0	352	26	11	75	29	0	27	0	0	0	0	0	0	**799**
2	0	0	158	0	120	53	29	16	28	0	23	0	0	0	0	0	0	**428**
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
4	0	99	9	0	204	461	24	0	26	0	5	0	0	0	0	0	0	**828**
5	0	79	318	0	0	185	195	39	13	0	18	0	0	0	0	0	0	**848**
6	0	28	151	0	119	0	49	18	20	8	16	0	0	0	0	0	0	**409**
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
8	0	25	1	0	79	98	52	0	231	0	103	0	0	0	0	0	0	**589**
9	0	0	0	0	0	0	0	0	0	2	179	91	0	131	0	13	0	**416**
10	0	0	0	0	0	0	0	0	17	0	16	43	0	45	0	61	0	**183**
11	0	0	0	0	0	0	0	0	18	9	0	75	0	257	0	240	0	**599**
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
13	0	0	0	0	10	4	0	0	4	2	15	0	0	656	0	2	0	**692**
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
15	0	51	6	0	330	240	45	0	15	1	65	292	0	33	0	917	0	**1997**
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
17	0	36	0	0	141	126	24	0	17	1	49	4	0	608	0	14	0	**1019**
Total	**0**	**584**	**656**	**0**	**1356**	**1192**	**429**	**148**	**419**	**23**	**518**	**505**	**0**	**1730**	**0**	**1247**	**0**	**8806**

3.2.5 The link flow counts were also used to provide a vehicle class profile for each time period.

3.2.6 The ANPR survey data was also analysed to produce a profile of observed journey times for key movements through the survey cordon.

4. Traffic Modelling

4.1 PARAMICS Model

4.1.1 A PARAMICS micro simulation model of Treforest Industrial Estate and the surrounding road network has been developed in order to generate base and future year traffic flows for the industrial estate, and to produce development traffic assignment within the local road network.

4.1.2 The operation and layout of all junctions have been coded into the model and the trip matrices calculated from ANPR surveys have been assigned to the model network.

4.1.3 In order to ensure the model accurately reflects existing traffic conditions within the network the model has been calibrated and validated against turning count, queue length and journey time surveys.

4.2 Calibration

4.2.1 The PARAMICS model has been calibrated using turning count data from within the ANPR survey. The GEH statistic has been used as a measure of fit between the modelled and surveyed values. The GEH statistic is a form of Chi-squared statistic that incorporates both relative and absolute differences. In transport modelling a GEH of 5 or less is commonly used to represent a satisfactory match. The calibration results are provided in **Tables 4.2.1 to 4.2.6**. Zone numbers for the tables are based on the ANPR site locations shown in **Figure 3.1**.

Table 4.2.1. Weekday AM observed

From Zone	To Zone												Total
	2	**3**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**14**	**16**	
1	164	2	368	42	18	156	15	7	10	0	5	8	795
2	0	83	26	2	38	13	13	0	4	0	3	0	182
4	40	2	297	150	2	16	0	0	2	0	5	2	516
5	57	492	0	126	296	126	66	15	15	0	48	5	1246
6	20	166	189	0	93	56	74	3	5	2	27	0	635
8	7	0	60	31	50	0	0	0	4	0	0	6	158
9	7	0	57	30	14	5	0	72	112	61	162	5	525
10	0	0	1	0	0	0	9	0	7	2	6	6	31
11	0	0	4	2	0	0	42	21	0	28	79	58	234
13	1	0	1	0	0	0	60	29	102	6	735	3	937
15	3	1	117	26	2	1	105	38	265	522	12	828	1920
17	0	2	10	2	2	8	5	101	240	0	642	11	1023
Total	299	748	1130	411	515	381	389	286	766	621	1724	932	8202

Table 4.2.2. Weekday AM modelled

From Zone	To Zone												Total
	2	3	5	6	7	8	9	10	11	12	14	16	
1	163	2	341	38	15	139	13	7	9		4	7	738
2		83	25	2	35	12	11		4		3		175
4	38	2	283	146	2	15			2		4	2	494
5	56	483		123	291	115	58	14	14		44	4	1202
6	19	162	182		93	49	66	3	4	2	25		605
8	6		58	30	48				4			5	151
9	7		54	29	14	5		70	107	60	154	4	504
10			1				9		7	2	5	6	30
11			4	2			42	20		27	78	58	231
13	1		1				57	28	100	6	726	3	922
15	3	1	107	23	1	1	99	38	254	500	12	804	1843
17		2	10	2	2	7	5	99	235		634	11	1007
Total	293	735	1066	395	501	343	360	279	740	597	1689	904	7902

Table 4.2.3. Weekday AM GEH

From Zone	To Zone												Total
	2	3	5	6	7	8	9	10	11	12	14	16	
1	0	0	1	1	1	1	1	0	0	-	0	0	2
2	-	0	0	0	0	0	1	-	0	-	0	-	1
4	0	0	1	0	0	0	-	-	0	-	0	0	1
5	0	0	-	0	0	1	1	0	0	-	1	0	1
6	0	0	1	-	0	1	1	0	0	0	0	-	1
8	0	-	0	0	0	-	-	-	0	-	-	0	1
9	0	-	0	0	0	0	-	0	0	0	1	0	1
10	-	-	0	-	-	-	0	-	0	0	0	0	0
11	-	-	0	0	-	-	0	0	-	0	0	0	0
13	0	-	0	-	-	-	0	0	0	0	0	0	0
15	0	0	1	1	1	0	1	0	1	1	0	1	2
17	-	0	0	0	0	0	0	0	0	-	0	0	1
Total	0	0	2	1	1	2	1	0	1	1	1	1	3

4.2.2 From **Tables 4.2.1 to 4.2.3** it is possible to see that the GEH values for the AM model are well below 5. As such the matches between modelled and observed traffic movements within the Treforest PARAMICS AM model are considered to be good.

Table 4.2.4. Weekday PM observed

From Zone	To Zone												Total
	2	3	5	6	7	8	9	10	11	12	14	16	
1	266	12	352	26	11	75	29	0	27	0	0	0	798
2	0	158	120	53	29	16	28	0	23	0	0	0	427
4	99	9	204	461	24	0	26	0	5	0	0	0	828
5	79	318	0	185	195	39	13	0	18	0	0	0	847
6	28	151	119	0	49	18	20	8	16	0	0	0	409
8	25	1	79	98	52	0	231	0	103	0	0	0	589
9	0	0	0	0	0	0	0	2	179	91	131	13	416
10	0	0	0	0	0	0	17	0	16	43	45	61	182
11	0	0	0	0	0	0	18	9	0	75	257	240	599
13	0	0	10	4	0	0	4	2	15	0	656	2	693
15	51	6	330	240	45	0	15	1	65	292	33	917	1995
17	36	0	141	126	24	0	17	1	49	4	608	14	1020
Total	584	655	1355	1193	429	148	418	23	516	505	1730	1247	8803

Table 4.2.5. Weekday PM modelled

From Zone	To Zone												Total
	2	3	5	6	7	8	9	10	11	12	14	16	
1	261	12	345	26	11	71	26	0	25	0	0	0	773
2	0	154	117	51	29	15	27	0	22	0	0	0	420
4	94	9	202	449	24	0	24	0	5	0	0	0	801
5	74	306	0	177	192	35	12	0	16	0	0	0	828
6	28	149	114	0	48	18	19	8	14	0	0	0	396
8	24	1	75	92	50	0	225	0	100	0	0	0	559
9	0	0	0	0	0	0	0	2	175	90	124	13	410
10	0	0	0	0	0	0	17	0	16	42	44	60	176
11	0	0	0	0	0	0	17	9	0	74	251	235	588
13	0	0	8	4	0	0	4	2	14	0	654	2	684
15	47	5	303	221	42	0	14	1	63	285	32	908	1908
17	35	0	136	122	23	0	17	1	50	4	615	14	980
Total	563	636	1300	1142	419	139	402	23	500	495	1720	1232	8523

Table 4.2.6. Weekday PM GEH

From Zone	To Zone												Total
	2	3	5	6	7	8	9	10	11	12	14	16	
1	0	0	0	0	0	0	1	-	0	-	-	-	1
2	-	0	0	0	0	0	0	-	0	-	-	-	1
4	1	0	0	1	0	-	0	-	0	-	-	-	1
5	1	1	-	1	0	1	0	-	0	-	-	-	1
6	0	0	0	-	0	0	0	0	1	-	-	-	1
8	0	0	0	1	0	-	0	-	0	-	-	-	1
9	-	-	-	-	-	-	-	0	0	0	1	0	1
10	-	-	-	-	-	-	0	-	0	0	0	0	0
11	-	-	-	-	-	-	0	0	-	0	0	0	1
13	-	-	1	0	-	-	0	0	0	-	0	0	0
15	1	0	2	1	0	-	0	0	0	0	0	0	2
17	0	-	0	0	0	-	0	0	0	0	0	0	0
Total	1	1	2	1	0	1	1	0	1	0	0	0	2

4.2.3 From **Tables 4.2.4 to 4.2.6** it is possible to see that the GEH values for the PM model are also well below 5. The matches between modelled and observed traffic movements within the Treforest PARAMICS PM model are considered to be good.

4.3 Validation

4.3.1 The queue length outputs from the Upper Boat and Nantgarw roundabouts within the model were compared to observed queue lengths in order to provide an indication of the model's performance. TfL Traffic Modelling Guidelines state that queue data *'whilst not a validation criterion is useful when determining bottlenecks within the network. It can be used as a measure of the model's performance and for direct comparison with scheme proposals'*.

4.3.2 The queue length results from the micro simulation model have been compared to the observed using the GEH statistic as a measure of fit. As described above, GEH is a form of statistical analysis that incorporates both relative and absolute differences. In transport modelling a GEH of 5 or less is generally used to represent a satisfactory match although this is more commonly used for comparing traffic flows. The comparison is provided in **Table 4.3.2 and 4.3.3**, and illustrated in **Figures 4.3.2 to 4.3.5**.

Table 4.3.2. AM queue comparison

	Observed Queues	Modelled	
Queue Name	**No of vehicles**	**No of vehicles**	**GEH**
Upper Boat RAB			
Heol y Bwnsi	9	19	3
A470 N/B off-slip	22	19	1
Main Avenue	11	15	1
Gwaelod y Garth	12	26	3
Cardiff Rd	12	15	1
A470 S/B off-slip	27	47	3
Nantgarw RAB			
Caerphilly Rd E/B	8	12	1
A470 S/B off-slip	12	6	2
Caerphilly Rd W/B	50+	37	-
A470 N/B off-slip	60+	23	-

Figure 4.3.2. AM base model queues - Upper Boat Roundabout

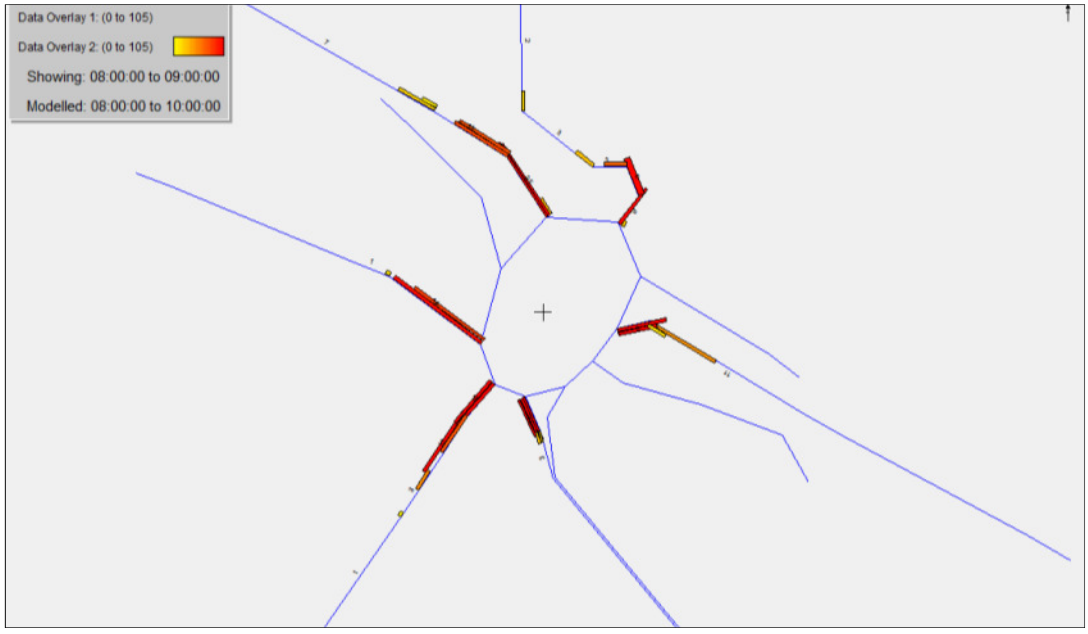


Figure 4.3.3. AM base model queues – Coleg Morgannwg & Nantgarw Roundabouts

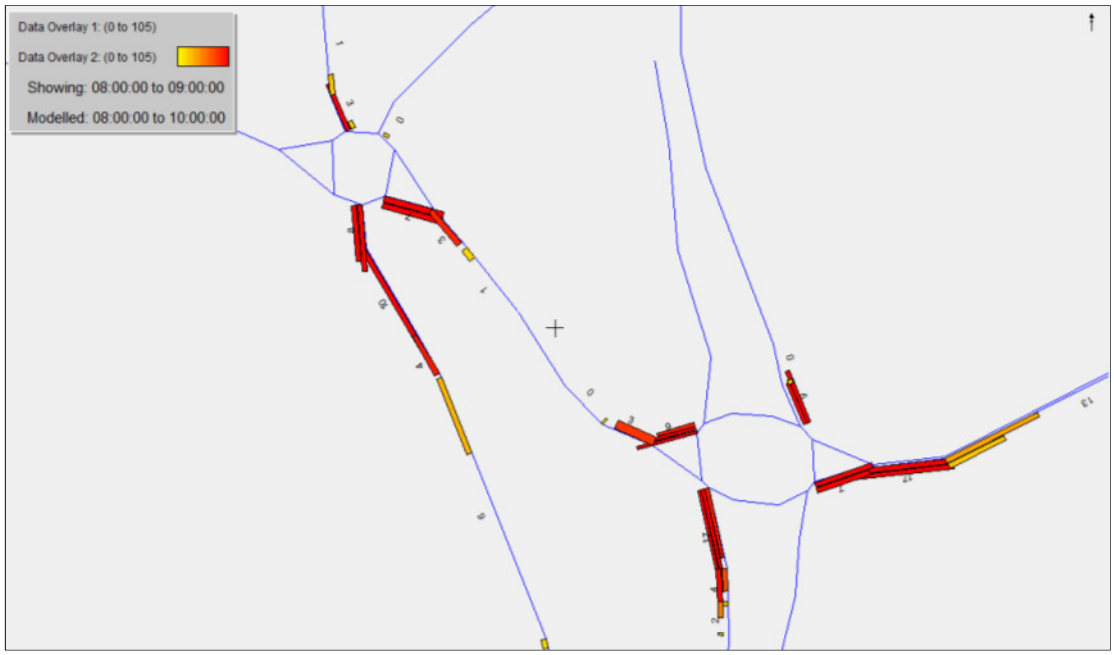


Table 4.3.3. PM queue comparison

	Observed Queues	Modelled	
Queue Name	**No of vehicles**	**No of vehicles**	**GEH**
Upper Boat RAB			
Heol y Bwnsi	11	9	1
A470 N/B off-slip	22	38	3
Main Avenue	48	39	1
Gwaelod y Garth	24	31	1
Cardiff Rd	12	7	2
A470 S/B off-slip	15	19	1
Nantgarw RAB			
Caerphilly Rd E/B	29	17	3
A470 S/B off-slip	12	4	3
Caerphilly Rd W/B	50+	23	-
A470 N/B off-slip	60+	25	-

Figure 4.3.4. PM base model queues – Upper boat Roundabout

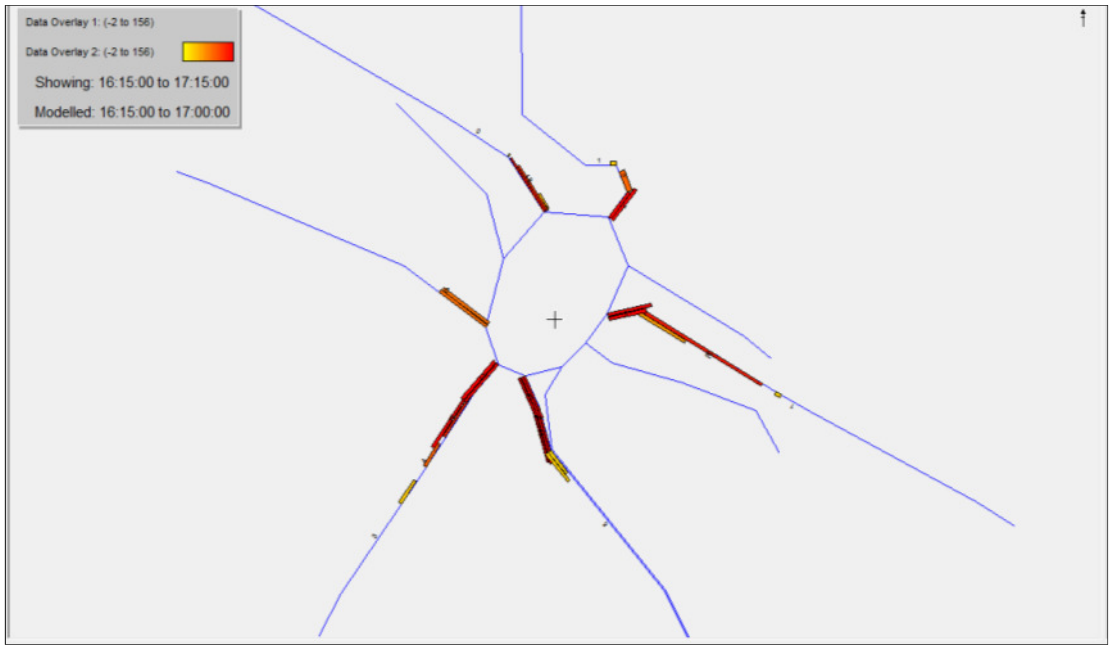
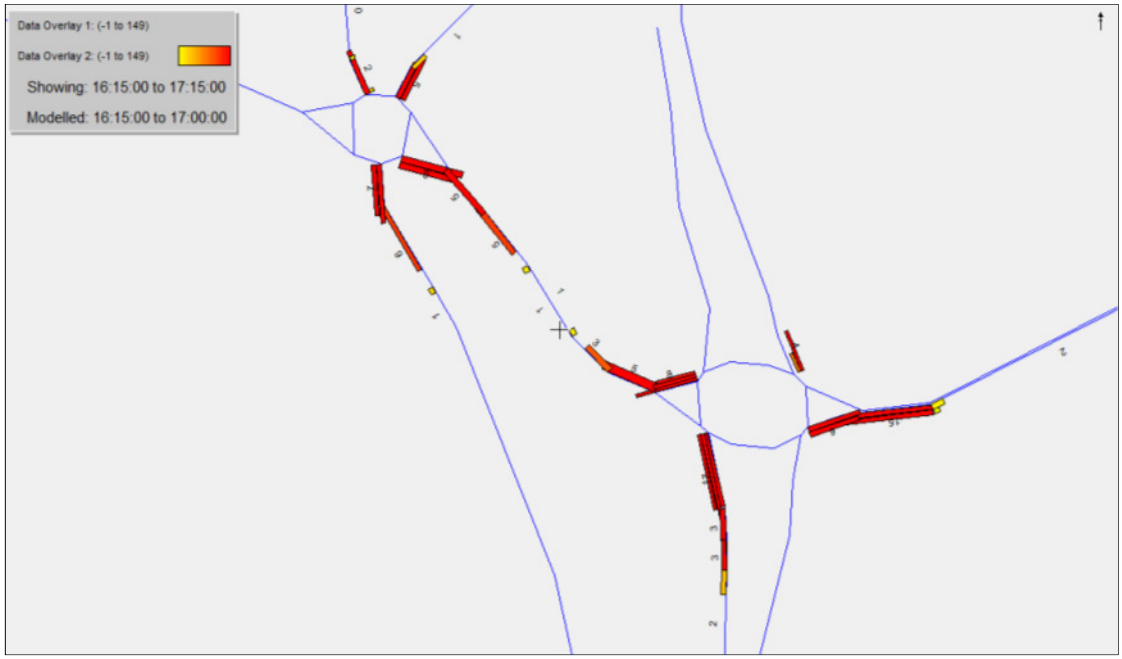


Figure 4.3.5. PM base model queues – Coleg Morgannwg & Nantgarw Roundabouts



4.3.3 From **Tables 4.3.2 and 4.3.3** it is possible to see that the modelled queues match the observed queues closely with the exception of the A470 N/B off-slip and Caerphilly Rd W/B. This indicates that the PARAMICS model is under-representing the queue on the A470 N/B off-slip and Caerphilly Rd W/B. It should be noted that on the day of the traffic surveys a traffic incident is likely to have occurred during the PM period which resulted in heavy congestion and would have affected vehicle queuing.

4.3.4 Journey times within the model area were also used to check the accuracy of the model. **Tables 4.3.4 and 4.3.5** provide the comparison results.

Table 4.3.4. AM journey time comparison

Movement	Observed travel time	Modelled travel time	GEH
Zone 5 - Zone 9	284	384	5
Zone 5 - Zone 14	263	355	5
Zone 17 - Zone 5	247	250	0

Table 4.3.5. PM journey time comparison

Movement	Observed travel time	Modelled travel time	GEH
Zone 15 - Zone 5	583	303	13
Zone 17 - Zone 5	580	272	15
Zone 5 - Zone 11	315	253	4

4.3.5 **Table 4.3.4** indicates that during the AM period key journey times within the model match observed journey times well. **Table 4.3.5** shows that during the PM period southbound journey times match observed journey times well, however northbound journey times do not. This is due to the PM congestion issues discussed previously and reflected in the queue discrepancy identified on the A470 Northbound off-slip in the validation process.

4.3.7 The resulting turning movements at each roundabout for the 2015 base year, and 2010 growthed up to 2015, are provided in **Appendix C**.

4.4 LDO Development Traffic Assignment

The LDO development traffic has been assigned in accordance with the traffic routing patterns of vehicles travelling to and from the Industrial Estate. The PARAMICS model has been used to assign the development traffic to the local road network and generate future year traffic flows at the Upper Boat, Nantgarw and Coleg Morgannwg Roundabouts.

4.5 Future Year Assessments

The forecast traffic growth and development related traffic generation described above have been assigned within the Treforest PARAMICS model in order to provide future year design flows and to allow the analysis of the local road network. The future year scenarios assessed include:

- 2018 without LDO development traffic;
- 2018 with LDO development traffic;
- 2028 without LDO development traffic; and
- 2028 with LDO development traffic.

5. Junction Capacity Assessment

5.1 Background

ARCADY capacity models of the following junctions have been created:

- A4054 Oxford Street / A4054 Caerphilly Road / Cardiff Road / Heol Crochendy (Coleg Morgannwg) Roundabout;
- A470 Nantgarw Roundabout

An existing TRANSYT capacity model of the following junction has been reviewed and updated for;

- A470 Upper Boat Roundabout.

The further signalisation of the A470 Upper Boat interchange has been assessed. This involves the traffic signalisation of the A470 southbound and northbound off slips as shown in **Appendix D**.

5.2 Arcady Background

5.2.1 TRL Ltd. ARCADY (roundabouts) is amongst the industry standard software packages for modelling traffic flows at roundabouts junctions. The ARCADY results provide the Ratio to Flow Capacity (RFC), which indicates how a junction is operating. An RFC no more than 0.85 is conventionally taken to indicate that there is sufficient spare capacity, an RFC above 0.85 indicates that capacity problems may occur and an RFC approaching or above 1.0 indicates that capacity is likely to be exceeded and remedial action is likely to be required. The queues that occur are indicative of any capacity problems.

5.2.2 Due to technical problems during the survey the queue lengths for the AM and PM peak periods for the A468 Caerphilly Road and A470 northbound on-slip terminated at 25 on Caerphilly Road and 30 on the northbound on-slip along certain lanes as illustrated in **Figure 5.2.5** and contained with the ARCADY output **Appendix E.** The queue length averages have been adjusted to more realistic levels based on local knowledge of an average queue of 113 at the A470 northbound off-slip in the AM peak hour and 21 in the PM and at the A468 Caerphilly Road of 45 in the AM peak hour and 94 in the PM. Accordingly the ARCADY model has been calibrated to provide the best representation with the data available.

Figure 5.2.5 Location of A470 northbound off-slip and A468 Caerphilly Road queue counts

5.3 ARCADY Assessment - A470 Nantgarw Roundabout

5.3.1 The junction has been assessed using ARCADY. The results for the base year 2015, opening year 2018 and future year 2028 are summarised in **Table 5.3.1**. The ARCADY output is contained in **Appendix E**.

Table 5.3.1. A470 Nantgarw Roundabout ARCADY results summary

	AM 0800-0900			PM 1615-1715		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Existing Layout - 2015 Base					
A468, Nantgarw Hill	45.26	73.19	1.02	94.02	136.48	1.08
A470, South	113.78	374.97	1.24	21.34	69.54	0.99
A4054, Link to Nantgarw Rbt	0.73	4.69	0.42	2.38	8.13	0.71
A470, North	3.57	12.83	0.79	3.83	18.87	0.8
	Existing Layout - 2018 Base					
A468, Nantgarw Hill	90.36	130.72	1.08	149.15	219.51	1.14
A470, South	158.26	568.89	1.31	36.25	105.85	1.04
A4054, Link to Nantgarw Rbt	0.77	4.8	0.44	2.63	8.59	0.73
A470, North	4.66	16.18	0.83	6.16	29.7	0.88
	Existing Layout - 2018 Base + DEV					
A468, Nantgarw Hill	154.87	235.01	1.15	218.35	389.54	1.22
A470, South	248.38	937.51	1.44	33.4	99.12	1.03
A4054, Link to Nantgarw Rbt	0.83	4.65	0.46	7.33	20.62	0.89
A470, North	5.76	19.43	0.86	59.16	223.86	1.16
	Existing Layout - 2028 Base					
A468, Nantgarw Hill	267.17	468.57	1.25	369.15	632.74	1.32
A470, South	314.66	1256.46	1.49	104.41	330.39	1.16
A4054, Link to Nantgarw Rbt	0.97	5.28	0.49	4.64	13.62	0.83
A470, North	21.6	64.88	0.99	57.44	206.07	1.13
	Existing Layout - 2028 Base + DEV					
A468, Nantgarw Hill	374.96	648.93	1.32	488.28	835.14	1.39
A470, South	436.43	1750.93	1.62	180.81	582.32	1.25
A4054, Link to Nantgarw Rbt	1.03	5.15	0.51	4.72	13.13	0.83
A470, North	36.77	98.52	1.03	79.07	271.13	1.19

5.3.2 The results show that there are existing capacity problems at the roundabout and that the capacity deteriorates with background growth in the opening year 2018 and future year 2028 without the development traffic and there is further deterioration with the development in place in the opening year 2018 and future year 2028.

5.4 ARCADY Assessment - Coleg Morgannwg Roundabout

5.4.1 The junction has been assessed using ARCADY. The results for the base year 2015 opening year 2018 and future year 2028 are summarised in **Table 5.3.1**. The ARCADY output is contained in **Appendix E**. The areas highlighted in grey illustrate where capacity problems are developing.

Table 5.4.1. Coleg Morgannwg Roundabout ARCADY results summary

	AM 0800-0900			PM 1615-1715		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Existing Junction - 2015 Base					
A Caerphilly Road (A470)	1.18	3.5	0.53	1.47	4.13	0.59
B Cardiff Road (s)	1.18	7.41	0.53	1.47	9.28	0.59
C Cardiff Road (Ind Est)	0.42	4.13	0.29	0.58	3.38	0.36
D Heol Crochendy (College/Ind Est)	0.28	3.9	0.22	1.07	5.92	0.51
C Cefn Coed	0.03	2.92	0.03	0.25	4.59	0.2
	Existing Junction - 2018 Base					
A Caerphilly Road (A470)	1.31	3.71	0.55	1.68	4.5	0.62
B Cardiff Road (s)	1.34	8.11	0.56	1.77	10.77	0.64
C Cardiff Road (Ind Est)	0.47	4.44	0.31	0.64	3.57	0.39
D Heol Crochendy (College/Ind Est)	0.31	4.19	0.23	1.21	6.4	0.54
C Cefn Coed	0.03	3.04	0.03	0.28	4.84	0.21
	Existing Junction - 2018 Base + DEV					
A Caerphilly Road (A470)	1.88	4.65	0.64	1.88	4.9	0.65
B Cardiff Road (s)	2.17	12.24	0.68	1.95	11.83	0.66
C Cardiff Road (Ind Est)	0.59	4.86	0.36	1.11	4.6	0.52
D Heol Crochendy (College/Ind Est)	0.38	4.5	0.27	1.84	9.07	0.65
C Cefn Coed	0.03	3.16	0.03	0.35	6.04	0.25
	Existing Junction - 2028 Base					
A Caerphilly Road (A470)	1.84	4.6	0.64	2.58	6.14	0.72
B Cardiff Road (s)	2.33	12.55	0.69	3.98	21.94	0.8
C Cardiff Road (Ind Est)	0.66	5.51	0.39	0.84	4.13	0.45
D Heol Crochendy (College/Ind Est)	0.4	4.7	0.27	1.79	8.4	0.64
C Cefn Coed	0.04	3.21	0.03	0.38	5.82	0.27
	Existing Junction - 2028 Base + DEV					
A Caerphilly Road (A470)	2.79	6.16	0.73	4.45	9.49	0.82
B Cardiff Road (s)	5.07	26.21	0.84	14.04	73.34	0.97
C Cardiff Road (Ind Est)	0.83	6.22	0.44	0.98	4.5	0.49
D Heol Crochendy (College/Ind Est)	0.49	5.12	0.32	2.22	9.89	0.69
C Cefn Coed	0.04	3.34	0.04	0.42	6.32	0.29

5.4.2 The results show that there are no capacity problems at the roundabout until the future year 2028 when the additional development traffic results in an RFC of 0.97 and queues of 14 in the PM peak hour.

5.5 TRANSYT A470 Upper Boat roundabout

5.5.1 During development of the PM TRANSYT models, it was discovered that on the day of the traffic surveys a traffic incident is likely to have occurred during the PM period which resulted in heavy congestion and significant queuing on the local road network. A survey undertaken in 2010 was therefore used to supplement the forecast flows. Future year models had growth applied to the 2010 survey and development trips added based on differences between relevant runs of the PARAMICS model. The 2010 and 2015 traffic flows as well as the growth rates are provided in **Appendix B**.

5.5.2 The junction has been assessed using TRANSYT. The results for the opening year 2018 and future year 2028 with and without development traffic are summarised in **Table 5.5.2 to 5.5.5**. The TRANSYT output is contained in **Appendix G**.

Table 5.5.2. Summarised TRANSYT results proposed layout: growthed 2018 AM and PM peak periods

Link	Location	2018 AM (08:00-09:00)		2018 PM (16:15-17:15)	
		DoS	Q	DoS	Q
101	A470 Southbound Off Slip (inside lane)	46%	3	54%	5
102	A470 Southbound Off Slip (middle lane)	83%	7	66%	6
103	A470 Southbound Off Slip (outside lane)	83%	7	66%	6
110/111	Circulating at A470 Southbound Off Slip (inside lane)	39%	4	38%	5
120/121	Circulating at A470 Southbound Off Slip (outside lane)	85%	16	65%	10
290	Heol-Y-Bwnsy	51%	3	83%	9
301	A470 Northbound Off Slip (inside & middle lane)	61%	5	77%	11
302	A470 northbound Off Slip (outside lane)	57%	4	72%	9
310/311	Circulating at A470 Nb Off Slip (inside & middle lane)	69%	8	55%	5
320/321	Circulating at A470 Northbound Off Slip (outside lane)	51%	3	72%	8
490	Heol Groeswen	4%	0	6%	0
501	Main Avenue (inside lane)	50%	3	86%	6
502	Main Avenue (middle lane)	50%	3	75%	4
503	Main Avenue (outside lane)	26%	1	88%	7
510/511	Circulating at Main Avenue (inside lane)	30%	2	52%	4
520/521	Circulating at Main Avenue (outside lane)	68%	10	81%	11
690	Gwaelod-Y-Garth Road	73%	5	91%	17
790	A4054 Cardiff Road	64%	2	71%	1
Cycle time		60 seconds		70 seconds	

Key to table
Dos = Degree of Saturation (Below 90% = within capacity; 90 to 100% at capacity; 100%+ = overcapacity)
Q = Mean Maximum Queue (average maximum queue which will be exceeded 50% of the time)

5.5.3 In 2018 AM and PM peak periods, TRANSYT predicts the junction will operate within capacity. However, Gwaelod-Y-Garth Road is predicted to be at capacity during the 2018 PM peak period with a degree of saturation of 91%.

Table 5.5.3 Summarised TRANSYT results proposed layout: growthed 2018 AM and PM peak periods with development

Link	Location	2018 AM (08:00-09:00)		2018 PM (16:15-17:15)	
		DoS	Q	DoS	Q
101	A470 Southbound Off Slip (inside lane)	45%	3	57%	5
102	A470 Southbound Off Slip (middle lane)	92%	11	71%	6
103	A470 Southbound Off Slip (outside lane)	92%	11	70%	6
110/111	Circulating at A470 Southbound Off Slip (inside lane)	40%	5	39%	5
120/121	Circulating at A470 Southbound Off Slip (outside lane)	86%	18	64%	9
290	Heol-Y-Bwnsy	66%	3	82%	8
301	A470 Northbound Off Slip (inside & middle lane)	81%	9	76%	11
302	A470 northbound Off Slip (outside lane)	58%	5	69%	9
310/311	Circulating at A470 Nb Off Slip (inside & middle lane)	76%	11	58%	5
320/321	Circulating at A470 Northbound Off Slip (outside lane)	51%	3	70%	8
490	Heol Groeswen	6%	0	5%	0
501	Main Avenue (inside lane)	56%	4	84%	7
502	Main Avenue (middle lane)	56%	4	79%	6
503	Main Avenue (outside lane)	33%	2	92%	9
510/511	Circulating at Main Avenue (inside lane)	26%	1	55%	5
520/521	Circulating at Main Avenue (outside lane)	67%	11	85%	12
690	Gwaelod-Y-Garth Road	76%	7	98%	30
790	A4054 Cardiff Road	70%	3	80%	2
Cycle time		70 seconds		70 seconds	

Key to table
Dos = Degree of Saturation (Below 90% = within capacity; 90 to 100% at capacity; 100%+ = overcapacity)
Q = Mean Maximum Queue (average maximum queue which will be exceeded 50% of the time)

5.5.4 With the introduction of development traffic, TRANSYT predicts the junction will operate at capacity during 2018 AM and PM peak periods. In the AM peak period the A470 southbound off slip is predicted to be at capacity with a degree of saturation of 92% and in the PM peak period the outside lane of Main Avenue and Gwaelod-Y-Garth approach are predicted to be at capacity with degrees of saturation of 92% and 98%.

Table 5.5.4 Summarised TRANSYT results proposed layout: growthed 2028 AM and PM peak periods

Link	Location	2028 AM (08:00-09:00)		2028 PM (16:15-17:15)	
		DoS	Q	DoS	Q
101	A470 Southbound Off Slip (inside lane)	52%	4	66%	7
102	A470 Southbound Off Slip (middle lane)	95%	14	81%	10
103	A470 Southbound Off Slip (outside lane)	95%	14	81%	10
110/111	Circulating at A470 Southbound Off Slip (inside lane)	41%	5	38%	6
120/121	Circulating at A470 Southbound Off Slip (outside lane)	91%	25	64%	12*
290	Heol-Y-Bwnsy	96%	10	103%	48
301	A470 Northbound Off Slip (inside & middle lane)	73%	8	91%	19
302	A470 northbound Off Slip (outside lane)	68%	7	85%	15
310/311	Circulating at A470 Nb Off Slip (inside & middle lane)	73%	10	56%	6*
320/321	Circulating at A470 Northbound Off Slip (outside lane)	54%	4	75%	10*
490	Heol Groeswen	6%	0	8%	0
501	Main Avenue (inside lane)	46%	4	83%	7
502	Main Avenue (middle lane)	46%	4	73%	6
503	Main Avenue (outside lane)	24%	2	86%	8
510/511	Circulating at Main Avenue (inside lane)	52%	6	64%	6
520/521	Circulating at Main Avenue (outside lane)	59%	8	83%	12*
690	Gwaelod-Y-Garth Road	85%	11	110%	146
790	A4054 Cardiff Road	86%	9	92%	6
Cycle time		80 seconds		90 seconds	

Key to table
Dos = Degree of Saturation (Below 90% = within capacity; 90 to 100% at capacity; 100%+ = overcapacity)
Q = Mean Maximum Queue (average maximum queue which will be exceeded 50% of the time)
* = indicates not all traffic passing through the link

5.5.5 TRANSYT predicts the junction will operate at capacity in the 2028 AM peak period but over capacity in the 2028 PM peak period.

5.5.6 In the AM peak period the A470 southbound off slip road approach is predicted to be at capacity with degrees of saturation of 95% and the outside circulating lane has a predicted queue of 25 vehicles, resulting in queues extending beyond the A4054 Cardiff Road approach onto the roundabout.

5.5.7 In the PM peak period the give way approaches at Heol-Y-Bwnsy and Gwaelod-Y-Garth are predicted to operate overcapacity with degrees of saturation of 103% and 110% and predicted queues of 48 and 146 vehicles, resulting in not all the traffic from these approaches being able to access the roundabout.

Table 5.5.5 Summarised TRANSYT results proposed layout: growthed 2028 AM and PM peak periods with development

Link	Location	2028 AM (08:00-09:00)		2028 PM (16:15-17:15)	
		DoS	Q	DoS	Q
101	A470 Southbound Off Slip (inside lane)	60%	4	66%	7
102	A470 Southbound Off Slip (middle lane)	122%	46	82%	10
103	A470 Southbound Off Slip (outside lane)	122%	46	81%	10
110/111	Circulating at A470 Southbound Off Slip (inside lane)	43%	5	39%	7*
120/121	Circulating at A470 Southbound Off Slip (outside lane)	94%	27	62%	11*
290	Heol-Y-Bwnsy	107%	18	100%	29
301	A470 Northbound Off Slip (inside & middle lane)	95%	13	82%	16
302	A470 northbound Off Slip (outside lane)	70%	6	75%	13
310/311	Circulating at A470 Nb Off Slip (inside & middle lane)	78%	11*	63%	7
320/321	Circulating at A470 Northbound Off Slip (outside lane)	51%	3*	82%	12*
490	Heol Groeswen	8%	0	9%	0
501	Main Avenue (inside lane)	47%	4	93%	11
502	Main Avenue (middle lane)	47%	4	87%	9
503	Main Avenue (outside lane)	28%	2	102%	17
510/511	Circulating at Main Avenue (inside lane)	49%	5*	66%	7
520/521	Circulating at Main Avenue (outside lane)	61%	8*	86%	15*
690	Gwaelod-Y-Garth Road	89%	13	119%	193
790	A4054 Cardiff Road	97%	21	93%	10
Cycle time		70 seconds		90 seconds	

Key to table
Dos = Degree of Saturation (Below 90% = within capacity; 90 to 100% at capacity; 100%+ = overcapacity)
Q = Mean Maximum Queue (average maximum queue which will be exceeded 50% of the time)
* = indicates not all traffic passing through the link

5.5.8 With the introduction of the development, TRANSYT predicts the junction will operate over capacity during both the 2028 AM and PM peak periods. In the AM peak period the A470 southbound off slip road approach is predicted to be over capacity with degrees of saturation of 122% and the outside circulating lane has a predicted queue of 27 vehicles, resulting in queues extending beyond the A4054 Cardiff Road approach onto the roundabout. The give way approaches at Heol-Y-Bwnsy and A4054 Cardiff Road are predicted to be overcapacity with degrees of saturation of 107% and 97%, resulting in not all of the traffic being able to access the roundabout.

5.5.9 In the PM peak period the give way approaches at Heol-Y-Bwnsy and Gwaelod-Y-Garth are predicted to operate overcapacity with degrees of saturation of 100% and 119% and predicted queues of 29 and 193 vehicles, resulting in not all the traffic from these approaches being able to access the roundabout.

6. Parking Assessment

6.1 RCT require an indication of the existing parking demand for business use in the Treforest Estate in order to determine if relaxations may be required to the RCT Supplementary Planning Guidance (SPG) on parking as a result of the LDO.

6.2 Parking survey counts were undertaken at 10:00, 11.00, 14.00 and 15:00 on Thursday 5th March 2015 at locations in Treforest Estate where over-spill parking was identified at business uses as shown in **Figure 6.2.**

Figure 6.2. Parking survey counts locations

6.3 The eight sites surveyed were either class B1: Business or B2: General Industry and included counts of car parks and over-spill parking that could be directly associated to the businesses, and considered to be representative of class B1 and B2 land use sites. The sites location study areas and results are shown in **Appendix H.**

6.4 The SPG recommends a range of parking spaces based on the gross floor area (GFA) for class B1 land use, whilst parking for B2 land use recommends non-operational spaces, also based on floor area. Furthermore operational areas for B2 land use, which is expressed in m^2 is also taken into account in the SPG, however, for the purposes of this study non-operational areas have not been measured.

6.5 **Table 6.5** below shows the area of each site surveyed, type of use, minimum and maximum SPG parking requirements for B1 land use and non-operational spaces requirements for B2 land use.

Table 6.5. Parking requirements from Supplementary Planning Guidance

Study Area	Area (m^2)	Type of building use	Parking requirement from SPG				
			Minimum	Maximum	Operational area (m^2)	Non-operational spaces	Total
1	3229	B2	-	-	323	40	40
2	831	B1	33	42	-	-	
3	5754	B1	144	230	-	-	
4	4777	B1	119	191	-	-	
5	1976	B1	49	79	-	-	
6	13646	B2	-	-	1365	171	171
7	4452	B2	-	-	445	56	56
8	4044	B1	101	162	-	-	

6.6 The results of the surveys have been tabulated and the minimum, average and maximum figures shown in **Table 6.6.** The minimum was established by taking the lowest count from each period surveyed to give the lowest possible parking demand and, by contrast, the maximum was the highest figure from each period giving the maximum demand possible. In both instances this was regardless of if the lowest and highest occurred at the same time, accordingly giving the most extreme cases.

Table 6.6. Comparison between existing parking demand and Supplementary Planning Guidance

Study Area	Parking survey Results			Minimum SPG compared to actual demand			Maximum SPG compared to actual demand		
	Minimum parking demand	Average parking demand	Maximum parking demand	Minimum demand	Average demand	Maximum demand	Minimum demand	Average demand	Maximum demand
1	30	32	35	-10	-8	-5	-10	-8	-5
2	7	9	11	-26	-25	-22	-35	-33	-31
3	193	210	217	49	66	73	-37	-20	-13
4	77	83	90	-42	-36	-29	-114	-108	-101
5	45	53	59	-4	4	10	-34	-26	-20
6	31	31	32	-140	-140	-139	-140	-140	-139
7	27	41	47	-29	-15	-9	-29	-15	-9
8	128	130	133	27	29	32	-34	-32	-29

6.7 **Table 6.6** shows the minimum, average and maximum figures were then compared to the SPG figures in order to demonstrate the difference in actual demand and SPG demand. For example for study area 2 the SPG minimum parking requirement was 33 vehicles (**Table 6.5**) and in **Table 6.6** the minimum actual parking demand was 7 which gives a difference of -26, that is to say actual demand is 26 vehicles below SPG recommended figure.

6.8 From **Table 6.6** it can be seen that in five out of the eight sites considered the actual maximum demand is considerably less that the SPG recommendations.

6.9 Sites three, five and eight, which are two or more storey office blocks, could be considered to be in line with SPG recommendations as parking demand falls within its minimum and maximum ranges.

6.10 In summary it can be concluded that five of the sites surveyed (Sites 1,2,4,6 and 7) are operating at below the minimum SPG recommended levels with three (Sites 3,5 and 8), all office blocks with two or more floors, operating within the SPG minimum and maximum tolerance ranges. There are no instances of sites within the study functioning above the SPG recommended parking levels.

7. Summary and Conclusions

7.1 RCT required a Traffic Study of Treforest Industrial Estate with regard to the implications of making a Local Development Order (LDO) for the estate to include seven sites currently vacant. An LDO removes the requirement for a Planning Application for business developments (B1, B2 and B8) with certain caveats that apply.

7.2 Treforest Industrial estate is considered to be excellently located to maximise its potential for employment being located direct west of the A470 and connecting to the M4 to south and to Pontypridd and the Valleys to the north via the A470. RCT have identified seven vacant B1, B2 and B8 business sites within the study area that are currently vacant that have been assessed with a likely profile of land uses and by applying robust trip rates assuming the businesses are fully operational.

7.3 RCT required an impact assessment for an opening year of 2018 and future year 2028. As such the following three junctions have been assesses for an opening year of 2018 and a future year 2028, with and without the development traffic, using industry standard traffic models TRANSYT and ARCADY and comprehensive AM and PM peak period traffic surveys at the following junctions;

- A470 Upper Boat Roundabout (TRANSYT model);
- Oxford Street/Cardiff Road (Coleg Morgannwg) Roundabout (ARCADY);
- A470 Nantgarw Roundabout (ARCADY).

7.4 A PARAMICS micro simulation model of Treforest Industrial Estate and the surrounding road network has been developed in order to generate base and future year traffic flows for the industrial estate, and to produce development traffic assignment within the local road network. The LDO development traffic has been assigned in accordance with the traffic routing patterns of vehicles travelling to and from the Industrial Estate. The PARAMICS model was then used to generate future year traffic flows within the Industrial Estate and local road network.

7.5 The future year scenarios assessed include:

- 2018 without LDO development traffic;
- 2018 with LDO development traffic;
- 2028 without LDO development traffic; and
- 2028 with LDO development traffic.

7.6 The A470 Upper Boat Roundabout TRANSYT model predicts the junction will operate within capacity in 2018 AM and PM peak periods. However, Gwaelod-Y-Garth Road is predicted to be at capacity during the 2018 PM peak period with a degree of saturation of 91%. With the introduction of development traffic, TRANSYT predicts the junction will operate at capacity during 2018 AM and PM peak periods. TRANSYT predicts the junction will operate at capacity in the 2028 AM peak period but over capacity in the 2028 PM peak period. With the introduction of the development, TRANSYT predicts the junction will operate over capacity during both the 2028 AM and PM peak periods.

7.7 The Oxford Street/Cardiff Road (Coleg Morgannwg) Roundabout ARCADY results show that there are no capacity problems at the roundabout until the future year 2028 PM peak hour when the additional development traffic results in an RFC of 0.97 and queues of 14.

7.8 The A470 Nantgarw Roundabout (ARCADY) results show that there are existing capacity problems at the roundabout and that the capacity deteriorates with background growth in the opening year 2018 and future year 2028 without the development traffic and, as can be expected, there is further deterioration with the development in place in the opening year 2018 and future year 2028.

7.9 As a result of parking surveys undertaken to gauge the existing demand in relation to the RCT Supplementary Guidelines five of the sites surveyed are operating at below the minimum SPG recommended levels with three, all office blocks with two or more floors, operating within the SPG minimum and maximum tolerance ranges. There are no instances of sites within the study functioning above the SPG recommended parking levels.

7.10 It should be noted that the assessment includes the seven proposed LDO sites with robust traffic generations and on the assumption that all of them are fully operating simultaneously. The A470 Nantgarw and Upper Boat junctions are operating close to capacity and this will be exacerbated by background traffic growth and the additional development traffic causing over-capacity in 2018 and 2028.

Appendix A
Trip Rate Options and TRICS Data

From previous data supplied by Hansteen the business breakdown was appoximately industrial 87%, offices 5% and storage 8%
These trips are based on the 85th %ile.

Trip rates and trip generation		GFA sqm at 40% plot ratio
2	Site of Unit C9 demolished and land to rear	7280
7	Gateway Site	3600
4	Gwent Road	3000
5	Site of Unit G13 demolished 2014	3000
6	Willowford	3000
1	Heol Groeswen	1000
3	Powys Road yard	1000

Land use	Option 1				
	AM		PM		
	Arr.	Dep	Arr.	Dep	
Industrial estate	101	75	46	102	
Business park	80	21	9	61	
Office	98	11	14	120	
Parcel distribution centre*	9	23	28	29	
Industrial unit	39	12	5	40	
Warehousing commercial	5	3	2	4	
Warehousing self storage	3	2	2	3	**Total**
Total	**334**	**147**	**106**	**357**	**943**

Trip rates and trip generation		GFA sqm at 40% plot ratio
2	Site of Unit C9 demolished and land to rear	7280
7	Gateway Site	3600
4	Gwent Road	3000
5	Site of Unit G13 demolished 2014	3000
6	Willowford	3000
1	Heol Groeswen	1000
3	Powys Road yard	1000

Land use	Option 2				
	AM		PM		
	Arr.	Dep	Arr.	Dep	
Business park	161	42	17	122	
Industrial estate	50	37	23	50	
Office	98	11	14	120	
Parcel distribution centre*	9	23	28	29	
Industrial unit	39	12	5	40	
Warehousing commercial	5	3	2	4	
Warehousing self storage	3	2	2	3	**Total**
Total	**364**	**130**	**91**	**367**	**953**

Trip rates and trip generation		GFA sqm at 40% plot ratio
2	Site of Unit C9 demolished and land to rear	7280
7	Gateway Site	3600
4	Gwent Road	3000
5	Site of Unit G13 demolished 2014	3000
6	Willowford	3000
1	Heol Groeswen	1000
3	Powys Road yard	1000

Land use	Option 3				
	AM		PM		
	Arr.	Dep	Arr.	Dep	
Industrial estate	101	75	46	102	
Business park	80	21	9	61	
Office	98	11	14	120	
Parcel distribution centre*	9	23	28	29	
Industrial unit	39	12	5	40	
Industrial unit	13	4	2	13	
Industrial unit	13	4	2	13	**Total**
Total	**352**	**150**	**105**	**377**	**984**

Trip rates and trip generation		GFA sqm at 40% plot ratio
2	Site of Unit C9 demolished and land to rear	7280
7	Gateway Site	3600
4	Gwent Road	3000
5	Site of Unit G13 demolished 2014	3000
6	Willowford	3000
1	Heol Groeswen	1000
3	Powys Road yard	1000

Land use	Option 4				
	AM		PM		
	Arr.	Dep	Arr.	Dep	
Business park	161	42	17	122	
Industrial estate	50	37	23	50	
Office	98	11	14	120	
Industrial unit	39	12	5	40	
Industrial unit	39	12	5	40	
Industrial unit	13	4	2	13	
Parcel distribution centre*	3	8	9	10	**Total**
Total	**403**	**126**	**75**	**395**	**999**

Trip rates and trip generation		GFA sqm at 40% plot ratio
2	Site of Unit C9 demolished and land to rear	7280
7	Gateway Site	3600
4	Gwent Road	3000
5	Site of Unit G13 demolished 2014	3000
6	Willowford	3000
1	Heol Groeswen	1000
3	Powys Road yard	1000

Land use	Option 5				
	AM		PM		
	Arr.	Dep	Arr.	Dep	
Business park	161	42	17	122	
Industrial estate	50	37	23	50	
Office	98	11	14	120	
Industrial unit	39	12	5	40	
Industrial unit	39	12	5	40	
Industrial unit	13	4	2	13	
Industrial unit	13	4	2	13	**Total**
Total	**413**	**122**	**68**	**398**	**1001**

Trip rates and trip generation		GFA sqm at 40% plot ratio
2	Site of Unit C9 demolished and land to rear	7280
7	Gateway Site	3600
4	Gwent Road	3000
5	Site of Unit G13 demolished 2014	3000
6	Willowford	3000
1	Heol Groeswen	1000
3	Powys Road yard	1000

Land use	Option 6				
	AM		PM		
	Arr.	Dep	Arr.	Dep	
Business park	161	42	17	122	
Industrial estate	50	37	23	50	
Office	98	11	14	120	
Office	98	11	14	120	
Industrial unit	39	12	5	40	
Industrial unit	13	4	2	13	
Industrial unit	13	4	2	13	**Total**
Total	**471**	**121**	**76**	**479**	**1147**

TRICS 7.1.1
Trip Rate: Gross floor area

RANK ORDER for Land Use 02 - EMPLOYMENT/A - OFFICE
Ranking Type: TOTALS Time Range: 08:00-09:00
85th Percentile = no. 4

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	LC-02-A-08	COUNCIL OFFICES	CHORLEY	2000	Tuesday	13/06/2006	3.95	0.3	4.25	3.250	0.353
2	KC-02-A-09	COUNCIL OFFICES	MAIDSTONE	1500	Wednesda	19/10/2011	3.533	0.467	4		
3	KC-02-A-07	KCC HIGHWAYS REG.	ASHFORD	1113	Monday	05/12/2011	3.504	0.18	3.684		
4	DH-02-A-02	CONSTRUCTION COMPAN	NEAR DURHAM	2000	Tuesday	27/11/2012	3.25	0.15	3.4		
5	WY-02-A-01	CALL CENTRE	BRADFORD	2400	Monday	09/05/2005	3.00	0.333	3.333		
6	KC-02-A-10	COUNCIL OFFICES	MAIDSTONE	2900	Wednesda	19/10/2011	3.034	0.207	3.241		
7	NF-02-A-01	COUNCIL OFFICE	KING'S LYNN	5500	Thursday	30/09/2010	2.6	0.455	3.055		
8	DC-02-A-08	OFFICE	DORCHESTER	1550	Thursday	03/07/2008	2.323	0.258	2.581		
9	ES-02-A-10	DISTRICT COUNCIL	HAILSHAM	3640	Tuesday	24/09/2013	2.28	0.11	2.39		
10	MT-02-A-01	OFFICE	MERTHYR TYDFIL	5950	Friday	05/10/2007	1.899	0.353	2.252		
11	TV-02-A-02	BUILDING SOCIETY	DARLINGTON	3500	Monday	25/04/2005	1.971	0.114	2.085		
12	TW-02-A-04	HOUSING CO.	GATESHEAD	2500	Tuesday	29/09/2009	1.76	0.28	2.04		
13	SF-02-A-02	OFFICES	IPSWICH	6505	Friday	19/07/2013	1.537	0.446	1.983		
14	TW-02-A-03	DEVELOPMENT AGENCY	NEWCASTLE UPON TY	6480	Thursday	11/12/2008	1.744	0.17	1.914		
15	HI-02-A-03	OFFICE	INVERNESS	5400	Wednesda	20/05/2009	1.574	0.278	1.852		
16	CW-02-A-02	INLAND REVENUE	ST AUSTELL	4850	Friday	08/06/2007	1.402	0.33	1.732		
17	CA-02-A-04	OFFICE	PETERBOROUGH	6483	Thursday	20/10/2011	1.373	0.123	1.496		
18	KC-02-A-08	KCC HIGHWAYS REG. OF	AYLESFORD	3168	Monday	28/11/2011	1.105	0.158	1.263		
19	CA-02-A-03	OFFICE	PETERBOROUGH	5750	Thursday	08/05/2008	1.061	0.157	1.218		
20	LC-02-A-07	COUNCIL OFFICES	BLACKPOOL	6678	Friday	13/05/2005	0.928	0.075	1.003		
21	KC-02-A-06	LAND REGISTRY	TUNBRIDGE WELLS	5139	Tuesday	01/12/2009	0.817	0.097	0.914		

RANK ORDER for Land Use 02 - EMPLOYMENT/A - OFFICE
Ranking Type: TOTALS Time Range: 16:30-17:30
85th Percentile = no. 4

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	KC-02-A-07	KCC HIGHWAYS REG.	ASHFORD	1113	Monday	05/12/2011	0.09	6.11	6.2	0.458	4.000
2	LC-02-A-08	COUNCIL OFFICES	CHORLEY	2000	Tuesday	13/06/2006	0.8	4.7	5.5		
3	DH-02-A-02	CONSTRUCTION COMPAN	NEAR DURHAM	2000	Tuesday	27/11/2012	0.6	4	4.6		
4	KC-02-A-09	COUNCIL OFFICES	MAIDSTONE	1500	Wednesda	19/10/2011	0.333	4.267	4.6		
5	KC-02-A-10	COUNCIL OFFICES	MAIDSTONE	2900	Wednesda	19/10/2011	0.241	2.759	3		
6	NF-02-A-01	COUNCIL OFFICE	KING'S LYNN	5500	Thursday	30/09/2010	0.291	2.255	2.546		
7	TW-02-A-04	HOUSING CO.	GATESHEAD	2500	Tuesday	29/09/2009	0.04	2.44	2.48		
8	WY-02-A-01	CALL CENTRE	BRADFORD	2400	Monday	09/05/2005	0.458	1.875	2.333		
9	ES-02-A-10	DISTRICT COUNCIL	HAILSHAM	3640	Tuesday	24/09/2013	0.165	2.143	2.308		
10	TV-02-A-02	BUILDING SOCIETY	DARLINGTON	3500	Monday	25/04/2005	0.429	1.8	2.229		
11	DC-02-A-08	OFFICE	DORCHESTER	1550	Thursday	03/07/2008	0.387	1.548	1.935		
12	MT-02-A-01	OFFICE	MERTHYR TYDFIL	5950	Friday	05/10/2007	0.353	1.395	1.748		
13	CW-02-A-02	INLAND REVENUE	ST AUSTELL	4850	Friday	08/06/2007	0.536	1.031	1.567		
14	KC-02-A-08	KCC HIGHWAYS REG. OF	AYLESFORD	3168	Monday	28/11/2011	0.063	1.484	1.547		
15	TW-02-A-03	DEVELOPMENT AGENCY	NEWCASTLE UPON TY	6480	Thursday	11/12/2008	0.139	1.327	1.466		
16	HI-02-A-03	OFFICE	INVERNESS	5400	Wednesda	20/05/2009	0.204	1.204	1.408		
17	SF-02-A-02	OFFICES	IPSWICH	6505	Friday	19/07/2013	0.277	1.03	1.307		
18	CA-02-A-03	OFFICE	PETERBOROUGH	5750	Thursday	08/05/2008	0.209	0.835	1.044		
19	CA-02-A-04	OFFICE	PETERBOROUGH	6483	Thursday	20/10/2011	0.062	0.972	1.034		
20	LC-02-A-07	COUNCIL OFFICES	BLACKPOOL	6678	Friday	13/05/2005	0.075	0.704	0.779		
21	KC-02-A-06	LAND REGISTRY	TUNBRIDGE WELLS	5139	Tuesday	01/12/2009	0.039	0.564	0.603		

TRICS 7.1.1
Trip Rate: Gross floor area

RANK ORDER for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
Ranking Type: TOTALS Time Range: 08:30-09:30
85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	NO-02-B-02	BUSINESS PARK	SCUNTHORPE	1574	Thursday	22/09/2005	4.701	0.508	5.209	2.211	0.581
2	WL-02-B-01	BUSINESS PK	WOOTTON BASSETT	2600	Monday	02/10/2006	2.5	0.269	2.769		
3	NT-02-B-01	BUSINESS PARK	NOTTINGHAM	2321	Thursday	17/05/2007	1.939	0.776	2.715		
4	SF-02-B-01	BUSINESS PK	BURY ST EDMUNDS	2480	Wednesda	10/05/2006	2.056	0.242	2.298		
5	DC-02-B-01	BUSINESS PARK	POOLE	1570	Thursday	17/07/2008	1.72	0.318	2.038		
6	EB-02-B-03	BUSINESS PARK	EDINBURGH	6675	Tuesday	01/05/2007	1.543	0.345	1.888		
7	WO-02-B-01	BUSINESS PARK	REDDITCH	3225	Tuesday	02/05/2006	1.426	0.434	1.86		
8	LN-02-B-01	BUSINESS PARK	LINCOLN	4460	Tuesday	17/05/2005	1.009	0.717	1.726		
9	LC-02-B-03	BUSINESS PARK	PRESTON	2741	Tuesday	18/10/2011	1.277	0.182	1.459		
10	GM-02-B-03	BUSINESS PARK	SALE	3985	Tuesday	18/10/2011	1.205	0.075	1.28		
11	SH-02-B-03	BUSINESS CENTRE	TELFORD	1050	Tuesday	16/06/2009	1.143	0	1.143		
12	CF-02-B-02	BUSINESS/TECH. UNITS	CARDIFF	2587	Friday	20/10/2006	0.348	0.077	0.425		

RANK ORDER for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK
Ranking Type: TOTALS Time Range: 17:00-18:00
85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	WL-02-B-01	BUSINESS PK	WOOTTON BASSETT	2600	Monday	02/10/2006	0.154	2	2.154	0.238	1.681
2	NO-02-B-02	BUSINESS PARK	SCUNTHORPE	1574	Thursday	22/09/2005	0.191	1.842	2.033		
3	NT-02-B-01	BUSINESS PARK	NOTTINGHAM	2321	Thursday	17/05/2007	0.259	1.594	1.853		
4	DC-02-B-01	BUSINESS PARK	POOLE	1570	Thursday	17/07/2008	0.51	1.338	1.848		
5	EB-02-B-03	BUSINESS PARK	EDINBURGH	6675	Tuesday	01/05/2007	0.21	1.543	1.753		
6	WO-02-B-01	BUSINESS PARK	REDDITCH	3225	Tuesday	02/05/2006	0.093	1.457	1.55		
7	SF-02-B-01	BUSINESS PK	BURY ST EDMUNDS	2480	Wednesda	10/05/2006	0.161	1.331	1.492		
8	GM-02-B-03	BUSINESS PARK	SALE	3985	Tuesday	18/10/2011	0.226	1.23	1.456		
9	LC-02-B-03	BUSINESS PARK	PRESTON	2741	Tuesday	18/10/2011	0.073	1.167	1.24		
10	LN-02-B-01	BUSINESS PARK	LINCOLN	4460	Tuesday	17/05/2005	0.179	0.919	1.098		
11	SH-02-B-03	BUSINESS CENTRE	TELFORD	1050	Tuesday	16/06/2009	0.19	0.857	1.047		
12	CF-02-B-02	BUSINESS/TECH. UNITS	CARDIFF	2587	Friday	20/10/2006	0.039	0.348	0.387		

TRICS 7.1.1
Trip Rate: Gross floor area

RANK ORDER for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT
Ranking Type: TOTALS Time Range: 08:00-09:00
85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	DC-02-C-07	NEW LOOK	WEYMOUTH	5467	Monday	07/07/2008	4.866	0.53	5.396	1.311	0.4055
2	EB-02-C-01	BREWERY	EDINBURGH	1200	Monday	16/06/2008	1.167	0.583	1.75		
3	BR-02-C-01	MECH. ENGINEERS	BRISTOL	1100	Monday	19/10/2009	1.455	0.091	1.546		
4	HF-02-C-01	INDUSTRIAL UNIT	WELWYN GARDEN CI	1800	Thursday	17/07/2008	0.611	0.278	0.889		
5	HI-02-C-01	DAIRY	NAIRN	3000	Wednesda	24/05/2006	0.7	0.167	0.867		
6	CF-02-C-01	PLASTICS COMPANY	CARDIFF	1068	Tuesday	24/10/2006	0.562	0.281	0.843		
7	WM-02-C-01	METAL BEARINGS	SUTTON COLDFIELD	4200	Tuesday	25/11/2008	0.667	0.167	0.834		
8	SF-02-C-01	JOINERY	IPSWICH	1100	Friday	12/07/2013	0.455	0	0.455		
9	HE-02-C-01	METAL. COATINGS	HEREFORD	1880	Thursday	14/10/2010	0.213	0.106	0.319		
10	WM-02-C-03	INDUSTRIAL GLASS	SMETHWICK	5070	Tuesday	06/11/2012	0.178	0.099	0.277		
11	FI-02-C-01	REFRIGERATION	DUNFERMLINE	4900	Friday	20/04/2007	0.122	0.02	0.142		

RANK ORDER for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT
Ranking Type: TOTALS Time Range: 17:00-18:00
85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	DC-02-C-07	NEW LOOK	WEYMOUTH	5467	Monday	07/07/2008	0.238	3.494	3.732	0.175	1.322
2	BR-02-C-01	MECH. ENGINEERS	BRISTOL	1100	Monday	19/10/2009	0.091	1.727	1.818		
3	CF-02-C-01	PLASTICS COMPANY	CARDIFF	1068	Tuesday	24/10/2006	0.375	0.655	1.03		
4	HF-02-C-01	INDUSTRIAL UNIT	WELWYN GARDEN CI	1800	Thursday	17/07/2008	0.111	0.833	0.944		
5	EB-02-C-01	BREWERY	EDINBURGH	1200	Monday	16/06/2008	0	0.917	0.917		
6	SF-02-C-01	JOINERY	IPSWICH	1100	Friday	12/07/2013	0	0.636	0.636		
7	WM-02-C-01	METAL BEARINGS	SUTTON COLDFIELD	4200	Tuesday	25/11/2008	0	0.595	0.595		
8	HI-02-C-01	DAIRY	NAIRN	3000	Wednesda	24/05/2006	0	0.533	0.533		
9	FI-02-C-01	REFRIGERATION	DUNFERMLINE	4900	Friday	20/04/2007	0.02	0.367	0.387		
10	WM-02-C-03	INDUSTRIAL GLASS	SMETHWICK	5070	Tuesday	06/11/2012	0.039	0.158	0.197		
11	HE-02-C-01	METAL. COATINGS	HEREFORD	1880	Thursday	14/10/2010	0.053	0.106	0.159		

TRICS 7.1.1

Trip Rate: Gross floor area

RANK ORDER for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

Ranking Type: TOTALS Time Range: 08:30-09:30

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	DV-02-D-06	INDUSTRIAL ESTATE	PLYMOUTH	1560	Tuesday	17/07/2012	2.5	1.346	3.846	1.383	1.026
2	CA-02-D-02	IND. ESTATE	CAMBRIDGE	2063	Monday	19/10/2009	1.454	1.115	2.569		
3	WL-02-D-01	IND. ESTATE	WOOTTON BASSETT	6825	Tuesday	03/10/2006	1.099	0.513	1.612		
4	CW-02-D-02	INDUSTRIAL ESTATE	CAMBORNE	5815	Friday	21/09/2007	0.688	0.671	1.359		
5	LC-02-D-04	INDUSTRIAL ESTATE	GARSTANG	4555	Friday	16/06/2006	0.659	0.483	1.142		
6	FA-02-D-03	INDUSTRIAL ESTATE	FALKIRK	1050	Friday	31/05/2013	0.286	0.381	0.667		
7	WY-02-D-01	INDUSTRIAL ESTATE	LEEDS	4225	Tuesday	19/04/2005	0.497	0.118	0.615		
8	LC-02-D-05	INDUSTRIAL ESTATE	BLACKBURN	6020	Tuesday	04/06/2013	0.332	0.133	0.465		
9	MS-02-D-05	INDUSTRIAL ESTATE	ST HELENS	2430	Tuesday	18/10/2005	0.412	0.041	0.453		

RANK ORDER for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

Ranking Type: TOTALS Time Range: 16:30-17:30

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	DV-02-D-06	INDUSTRIAL ESTATE	PLYMOUTH	1560	Tuesday	17/07/2012	1.218	2.372	3.59	0.6274	1.3948
2	CA-02-D-02	IND. ESTATE	CAMBRIDGE	2063	Monday	19/10/2009	0.388	1.454	1.842		
3	CW-02-D-02	INDUSTRIAL ESTATE	CAMBORNE	5815	Friday	21/09/2007	0.671	0.86	1.531		
4	WL-02-D-01	IND. ESTATE	WOOTTON BASSETT	6825	Tuesday	03/10/2006	0.293	1.158	1.451		
5	LC-02-D-04	INDUSTRIAL ESTATE	GARSTANG	4555	Friday	16/06/2006	0.395	0.812	1.207		
6	WY-02-D-01	INDUSTRIAL ESTATE	LEEDS	4225	Tuesday	19/04/2005	0.26	0.947	1.207		
7	MS-02-D-05	INDUSTRIAL ESTATE	ST HELENS	2430	Tuesday	18/10/2005	0.453	0.453	0.906		
8	FA-02-D-03	INDUSTRIAL ESTATE	FALKIRK	1050	Friday	31/05/2013	0.19	0.476	0.666		
9	LC-02-D-05	INDUSTRIAL ESTATE	BLACKBURN	6020	Tuesday	04/06/2013	0.282	0.299	0.581		

TRICS 7.1.1

Trip Rate: Gross floor area

RANK ORDER for Land Use 02 - EMPLOYMENT/E - WAREHOUSING (SELF STORAGE)

Ranking Type: TOTALS Time Range: 08:30-09:30

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	NW-02-E-01	STORAGE GIANT	NEWPORT	4261	Friday	22/10/2010	0.516	0.305	0.821	0.315	0.206
2	CA-02-E-03	ARMADILLO SELF STORA	PETERBOROUGH	3205	Thursday	20/10/2011	0.343	0.343	0.686		
3	WS-02-E-01	SELF STORAGE	BOGNOR REGIS	3000	Monday	06/11/2006	0.3	0.133	0.433		
4	KC-02-E-01	EASI STORE	TUNBRIDGE WELLS	5925	Tuesday	01/12/2009	0.219	0.152	0.371		
5	CA-02-E-02	SELF STORAGE	CAMBRIDGE	2675	Friday	16/10/2009	0.15	0.112	0.262		
6	WK-02-E-01	SELF STORAGE	COVENTRY	5046	Monday	31/10/2011	0.198	0.059	0.257		
7	WM-02-E-01	SPACES STORAGE	BIRMINGHAM	4645	Thursday	16/06/2005	0.129	0.086	0.215		
8	MS-02-E-01	BIG YELLOW	LIVERPOOL	8000	Thursday	09/09/2010	0.1	0.025	0.125		
9	NF-02-E-02	BIG YELLOW STORAGE	NORWICH	6150	Wednesda	21/09/2005	0.049	0.065	0.114		
10	WK-02-E-02	STORAGE KING	COVENTRY	2769	Friday	21/10/2011	0.072	0	0.072		
11	KC-02-E-03	BIG YELLOW STORAGE	TUNBRIDGE WELLS	5575	Tuesday	01/12/2009	0.036	0.036	0.072		
12	WM-02-E-02	EXTRASPACE	COVENTRY	7000	Tuesday	31/01/2006	0.029	0.029	0.058		

RANK ORDER for Land Use 02 - EMPLOYMENT/E - WAREHOUSING (SELF STORAGE)

Ranking Type: TOTALS Time Range: 16:30-17:30

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	CA-02-E-03	ARMADILLO SELF STORA	PETERBOROUGH	3205	Thursday	20/10/2011	0.374	0.374	0.748	0.183	0.261
2	NW-02-E-01	STORAGE GIANT	NEWPORT	4261	Friday	22/10/2010	0.188	0.375	0.563		
3	WK-02-E-02	STORAGE KING	COVENTRY	2769	Friday	21/10/2011	0.181	0.181	0.362		
4	KC-02-E-03	BIG YELLOW STORAGE	TUNBRIDGE WELLS	5575	Tuesday	01/12/2009	0.126	0.197	0.323		
5	WM-02-E-01	SPACES STORAGE	BIRMINGHAM	4645	Thursday	16/06/2005	0.108	0.194	0.302		
6	WS-02-E-01	SELF STORAGE	BOGNOR REGIS	3000	Monday	06/11/2006	0.1	0.2	0.3		
7	WK-02-E-01	SELF STORAGE	COVENTRY	5046	Monday	31/10/2011	0.059	0.198	0.257		
8	CA-02-E-02	SELF STORAGE	CAMBRIDGE	2675	Friday	16/10/2009	0.075	0.112	0.187		
9	KC-02-E-01	EASI STORE	TUNBRIDGE WELLS	5925	Tuesday	01/12/2009	0.051	0.084	0.135		
10	NF-02-E-02	BIG YELLOW STORAGE	NORWICH	6150	Wednesda	21/09/2005	0.065	0.049	0.114		
11	MS-02-E-01	BIG YELLOW	LIVERPOOL	8000	Thursday	09/09/2010	0.037	0.037	0.074		
12	WM-02-E-02	EXTRASPACE	COVENTRY	7000	Tuesday	31/01/2006	0	0	0		

TRICS 7.1.1

Trip Rate: Gross floor area

RANK ORDER for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Ranking Type: TOTALS Time Range: 08:00-09:00

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	TV-02-F-03	ELECTRICAL COMPONEN	STOCKTON-ON-TEES	387	Tuesday	28/06/2011	2.067	0.517	2.584	0.466	0.320
2	LC-02-F-02	WAREHOUSING	PRESTON	1200	Friday	22/06/2007	0.417	0.333	0.75		
3	SC-02-F-04	WAREHOUSING	CHERTSEY	4460	Tuesday	27/11/2007	0.471	0.135	0.606		
4	HC-02-F-01	WAREHOUSING	SOUTHAMPTON	4000	Wednesda	21/11/2007	0.4	0.2	0.6		
5	ML-02-F-01	WINDOWS	DALKEITH	750	Wednesda	04/05/2011	0.533	0	0.533		
6	CW-02-F-01	WAREHOUSING	NEAR TRURO	5150	Tuesday	18/09/2007	0.194	0.33	0.524		
7	HI-02-F-01	WAREHOUSING	NEAR INVERNESS	890	Wednesda	24/05/2006	0.225	0.225	0.45		
8	DS-02-F-01	ARMADILLO S. STORAGE	DERBY	1900	Tuesday	05/07/2011	0.158	0.105	0.263		
9	NW-02-F-01	LOGISTICS CENTRE	NEWPORT	16275	Friday	12/10/2007	0.147	0.018	0.165		
10	WR-02-F-01	WAREHOUSE	NEAR WREXHAM	9000	Tuesday	18/10/2011	0.133	0.011	0.144		
11	HF-02-F-03	DISTRIBUTION CEN.	HATFIELD	76000	Thursday	10/07/2008	0.079	0.055	0.134		
12	WM-02-F-01	LEGETT LOGIS.	BIRMINGHAM	4000	Wednesda	17/06/2009	0.075	0.05	0.125		
13	SF-02-F-02	WAREHOUSING	FELIXSTOWE	22270	Thursday	11/07/2013	0.036	0.049	0.085		
14	LN-02-F-01	BOOK SERVICE	GRANTHAM	30685	Monday	29/11/2010	0.068	0.013	0.081		
15	TV-02-F-02	ARGOS WAREHOUSE	DARLINGTON	80066	Tuesday	07/10/2008	0.017	0.019	0.036		

RANK ORDER for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)

Ranking Type: TOTALS Time Range: 17:00-18:00

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	GFA	Day	Date	Arrivals	Departures	Totals	85th %ile Arr.	85th %ile Dep.
1	TV-02-F-03	ELECTRICAL COMPONEN	STOCKTON-ON-TEES	387	Tuesday	28/06/2011	0	1.292	1.292	0.235	0.365
2	HI-02-F-01	WAREHOUSING	NEAR INVERNESS	890	Wednesda	24/05/2006	0.449	0.449	0.898		
3	LC-02-F-02	WAREHOUSING	PRESTON	1200	Friday	22/06/2007	0.333	0.333	0.666		
4	DS-02-F-01	ARMADILLO S. STORAGE	DERBY	1900	Tuesday	05/07/2011	0.053	0.368	0.421		
5	HC-02-F-01	WAREHOUSING	SOUTHAMPTON	4000	Wednesda	21/11/2007	0.25	0.15	0.4		
6	SC-02-F-04	WAREHOUSING	CHERTSEY	4460	Tuesday	27/11/2007	0.022	0.314	0.336		
7	CW-02-F-01	WAREHOUSING	NEAR TRURO	5150	Tuesday	18/09/2007	0.039	0.252	0.291		
8	WM-02-F-01	LEGETT LOGIS.	BIRMINGHAM	4000	Wednesda	17/06/2009	0.1	0.15	0.25		
9	NW-02-F-01	LOGISTICS CENTRE	NEWPORT	16275	Friday	12/10/2007	0.043	0.129	0.172		
10	HF-02-F-03	DISTRIBUTION CEN.	HATFIELD	76000	Thursday	10/07/2008	0.036	0.099	0.135		
11	SF-02-F-02	WAREHOUSING	FELIXSTOWE	22270	Thursday	11/07/2013	0.045	0.085	0.13		
12	WR-02-F-01	WAREHOUSE	NEAR WREXHAM	9000	Tuesday	18/10/2011	0	0.111	0.111		
13	TV-02-F-02	ARGOS WAREHOUSE	DARLINGTON	80066	Tuesday	07/10/2008	0.02	0.045	0.065		
14	LN-02-F-01	BOOK SERVICE	GRANTHAM	30685	Monday	29/11/2010	0.007	0.029	0.036		
15	ML-02-F-01	WINDOWS	DALKEITH	750	Wednesda	04/05/2011	0	0	0		

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : B - BUSINESS PARK
VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	DC	DORSET	1 days
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	1 days
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	1 days
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NO	NORTH LINCOLNSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
	LC	LANCASHIRE	1 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 1050 to 6675 (units: sqm)
Range Selected by User: 1000 to 7280 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 18/10/11

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	6 days
Wednesday	1 days
Thursday	3 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	12 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	5
Edge of Town	7

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Filtering Stage 3 selection:

Use Class:

B1	12 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	3 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	5 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
75,001 to 100,000	2 days
100,001 to 125,000	2 days
125,001 to 250,000	3 days
250,001 to 500,000	3 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	12 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1 CF-02-B-02 BUSINESS/TECH. UNITS CARDIFF
CRICKHOWELL ROAD
ST MELLONS
CARDIFF
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Gross floor area: 2587 sqm
Survey date: FRIDAY 20/10/06 Survey Type: MANUAL

2 DC-02-B-01 BUSINESS PARK DORSET
COMMERCIAL ROAD

POOLE
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Gross floor area: 1570 sqm
Survey date: THURSDAY 17/07/08 Survey Type: MANUAL

3 EB-02-B-03 BUSINESS PARK CITY OF EDINBURGH
LOGIE GREEN ROAD

EDINBURGH
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 6675 sqm
Survey date: TUESDAY 01/05/07 Survey Type: MANUAL

4 GM-02-B-03 BUSINESS PARK GREATER MANCHESTER
CROSS STREET

SALE
Edge of Town
Industrial Zone
Total Gross floor area: 3985 sqm
Survey date: TUESDAY 18/10/11 Survey Type: MANUAL

5 LC-02-B-03 BUSINESS PARK LANCASHIRE
NAVIGATION WAY

PRESTON
Edge of Town
Commercial Zone
Total Gross floor area: 3450 sqm
Survey date: TUESDAY 18/10/11 Survey Type: MANUAL

6 LN-02-B-01 BUSINESS PARK LINCOLNSHIRE
BISHOPS ROAD

LINCOLN
Edge of Town
Industrial Zone
Total Gross floor area: 4460 sqm
Survey date: TUESDAY 17/05/05 Survey Type: MANUAL

7 NO-02-B-02 BUSINESS PARK NORTH LINCOLNSHIRE
DONCASTER ROAD

SCUNTHORPE
Edge of Town
Residential Zone
Total Gross floor area: 1574 sqm
Survey date: THURSDAY 22/09/05 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 NT-02-B-01 BUSINESS PARK NOTTINGHAMSHIRE
PARK LANE

NOTTINGHAM
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Gross floor area: 2321 sqm
Survey date: THURSDAY 17/05/07 Survey Type: MANUAL

9 SF-02-B-01 BUSINESS PK SUFFOLK
KEMPSON WAY

BURY ST EDMUNDS
Edge of Town
Industrial Zone
Total Gross floor area: 2480 sqm
Survey date: WEDNESDAY 10/05/06 Survey Type: MANUAL

10 SH-02-B-03 BUSINESS CENTRE SHROPSHIRE
CASTLE STREET
HADLEY
TELFORD
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Gross floor area: 1300 sqm
Survey date: TUESDAY 16/06/09 Survey Type: MANUAL

11 WL-02-B-01 BUSINESS PK WILTSHIRE
HIGH STREET
COPED HALL
WOOTTON BASSETT
Edge of Town
Residential Zone
Total Gross floor area: 2600 sqm
Survey date: MONDAY 02/10/06 Survey Type: MANUAL

12 WO-02-B-01 BUSINESS PARK WORCESTERSHIRE
BURNT MEADOW ROAD
MOORS MOAT NTH IND. EST
REDDITCH
Edge of Town
Industrial Zone
Total Gross floor area: 3525 sqm
Survey date: TUESDAY 02/05/06 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

VEHICLES

Ranking Type: TOTALS Time Range: 08:30-09:30

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 10

85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	1.484	Arrivals:	1.739
Departures:	0.389	Departures:	0.329
Totals:	1.874	Totals:	2.068

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	NO-02-B-02	BUSINESS PARK	SCUNTHORPE	NORTH LINCOLNSHIRE	1574	Thu	22/09/05	4.701	0.508	5.209	
2	WL-02-B-01	BUSINESS PK	WOOTTON BASSETT	WILTSHIRE	2600	Mon	02/10/06	2.500	0.269	2.769	
3	NT-02-B-01	BUSINESS PARK	NOTTINGHAM	NOTTINGHAMSHIRE	2321	Thu	17/05/07	1.939	0.776	2.715	
4	SF-02-B-01	BUSINESS PK	BURY ST EDMUNDS	SUFFOLK	2480	Wed	10/05/06	2.056	0.242	2.298	
5	DC-02-B-01	BUSINESS PARK	POOLE	DORSET	1570	Thu	17/07/08	1.720	0.318	2.038	
6	EB-02-B-03	BUSINESS PARK	EDINBURGH	CITY OF EDINBURGH	6675	Tue	01/05/07	1.543	0.345	1.888	
7	WO-02-B-01	BUSINESS PARK	REDDITCH	WORCESTERSHIRE	3225	Tue	02/05/06	1.426	0.434	1.860	
8	LN-02-B-01	BUSINESS PARK	LINCOLN	LINCOLNSHIRE	4460	Tue	17/05/05	1.009	0.717	1.726	
9	LC-02-B-03	BUSINESS PARK	PRESTON	LANCASHIRE	2741	Tue	18/10/11	1.277	0.182	1.459	
10	GM-02-B-03	BUSINESS PARK	SALE	GREATER MANCHESTER	3985	Tue	18/10/11	1.205	0.075	1.280	
11	SH-02-B-03	BUSINESS CENTR	TELFORD	SHROPSHIRE	1050	Tue	16/06/09	1.143	0.000	1.143	
12	CF-02-B-02	BUSINESS/TECH.	CARDIFF	CARDIFF	2587	Fri	20/10/06	0.348	0.077	0.425	

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/B - BUSINESS PARK

VEHICLES

Ranking Type: TOTALS Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 10

85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	0.127	Arrivals:	0.190
Departures:	1.394	Departures:	1.302
Totals:	1.521	Totals:	1.493

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	WL-02-B-01	BUSINESS PK	WOOTTON BASSETT	WILTSHIRE	2600	Mon	02/10/06	0.154	2.000	2.154	
2	NO-02-B-02	BUSINESS PARK	SCUNTHORPE	NORTH LINCOLNSHIRE	1574	Thu	22/09/05	0.191	1.842	2.033	
3	NT-02-B-01	BUSINESS PARK	NOTTINGHAM	NOTTINGHAMSHIRE	2321	Thu	17/05/07	0.259	1.594	1.853	
4	DC-02-B-01	BUSINESS PARK	POOLE	DORSET	1570	Thu	17/07/08	0.510	1.338	1.848	
5	EB-02-B-03	BUSINESS PARK	EDINBURGH	CITY OF EDINBURGH	6675	Tue	01/05/07	0.210	1.543	1.753	
6	WO-02-B-01	BUSINESS PARK	REDDITCH	WORCESTERSHIRE	3225	Tue	02/05/06	0.093	1.457	1.550	
7	SF-02-B-01	BUSINESS PK	BURY ST EDMUNDS	SUFFOLK	2480	Wed	10/05/06	0.161	1.331	1.492	
8	GM-02-B-03	BUSINESS PARK	SALE	GREATER MANCHESTER	3985	Tue	18/10/11	0.226	1.230	1.456	
9	LC-02-B-03	BUSINESS PARK	PRESTON	LANCASHIRE	2741	Tue	18/10/11	0.073	1.167	1.240	
10	LN-02-B-01	BUSINESS PARK	LINCOLN	LINCOLNSHIRE	4460	Tue	17/05/05	0.179	0.919	1.098	
11	SH-02-B-03	BUSINESS CENTR	TELFORD	SHROPSHIRE	1050	Tue	16/06/09	0.190	0.857	1.047	
12	CF-02-B-02	BUSINESS/TECH.	CARDIFF	CARDIFF	2587	Fri	20/10/06	0.039	0.348	0.387	

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	CW	CORNWALL	1 days
	DV	DEVON	1 days
	WL	WILTSHIRE	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	1 days
08	NORTH WEST		
	LC	LANCASHIRE	2 days
	MS	MERSEYSIDE	1 days
11	SCOTLAND		
	FA	FALKIRK	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Actual Range: 1050 to 6825 (units: sqm)
Range Selected by User: 1000 to 7280 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 04/10/13

Selected survey days:

Monday	1 days
Tuesday	5 days
Friday	3 days

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	3
Edge of Town	6

Selected Location Sub Categories:

Industrial Zone	6
Commercial Zone	1
Built-Up Zone	1
No Sub Category	1

Filtering Stage 3 selection:

Use Class:

Not Known	1 days
B1	1 days
B2	4 days
B8	1 days

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	3 days
15,001 to 20,000	2 days
20,001 to 25,000	2 days
25,001 to 50,000	1 days

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	2 days
100,001 to 125,000	1 days
125,001 to 250,000	2 days
250,001 to 500,000	2 days
500,001 or More	1 days

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	8 days

Travel Plan:

No	9 days

LIST OF SITES relevant to selection parameters

1 CA-02-D-02 IND. ESTATE CAMBRIDGESHIRE
COLDHAM'S ROAD
COLDHAM'S COMMON
CAMBRIDGE
Edge of Town
Industrial Zone
Total Gross floor area: 2063 sqm
Survey date: MONDAY 19/10/09 Survey Type: MANUAL

2 CW-02-D-02 INDUSTRIAL ESTATE CORNWALL
DRUIDS ROAD

CAMBORNE
Edge of Town
Industrial Zone
Total Gross floor area: 6515 sqm
Survey date: FRIDAY 21/09/07 Survey Type: MANUAL

3 DV-02-D-06 INDUSTRIAL ESTATE DEVON
ST MODWEN ROAD

PLYMOUTH
Edge of Town
Industrial Zone
Total Gross floor area: 1775 sqm
Survey date: TUESDAY 17/07/12 Survey Type: MANUAL

4 FA-02-D-03 INDUSTRIAL ESTATE FALKIRK
LADYSMILL

FALKIRK
Edge of Town Centre
Commercial Zone
Total Gross floor area: 1250 sqm
Survey date: FRIDAY 31/05/13 Survey Type: MANUAL

5 LC-02-D-04 INDUSTRIAL ESTATE LANCASHIRE
GREEN LANE WEST

GARSTANG
Edge of Town
Industrial Zone
Total Gross floor area: 4555 sqm
Survey date: FRIDAY 16/06/06 Survey Type: MANUAL

6 LC-02-D-05 INDUSTRIAL ESTATE LANCASHIRE
APPLEBY STREET

BLACKBURN
Edge of Town Centre
Industrial Zone
Total Gross floor area: 7020 sqm
Survey date: TUESDAY 04/06/13 Survey Type: MANUAL

7 MS-02-D-05 INDUSTRIAL ESTATE MERSEYSIDE
BROADOAK ROAD

ST HELENS
Edge of Town
No Sub Category
Total Gross floor area: 2430 sqm
Survey date: TUESDAY 18/10/05 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 WL-02-D-01 IND. ESTATE WILTSHIRE
MARLBOROUGH ROAD

WOOTTON BASSETT
Edge of Town
Industrial Zone
Total Gross floor area: 7050 sqm
Survey date: TUESDAY 03/10/06 Survey Type: MANUAL

9 WY-02-D-01 INDUSTRIAL ESTATE WEST YORKSHIRE
PARK HOUSE WEST

LEEDS
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 4225 sqm
Survey date: TUESDAY 19/04/05 Survey Type: MANUAL

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

VEHICLES

Ranking Type: TOTALS Time Range: 08:30-09:30

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 8

85th Percentile = No. 2

Median Values		Mean Values	
Arrivals:	0.659	Arrivals:	0.881
Departures:	0.483	Departures:	0.533
Totals:	1.142	Totals:	1.414

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	DV-02-D-06	INDUSTRIAL EST	PLYMOUTH	DEVON	1560	Tue	17/07/12	2.500	1.346	3.846	
2	CA-02-D-02	IND. ESTATE	CAMBRIDGE	CAMBRIDGESHIRE	2063	Mon	19/10/09	1.454	1.115	2.569	
3	WL-02-D-01	IND. ESTATE	WOOTTON BASSETT	WILTSHIRE	6825	Tue	03/10/06	1.099	0.513	1.612	
4	CW-02-D-02	INDUSTRIAL EST	CAMBORNE	CORNWALL	5815	Fri	21/09/07	0.688	0.671	1.359	
5	LC-02-D-04	INDUSTRIAL EST	GARSTANG	LANCASHIRE	4555	Fri	16/06/06	0.659	0.483	1.142	
6	FA-02-D-03	INDUSTRIAL EST	FALKIRK	FALKIRK	1050	Fri	31/05/13	0.286	0.381	0.667	
7	WY-02-D-01	INDUSTRIAL EST	LEEDS	WEST YORKSHIRE	4225	Tue	19/04/05	0.497	0.118	0.615	
8	LC-02-D-05	INDUSTRIAL EST	BLACKBURN	LANCASHIRE	6020	Tue	04/06/13	0.332	0.133	0.465	
9	MS-02-D-05	INDUSTRIAL EST	ST HELENS	MERSEYSIDE	2430	Tue	18/10/05	0.412	0.041	0.453	

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE

VEHICLES

Ranking Type: TOTALS Time Range: 16:30-17:30

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 8

85th Percentile = No. 2

Median Values		Mean Values	
Arrivals:	0.395	Arrivals:	0.461
Departures:	0.812	Departures:	0.981
Totals:	1.207	Totals:	1.442

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	DV-02-D-06	INDUSTRIAL EST	PLYMOUTH	DEVON	1560	Tue	17/07/12	1.218	2.372	3.590	
2	CA-02-D-02	IND. ESTATE	CAMBRIDGE	CAMBRIDGESHIRE	2063	Mon	19/10/09	0.388	1.454	1.842	
3	CW-02-D-02	INDUSTRIAL EST	CAMBORNE	CORNWALL	5815	Fri	21/09/07	0.671	0.860	1.531	
4	WL-02-D-01	IND. ESTATE	WOOTTON BASSETT	WILTSHIRE	6825	Tue	03/10/06	0.293	1.158	1.451	
5	LC-02-D-04	INDUSTRIAL EST	GARSTANG	LANCASHIRE	4555	Fri	16/06/06	0.395	0.812	1.207	
6	WY-02-D-01	INDUSTRIAL EST	LEEDS	WEST YORKSHIRE	4225	Tue	19/04/05	0.260	0.947	1.207	
7	MS-02-D-05	INDUSTRIAL EST	ST HELENS	MERSEYSIDE	2430	Tue	18/10/05	0.453	0.453	0.906	
8	FA-02-D-03	INDUSTRIAL EST	FALKIRK	FALKIRK	1050	Fri	31/05/13	0.190	0.476	0.666	
9	LC-02-D-05	INDUSTRIAL EST	BLACKBURN	LANCASHIRE	6020	Tue	04/06/13	0.282	0.299	0.581	

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : C - INDUSTRIAL UNIT
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HF	HERTFORDSHIRE	1 days
03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
	DC	DORSET	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
06	WEST MIDLANDS		
	HE	HEREFORDSHIRE	1 days
	WM	WEST MIDLANDS	2 days
10	WALES		
	CF	CARDIFF	1 days
11	SCOTLAND		
	EB	CITY OF EDINBURGH	1 days
	FI	FIFE	1 days
	HI	HIGHLAND	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Actual Range: 1068 to 5467 (units: sqm)
Range Selected by User: 1000 to 7280 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 12/07/13

Selected survey days:

Monday	3 days
Tuesday	3 days
Wednesday	1 days
Thursday	2 days
Friday	2 days

Selected survey types:

Manual count	11 days
Directional ATC Count	0 days

Selected Locations:

Suburban Area (PPS6 Out of Centre)	5
Edge of Town	6

Selected Location Sub Categories:

Industrial Zone	9
Commercial Zone	1
No Sub Category	1

Filtering Stage 3 selection:

Use Class:

B1	8 days
B2	3 days

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	1 days
10,001 to 15,000	3 days
15,001 to 20,000	2 days
25,001 to 50,000	3 days

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	2 days
125,001 to 250,000	3 days
250,001 to 500,000	3 days

Car ownership within 5 miles:

0.6 to 1.0	7 days
1.1 to 1.5	4 days

Travel Plan:

No	11 days

LIST OF SITES relevant to selection parameters

1 BR-02-C-01 MECH. ENGINEERS BRISTOL CITY
NOVERS HILL
BEDMINSTER
BRISTOL
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 1100 sqm
Survey date: MONDAY 19/10/09 Survey Type: MANUAL

2 CF-02-C-01 PLASTICS COMPANY CARDIFF
PARC-TY-GLAS
LLANISHEN
CARDIFF
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 1068 sqm
Survey date: TUESDAY 24/10/06 Survey Type: MANUAL

3 DC-02-C-07 NEW LOOK DORSET
MERCERY ROAD

WEYMOUTH
Edge of Town
No Sub Category
Total Gross floor area: 5467 sqm
Survey date: MONDAY 07/07/08 Survey Type: MANUAL

4 EB-02-C-01 BREWERY CITY OF EDINBURGH
DRYDEN ROAD
LOANHEAD
EDINBURGH
Edge of Town
Industrial Zone
Total Gross floor area: 1200 sqm
Survey date: MONDAY 16/06/08 Survey Type: MANUAL

5 FI-02-C-01 REFRIGERATION FIFE
HALBEATH PLACE

DUNFERMLINE
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 4900 sqm
Survey date: FRIDAY 20/04/07 Survey Type: MANUAL

6 HE-02-C-01 METAL. COATINGS HEREFORDSHIRE
COLLEGE ROAD

HEREFORD
Edge of Town
Commercial Zone
Total Gross floor area: 1880 sqm
Survey date: THURSDAY 14/10/10 Survey Type: MANUAL

7 HF-02-C-01 INDUSTRIAL UNIT HERTFORDSHIRE
BRIDGE ROAD EAST

WELWYN GARDEN CITY
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 1800 sqm
Survey date: THURSDAY 17/07/08 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 HI-02-C-01 DAIRY HIGHLAND
TOM SEMPLE ROAD
BALMAKEITH BUSINESS PK
NAIRN
Edge of Town
Industrial Zone
Total Gross floor area: 3000 sqm
Survey date: WEDNESDAY 24/05/06 Survey Type: MANUAL

9 SF-02-C-01 JOINERY SUFFOLK
ANSON ROAD
MARTLESHAM HEATH
IPSWICH
Edge of Town
Industrial Zone
Total Gross floor area: 1100 sqm
Survey date: FRIDAY 12/07/13 Survey Type: MANUAL

10 WM-02-C-01 METAL BEARINGS WEST MIDLANDS
FORGE LANE
MINWORTH
SUTTON COLDFIELD
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 4200 sqm
Survey date: TUESDAY 25/11/08 Survey Type: MANUAL

11 WM-02-C-03 INDUSTRIAL GLASS WEST MIDLANDS
DOWNING STREET

SMETHWICK
Edge of Town
Industrial Zone
Total Gross floor area: 5070 sqm
Survey date: TUESDAY 06/11/12 Survey Type: MANUAL

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

VEHICLES

Ranking Type: TOTALS Time Range: 08:00-09:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 9

85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	0.562	Arrivals:	1.000
Departures:	0.281	Departures:	0.211
Totals:	0.843	Totals:	1.211

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	DC-02-C-07	NEW LOOK	WEYMOUTH	DORSET	5467	Mon	07/07/08	4.866	0.530	5.396	
2	EB-02-C-01	BREWERY	EDINBURGH	CITY OF EDINBURGH	1200	Mon	16/06/08	1.167	0.583	1.750	
3	BR-02-C-01	MECH. ENGINEER	BRISTOL	BRISTOL CITY	1100	Mon	19/10/09	1.455	0.091	1.546	
4	HF-02-C-01	INDUSTRIAL UNI	WELWYN GARDEN CITY	HERTFORDSHIRE	1800	Thu	17/07/08	0.611	0.278	0.889	
5	HI-02-C-01	DAIRY	NAIRN	HIGHLAND	3000	Wed	24/05/06	0.700	0.167	0.867	
6	CF-02-C-01	PLASTICS COMPA	CARDIFF	CARDIFF	1068	Tue	24/10/06	0.562	0.281	0.843	
7	WM-02-C-01	METAL BEARINGS	SUTTON COLDFIELD	WEST MIDLANDS	4200	Tue	25/11/08	0.667	0.167	0.834	
8	SF-02-C-01	JOINERY	IPSWICH	SUFFOLK	1100	Fri	12/07/13	0.455	0.000	0.455	
9	HE-02-C-01	METAL. COATING	HEREFORD	HEREFORDSHIRE	1880	Thu	14/10/10	0.213	0.106	0.319	
10	WM-02-C-03	INDUSTRIAL GLA	SMETHWICK	WEST MIDLANDS	5070	Tue	06/11/12	0.178	0.099	0.277	
11	FI-02-C-01	REFRIGERATION	DUNFERMLINE	FIFE	4900	Fri	20/04/07	0.122	0.020	0.142	

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/C - INDUSTRIAL UNIT

VEHICLES

Ranking Type: TOTALS Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 9

85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	0.000	Arrivals:	0.084
Departures:	0.636	Departures:	0.911
Totals:	0.636	Totals:	0.995

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	DC-02-C-07	NEW LOOK	WEYMOUTH	DORSET	5467	Mon	07/07/08	0.238	3.494	3.732	
2	BR-02-C-01	MECH. ENGINEER	BRISTOL	BRISTOL CITY	1100	Mon	19/10/09	0.091	1.727	1.818	
3	CF-02-C-01	PLASTICS COMPA	CARDIFF	CARDIFF	1068	Tue	24/10/06	0.375	0.655	1.030	
4	HF-02-C-01	INDUSTRIAL UNI	WELWYN GARDEN CITY	HERTFORDSHIRE	1800	Thu	17/07/08	0.111	0.833	0.944	
5	EB-02-C-01	BREWERY	EDINBURGH	CITY OF EDINBURGH	1200	Mon	16/06/08	0.000	0.917	0.917	
6	SF-02-C-01	JOINERY	IPSWICH	SUFFOLK	1100	Fri	12/07/13	0.000	0.636	0.636	
7	WM-02-C-01	METAL BEARINGS	SUTTON COLDFIELD	WEST MIDLANDS	4200	Tue	25/11/08	0.000	0.595	0.595	
8	HI-02-C-01	DAIRY	NAIRN	HIGHLAND	3000	Wed	24/05/06	0.000	0.533	0.533	
9	FI-02-C-01	REFRIGERATION	DUNFERMLINE	FIFE	4900	Fri	20/04/07	0.020	0.367	0.387	
10	WM-02-C-03	INDUSTRIAL GLA	SMETHWICK	WEST MIDLANDS	5070	Tue	06/11/12	0.039	0.158	0.197	
11	HE-02-C-01	METAL. COATING	HEREFORD	HEREFORDSHIRE	1880	Thu	14/10/10	0.053	0.106	0.159	

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	KC	KENT	5 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
	DC	DORSET	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	2 days
	NF	NORFOLK	1 days
	SF	SUFFOLK	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	1 days
08	NORTH WEST		
	LC	LANCASHIRE	2 days
09	NORTH		
	DH	DURHAM	1 days
	TV	TEES VALLEY	1 days
	TW	TYNE & WEAR	2 days
10	WALES		
	MT	MERTHYR TYDFIL	1 days
11	SCOTLAND		
	HI	HIGHLAND	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 1113 to 6678 (units: sqm)
Range Selected by User: 1000 to 7280 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 24/09/13

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	4 days
Tuesday	5 days
Wednesday	3 days
Thursday	5 days
Friday	4 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	21 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	10
Edge of Town	11

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	3
Commercial Zone	5
Development Zone	1
Residential Zone	1
Retail Zone	1
Built-Up Zone	7
No Sub Category	3

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Filtering Stage 3 selection:

Use Class:

B1	21 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	4 days
10,001 to 15,000	7 days
15,001 to 20,000	5 days
25,001 to 50,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	2 days
50,001 to 75,000	2 days
75,001 to 100,000	4 days
100,001 to 125,000	3 days
125,001 to 250,000	7 days
250,001 to 500,000	3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	8 days
1.1 to 1.5	13 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	7 days
No	14 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1 CA-02-A-03 OFFICE CAMBRIDGESHIRE
NEW ROAD

PETERBOROUGH
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 5750 sqm
Survey date: THURSDAY 08/05/08 Survey Type: MANUAL

2 CA-02-A-04 OFFICE CAMBRIDGESHIRE
BRETTON WAY

PETERBOROUGH
Edge of Town
Commercial Zone
Total Gross floor area: 6483 sqm
Survey date: THURSDAY 20/10/11 Survey Type: MANUAL

3 CW-02-A-02 INLAND REVENUE CORNWALL
TRINITY STREET

ST AUSTELL
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 4850 sqm
Survey date: FRIDAY 08/06/07 Survey Type: MANUAL

4 DC-02-A-08 OFFICE DORSET
STATION APPROACH

DORCHESTER
Edge of Town Centre
No Sub Category
Total Gross floor area: 1550 sqm
Survey date: THURSDAY 03/07/08 Survey Type: MANUAL

5 DH-02-A-02 CONSTRUCTION COMPANY DURHAM
DURHAM ROAD
BOWBURN
NEAR DURHAM
Edge of Town
Industrial Zone
Total Gross floor area: 2000 sqm
Survey date: TUESDAY 27/11/12 Survey Type: MANUAL

6 ES-02-A-10 DISTRICT COUNCIL EAST SUSSEX
VICARAGE LANE

HAILSHAM
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 3640 sqm
Survey date: TUESDAY 24/09/13 Survey Type: MANUAL

7 HI-02-A-03 OFFICE HIGHLAND
HIGHLANDER WAY

INVERNESS
Edge of Town
Development Zone
Total Gross floor area: 5400 sqm
Survey date: WEDNESDAY 20/05/09 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 KC-02-A-06 LAND REGISTRY KENT
FOREST ROAD
CAMDEN PARK
TUNBRIDGE WELLS
Edge of Town
Residential Zone
Total Gross floor area: 5677 sqm
Survey date: TUESDAY 01/12/09 Survey Type: MANUAL

9 KC-02-A-07 KCC HIGHWAYS REG. KENT
KAVELIN WAY
HENWOOD IND. ESTATE
ASHFORD
Edge of Town
Commercial Zone
Total Gross floor area: 2525 sqm
Survey date: MONDAY 05/12/11 Survey Type: MANUAL

10 KC-02-A-08 KCC HIGHWAYS REG. OFFICE KENT
ST MICHAEL'S CLOSE
CLAY WOOD
AYLESFORD
Edge of Town
Industrial Zone
Total Gross floor area: 3168 sqm
Survey date: MONDAY 28/11/11 Survey Type: MANUAL

11 KC-02-A-09 COUNCIL OFFICES KENT
SANDLING ROAD

MAIDSTONE
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 1500 sqm
Survey date: WEDNESDAY 19/10/11 Survey Type: MANUAL

12 KC-02-A-10 COUNCIL OFFICES KENT
SANDLING ROAD

MAIDSTONE
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2900 sqm
Survey date: WEDNESDAY 19/10/11 Survey Type: MANUAL

13 LC-02-A-07 COUNCIL OFFICES LANCASHIRE
SOUTH PROMENADE
SAINT ANNES
BLACKPOOL
Edge of Town
No Sub Category
Total Gross floor area: 6678 sqm
Survey date: FRIDAY 13/05/05 Survey Type: MANUAL

14 LC-02-A-08 COUNCIL OFFICES LANCASHIRE
UNION STREET

CHORLEY
Edge of Town Centre
Retail Zone
Total Gross floor area: 2000 sqm
Survey date: TUESDAY 13/06/06 Survey Type: MANUAL

15 MT-02-A-01 OFFICE MERTHYR TYDFIL
A4102
RHYD-Y-CAR
MERTHYR TYDFIL
Edge of Town
No Sub Category
Total Gross floor area: 5950 sqm
Survey date: FRIDAY 05/10/07 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

16 NF-02-A-01 COUNCIL OFFICE NORFOLK
CHAPEL STREET

KING'S LYNN
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 5500 sqm
Survey date: THURSDAY 30/09/10 Survey Type: MANUAL

17 SF-02-A-02 OFFICES SUFFOLK
BATH STREET

IPSWICH
Edge of Town Centre
Commercial Zone
Total Gross floor area: 6505 sqm
Survey date: FRIDAY 19/07/13 Survey Type: MANUAL

18 TV-02-A-02 BUILDING SOCIETY TEES VALLEY
LINGFIELD WAY
MORTON PARK
DARLINGTON
Edge of Town
Commercial Zone
Total Gross floor area: 3500 sqm
Survey date: MONDAY 25/04/05 Survey Type: MANUAL

19 TW-02-A-03 DEVELOPMENT AGENCY TYNE & WEAR
KINGFISHER BOULEVARD
LEMINGTON
NEWCASTLE UPON TYNE
Edge of Town
Commercial Zone
Total Gross floor area: 6480 sqm
Survey date: THURSDAY 11/12/08 Survey Type: MANUAL

20 TW-02-A-04 HOUSING CO. TYNE & WEAR
EARLSWAY
TEAM VALLEY TRAD. EST.
GATESHEAD
Edge of Town
Industrial Zone
Total Gross floor area: 2500 sqm
Survey date: TUESDAY 29/09/09 Survey Type: MANUAL

21 WY-02-A-01 CALL CENTRE WEST YORKSHIRE
FILEY STREET

BRADFORD
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 2400 sqm
Survey date: MONDAY 09/05/05 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/A - OFFICE

VEHICLES

Ranking Type: TOTALS Time Range: 08:00-09:00

15th Percentile = No. 18

85th Percentile = No. 4

Median Values		Mean Values	
Arrivals:	1.971	Arrivals:	2.126
Departures:	0.114	Departures:	0.240
Totals:	2.085	Totals:	2.366

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	LC-02-A-08	COUNCIL OFFICE	CHORLEY	LANCASHIRE	2000	Tue	13/06/06	3.950	0.300	4.250	
2	KC-02-A-09	COUNCIL OFFICE	MAIDSTONE	KENT	1500	Wed	19/10/11	3.533	0.467	4.000	Yes
3	KC-02-A-07	KCC HIGHWAYS R	ASHFORD	KENT	1113	Mon	05/12/11	3.504	0.180	3.684	Yes
4	DH-02-A-02	CONSTRUCTION C	NEAR DURHAM	DURHAM	2000	Tue	27/11/12	3.250	0.150	3.400	
5	WY-02-A-01	CALL CENTRE	BRADFORD	WEST YORKSHIRE	2400	Mon	09/05/05	3.000	0.333	3.333	
6	KC-02-A-10	COUNCIL OFFICE	MAIDSTONE	KENT	2900	Wed	19/10/11	3.034	0.207	3.241	Yes
7	NF-02-A-01	COUNCIL OFFICE	KING'S LYNN	NORFOLK	5500	Thu	30/09/10	2.600	0.455	3.055	Yes
8	DC-02-A-08	OFFICE	DORCHESTER	DORSET	1550	Thu	03/07/08	2.323	0.258	2.581	
9	ES-02-A-10	DISTRICT COUNC	HAILSHAM	EAST SUSSEX	3640	Tue	24/09/13	2.280	0.110	2.390	Yes
10	MT-02-A-01	OFFICE	MERTHYR TYDFIL	MERTHYR TYDFIL	5950	Fri	05/10/07	1.899	0.353	2.252	
11	TV-02-A-02	BUILDING SOCIE	DARLINGTON	TEES VALLEY	3500	Mon	25/04/05	1.971	0.114	2.085	
12	TW-02-A-04	HOUSING CO.	GATESHEAD	TYNE & WEAR	2500	Tue	29/09/09	1.760	0.280	2.040	
13	SF-02-A-02	OFFICES	IPSWICH	SUFFOLK	6505	Fri	19/07/13	1.537	0.446	1.983	
14	TW-02-A-03	DEVELOPMENT AG	NEWCASTLE UPON TYNE	TYNE & WEAR	6480	Thu	11/12/08	1.744	0.170	1.914	
15	HI-02-A-03	OFFICE	INVERNESS	HIGHLAND	5400	Wed	20/05/09	1.574	0.278	1.852	
16	CW-02-A-02	INLAND REVENUE	ST AUSTELL	CORNWALL	4850	Fri	08/06/07	1.402	0.330	1.732	
17	CA-02-A-04	OFFICE	PETERBOROUGH	CAMBRIDGESHIRE	6483	Thu	20/10/11	1.373	0.123	1.496	
18	KC-02-A-08	KCC HIGHWAYS R	AYLESFORD	KENT	3168	Mon	28/11/11	1.105	0.158	1.263	Yes
19	CA-02-A-03	OFFICE	PETERBOROUGH	CAMBRIDGESHIRE	5750	Thu	08/05/08	1.061	0.157	1.218	
20	LC-02-A-07	COUNCIL OFFICE	BLACKPOOL	LANCASHIRE	6678	Fri	13/05/05	0.928	0.075	1.003	
21	KC-02-A-06	LAND REGISTRY	TUNBRIDGE WELLS	KENT	5139	Tue	01/12/09	0.817	0.097	0.914	Yes

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/A - OFFICE

VEHICLES

Ranking Type: TOTALS Time Range: 16:30-17:30

15th Percentile = No. 18

85th Percentile = No. 4

Median Values		Mean Values	
Arrivals:	0.387	Arrivals:	0.276
Departures:	1.548	Departures:	2.116
Totals:	1.935	Totals:	2.392

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	KC-02-A-07	KCC HIGHWAYS R	ASHFORD	KENT	1113	Mon	05/12/11	0.090	6.110	6.200	Yes
2	LC-02-A-08	COUNCIL OFFICE	CHORLEY	LANCASHIRE	2000	Tue	13/06/06	0.800	4.700	5.500	
3	DH-02-A-02	CONSTRUCTION C	NEAR DURHAM	DURHAM	2000	Tue	27/11/12	0.600	4.000	4.600	
4	KC-02-A-09	COUNCIL OFFICE	MAIDSTONE	KENT	1500	Wed	19/10/11	0.333	4.267	4.600	Yes
5	KC-02-A-10	COUNCIL OFFICE	MAIDSTONE	KENT	2900	Wed	19/10/11	0.241	2.759	3.000	Yes
6	NF-02-A-01	COUNCIL OFFICE	KING'S LYNN	NORFOLK	5500	Thu	30/09/10	0.291	2.255	2.546	Yes
7	TW-02-A-04	HOUSING CO.	GATESHEAD	TYNE & WEAR	2500	Tue	29/09/09	0.040	2.440	2.480	
8	WY-02-A-01	CALL CENTRE	BRADFORD	WEST YORKSHIRE	2400	Mon	09/05/05	0.458	1.875	2.333	
9	ES-02-A-10	DISTRICT COUNC	HAILSHAM	EAST SUSSEX	3640	Tue	24/09/13	0.165	2.143	2.308	Yes
10	TV-02-A-02	BUILDING SOCIE	DARLINGTON	TEES VALLEY	3500	Mon	25/04/05	0.429	1.800	2.229	
11	DC-02-A-08	OFFICE	DORCHESTER	DORSET	1550	Thu	03/07/08	0.387	1.548	1.935	
12	MT-02-A-01	OFFICE	MERTHYR TYDFIL	MERTHYR TYDFIL	5950	Fri	05/10/07	0.353	1.395	1.748	
13	CW-02-A-02	INLAND REVENUE	ST AUSTELL	CORNWALL	4850	Fri	08/06/07	0.536	1.031	1.567	
14	KC-02-A-08	KCC HIGHWAYS R	AYLESFORD	KENT	3168	Mon	28/11/11	0.063	1.484	1.547	Yes
15	TW-02-A-03	DEVELOPMENT AG	NEWCASTLE UPON TYNE	TYNE & WEAR	6480	Thu	11/12/08	0.139	1.327	1.466	
16	HI-02-A-03	OFFICE	INVERNESS	HIGHLAND	5400	Wed	20/05/09	0.204	1.204	1.408	
17	SF-02-A-02	OFFICES	IPSWICH	SUFFOLK	6505	Fri	19/07/13	0.277	1.030	1.307	
18	CA-02-A-03	OFFICE	PETERBOROUGH	CAMBRIDGESHIRE	5750	Thu	08/05/08	0.209	0.835	1.044	
19	CA-02-A-04	OFFICE	PETERBOROUGH	CAMBRIDGESHIRE	6483	Thu	20/10/11	0.062	0.972	1.034	
20	LC-02-A-07	COUNCIL OFFICE	BLACKPOOL	LANCASHIRE	6678	Fri	13/05/05	0.075	0.704	0.779	
21	KC-02-A-06	LAND REGISTRY	TUNBRIDGE WELLS	KENT	5139	Tue	01/12/09	0.039	0.564	0.603	Yes

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : G - PARCEL DISTRIBUTION CENTRES
VEHICLES

Selected regions and areas:

04	EAST ANGLIA		
	NF	NORFOLK	1 days
05	EAST MIDLANDS		
	NT	NOTTINGHAMSHIRE	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	RI	EAST RIDING OF YORKSHIRE	1 days

Filtering Stage 2 selection:

Parameter:	Gross floor area
Actual Range:	763 to 3000 (units: sqm)
Range Selected by User:	763 to 24154 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 17/06/13

Selected survey days:

Monday	1 days
Wednesday	2 days
Thursday	1 days

Selected survey types:

Manual count	4 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	1
Edge of Town	1
Free Standing (PPS6 Out of Town)	2

Selected Location Sub Categories:

Commercial Zone	3
Out of Town	1

Filtering Stage 3 selection:

Use Class:

B8	4 days

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	1 days
25,001 to 50,000	2 days

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	1 days
125,001 to 250,000	1 days
500,001 or More	1 days

Filtering Stage 3 selection (Cont.):

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	1 days
1.1 to 1.5	1 days
1.6 to 2.0	1 days

Travel Plan:

No	4 days

LIST OF SITES relevant to selection parameters

1 NF-02-G-01 PARCELFORCE NORFOLK
BARKER STREET

NORWICH
Edge of Town Centre
Commercial Zone
Total Gross floor area: 1600 sqm
Survey date: THURSDAY 25/10/12 Survey Type: MANUAL

2 NT-02-G-02 CITY LINK NOTTINGHAMSHIRE
MILLENIUM WAY
PHOENIX CENTRE
NOTTINGHAM
Edge of Town
Commercial Zone
Total Gross floor area: 3000 sqm
Survey date: MONDAY 17/06/13 Survey Type: MANUAL

3 RI-02-G-01 UK MAIL EAST RIDING OF YORKSHIRE
YORK ROAD
ALLERTHORPE BUS. PARK
NEAR POCKLINGTON
Free Standing (PPS6 Out of Town)
Commercial Zone
Total Gross floor area: 2700 sqm
Survey date: WEDNESDAY 19/12/12 Survey Type: MANUAL

4 WK-02-G-01 INITIAL CITY LINK WARWICKSHIRE
LONDON ROAD
DUNSMORE HEATH
NEAR RUGBY
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 763 sqm
Survey date: WEDNESDAY 01/02/06 Survey Type: MANUAL

TRIP RATE for Land Use 02 - EMPLOYMENT/G - PARCEL DISTRIBUTION CENTRES
VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30	1	2700	0.148	1	2700	0.000	1	2700	0.148
05:30 - 06:00	1	2700	0.185	1	2700	0.037	1	2700	0.222
06:00 - 06:30	2	2150	0.465	2	2150	0.093	2	2150	0.558
06:30 - 07:00	2	2150	0.349	2	2150	0.070	2	2150	0.419
07:00 - 07:30	4	2016	0.347	4	2016	0.298	4	2016	0.645
07:30 - 08:00	4	2016	0.285	4	2016	0.484	4	2016	0.769
08:00 - 08:30	4	2016	0.186	4	2016	0.508	4	2016	0.694
08:30 - 09:00	4	2016	0.112	4	2016	0.260	4	2016	0.372
09:00 - 09:30	4	2016	0.149	4	2016	0.149	4	2016	0.298
09:30 - 10:00	4	2016	0.174	4	2016	0.124	4	2016	0.298
10:00 - 10:30	4	2016	0.087	4	2016	0.161	4	2016	0.248
10:30 - 11:00	4	2016	0.099	4	2016	0.037	4	2016	0.136
11:00 - 11:30	4	2016	0.099	4	2016	0.124	4	2016	0.223
11:30 - 12:00	4	2016	0.124	4	2016	0.112	4	2016	0.236
12:00 - 12:30	4	2016	0.236	4	2016	0.149	4	2016	0.385
12:30 - 13:00	4	2016	0.050	4	2016	0.198	4	2016	0.248
13:00 - 13:30	4	2016	0.124	4	2016	0.087	4	2016	0.211
13:30 - 14:00	4	2016	0.174	4	2016	0.050	4	2016	0.224
14:00 - 14:30	4	2016	0.149	4	2016	0.149	4	2016	0.298
14:30 - 15:00	4	2016	0.149	4	2016	0.174	4	2016	0.323
15:00 - 15:30	4	2016	0.211	4	2016	0.074	4	2016	0.285
15:30 - 16:00	4	2016	0.136	4	2016	0.149	4	2016	0.285
16:00 - 16:30	4	2016	0.384	4	2016	0.223	4	2016	0.607
16:30 - 17:00	4	2016	0.459	4	2016	0.384	4	2016	0.843
17:00 - 17:30	4	2016	0.558	4	2016	0.446	4	2016	1.004
17:30 - 18:00	4	2016	0.384	4	2016	0.521	4	2016	0.905
18:00 - 18:30	4	2016	0.248	4	2016	0.409	4	2016	0.657
18:30 - 19:00	4	2016	0.223	4	2016	0.322	4	2016	0.545
19:00 - 19:30	3	2433	0.055	3	2433	0.192	3	2433	0.247
19:30 - 20:00	3	2433	0.082	3	2433	0.137	3	2433	0.219
20:00 - 20:30	3	2433	0.055	3	2433	0.164	3	2433	0.219
20:30 - 21:00	3	2433	0.014	3	2433	0.027	3	2433	0.041
21:00 - 21:30	2	2850	0.000	2	2850	0.053	2	2850	0.053
21:30 - 22:00	2	2850	0.000	2	2850	0.000	2	2850	0.000
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			6.500			6.365			12.865

Parameter summary

Trip rate parameter range selected:	763 - 3000 (units: sqm)
Survey date date range:	01/01/05 - 17/06/13
Number of weekdays (Monday-Friday):	4
Number of Saturdays:	0
Number of Sundays:	0
Surveys manually removed from selection:	0

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : F - WAREHOUSING (COMMERCIAL)

VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
	HF	HERTFORDSHIRE	1 days
	SC	SURREY	1 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	LN	LINCOLNSHIRE	1 days
06	WEST MIDLANDS		
	WM	WEST MIDLANDS	1 days
08	NORTH WEST		
	LC	LANCASHIRE	1 days
09	NORTH		
	TV	TEES VALLEY	2 days
10	WALES		
	NW	NEWPORT	1 days
	WR	WREXHAM	1 days
11	SCOTLAND		
	HI	HIGHLAND	1 days
	ML	MIDLOTHIAN	1 days

Filtering Stage 2 selection:

Parameter: Gross floor area
Actual Range: 387 to 80066 (units: sqm)
Range Selected by User: 387 to 80066 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 11/07/13

Selected survey days:

Monday	1 days
Tuesday	6 days
Wednesday	4 days
Thursday	2 days
Friday	2 days

Selected survey types:

Manual count	15 days
Directional ATC Count	0 days

Selected Locations:

Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	3
Edge of Town	8
Free Standing (PPS6 Out of Town)	2

Selected Location Sub Categories:

Industrial Zone	8
Commercial Zone	2
Residential Zone	1
No Sub Category	4

Filtering Stage 3 selection:

Use Class:

B8	14 days

Population within 1 mile:

1,000 or Less	2 days
1,001 to 5,000	5 days
5,001 to 10,000	1 days
10,001 to 15,000	5 days
25,001 to 50,000	2 days

Population within 5 miles:

5,001 to 25,000	2 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	4 days
250,001 to 500,000	2 days
500,001 or More	1 days

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	6 days
1.1 to 1.5	8 days

Travel Plan:

Yes	1 days
No	14 days

LIST OF SITES relevant to selection parameters

1 CW-02-F-01 WAREHOUSING CORNWALL
A390
THREEMILESTONE
NEAR TRURO
Edge of Town
No Sub Category
Total Gross floor area: 5150 sqm
Survey date: TUESDAY 18/09/07 Survey Type: MANUAL

2 DS-02-F-01 ARMADILLO S. STORAGE DERBYSHIRE
FORRESTERS BUSINESS P..
SINFIN LANE
DERBY
Edge of Town Centre
Commercial Zone
Total Gross floor area: 1900 sqm
Survey date: TUESDAY 05/07/11 Survey Type: MANUAL

3 HC-02-F-01 WAREHOUSING HAMPSHIRE
MAURETANIA ROAD
NURSLING INDUSTRIAL ESTATE
SOUTHAMPTON
Edge of Town
Industrial Zone
Total Gross floor area: 4000 sqm
Survey date: WEDNESDAY 21/11/07 Survey Type: MANUAL

4 HF-02-F-03 DISTRIBUTION CEN. HERTFORDSHIRE

HATFIELD BUSINESS CEN.
HATFIELD
Edge of Town
Commercial Zone
Total Gross floor area: 80000 sqm
Survey date: THURSDAY 10/07/08 Survey Type: MANUAL

5 HI-02-F-01 WAREHOUSING HIGHLAND
B9039
DALCROSS IND. ESTATE
NEAR INVERNESS
Free Standing (PPS6 Out of Town)
Industrial Zone
Total Gross floor area: 890 sqm
Survey date: WEDNESDAY 24/05/06 Survey Type: MANUAL

6 LC-02-F-02 WAREHOUSING LANCASHIRE
CHORLEY ROAD
WALTON-LE-DALE
PRESTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 1200 sqm
Survey date: FRIDAY 22/06/07 Survey Type: MANUAL

7 LN-02-F-01 BOOK SERVICE LINCOLNSHIRE
TRENT ROAD

GRANTHAM
Edge of Town
No Sub Category
Total Gross floor area: 32300 sqm
Survey date: MONDAY 29/11/10 Survey Type: MANUAL

8 ML-02-F-01 WINDOWS MIDLOTHIAN
UNIT 53
MAYFIELD IND. ESTATE
DALKEITH
Edge of Town
Industrial Zone
Total Gross floor area: 750 sqm
Survey date: WEDNESDAY 04/05/11 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 NW-02-F-01 LOGISTICS CENTRE NEWPORT
TREDEGAR TERRACE
CROSSKEYS
NEWPORT
Edge of Town
No Sub Category
Total Gross floor area: 16275 sqm
Survey date: FRIDAY 12/10/07 Survey Type: MANUAL

10 SC-02-F-04 WAREHOUSING SURREY
PRETORIA ROAD

CHERTSEY
Edge of Town
No Sub Category
Total Gross floor area: 4460 sqm
Survey date: TUESDAY 27/11/07 Survey Type: MANUAL

11 SF-02-F-02 WAREHOUSING SUFFOLK
WALTON ROAD

FELIXSTOWE
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 22270 sqm
Survey date: THURSDAY 11/07/13 Survey Type: MANUAL

12 TV-02-F-02 ARGOS WAREHOUSE TEES VALLEY
ROUNDHOUSE ROAD
FAVERDALE
DARLINGTON
Edge of Town
Industrial Zone
Total Gross floor area: 80066 sqm
Survey date: TUESDAY 07/10/08 Survey Type: MANUAL

13 TV-02-F-03 ELECTRICAL COMPONENTS TEES VALLEY
UNIT 8,NAVIGATOR COURT

STOCKTON-ON-TEES
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 387 sqm
Survey date: TUESDAY 28/06/11 Survey Type: MANUAL

14 WM-02-F-01 LEGETT LOGIS. WEST MIDLANDS
SAMPSON ROAD NORTH

BIRMINGHAM
Edge of Town Centre
Industrial Zone
Total Gross floor area: 4000 sqm
Survey date: WEDNESDAY 17/06/09 Survey Type: MANUAL

15 WR-02-F-01 WAREHOUSE WREXHAM
UNIT 1-2 PACIFIC PARK
WREXHAM IND. ESTATE
NEAR WREXHAM
Free Standing (PPS6 Out of Town)
Industrial Zone
Total Gross floor area: 9000 sqm
Survey date: TUESDAY 18/10/11 Survey Type: MANUAL

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
VEHICLES

Ranking Type: TOTALS Time Range: 08:00-09:00
WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.
15th Percentile = No. 13
85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	0.158	Arrivals:	0.335
Departures:	0.105	Departures:	0.137
Totals:	0.263	Totals:	0.472

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	TV-02-F-03	ELECTRICAL COM	STOCKTON-ON-TEES	TEES VALLEY	387	Tue	28/06/11	2.067	0.517	2.584	
2	LC-02-F-02	WAREHOUSING	PRESTON	LANCASHIRE	1200	Fri	22/06/07	0.417	0.333	0.750	
3	SC-02-F-04	WAREHOUSING	CHERTSEY	SURREY	4460	Tue	27/11/07	0.471	0.135	0.606	
4	HC-02-F-01	WAREHOUSING	SOUTHAMPTON	HAMPSHIRE	4000	Wed	21/11/07	0.400	0.200	0.600	
5	ML-02-F-01	WINDOWS	DALKEITH	MIDLOTHIAN	750	Wed	04/05/11	0.533	0.000	0.533	
6	CW-02-F-01	WAREHOUSING	NEAR TRURO	CORNWALL	5150	Tue	18/09/07	0.194	0.330	0.524	
7	HI-02-F-01	WAREHOUSING	NEAR INVERNESS	HIGHLAND	890	Wed	24/05/06	0.225	0.225	0.450	
8	DS-02-F-01	ARMADILLO S. S	DERBY	DERBYSHIRE	1900	Tue	05/07/11	0.158	0.105	0.263	
9	NW-02-F-01	LOGISTICS CENT	NEWPORT	NEWPORT	16275	Fri	12/10/07	0.147	0.018	0.165	
10	WR-02-F-01	WAREHOUSE	NEAR WREXHAM	WREXHAM	9000	Tue	18/10/11	0.133	0.011	0.144	
11	HF-02-F-03	DISTRIBUTION C	HATFIELD	HERTFORDSHIRE	76000	Thu	10/07/08	0.079	0.055	0.134	
12	WM-02-F-01	LEGETT LOGIS.	BIRMINGHAM	WEST MIDLANDS	4000	Wed	17/06/09	0.075	0.050	0.125	
13	SF-02-F-02	WAREHOUSING	FELIXSTOWE	SUFFOLK	22270	Thu	11/07/13	0.036	0.049	0.085	
14	LN-02-F-01	BOOK SERVICE	GRANTHAM	LINCOLNSHIRE	30685	Mon	29/11/10	0.068	0.013	0.081	
15	TV-02-F-02	ARGOS WAREHOUS	DARLINGTON	TEES VALLEY	80066	Tue	07/10/08	0.017	0.019	0.036	Yes

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
VEHICLES

Ranking Type: TOTALS Time Range: 17:00-18:00

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 13
85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	0.100	Arrivals:	0.093
Departures:	0.150	Departures:	0.254
Totals:	0.250	Totals:	0.347

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	TV-02-F-03	ELECTRICAL COM	STOCKTON-ON-TEES	TEES VALLEY	387	Tue	28/06/11	0.000	1.292	1.292	
2	HI-02-F-01	WAREHOUSING	NEAR INVERNESS	HIGHLAND	890	Wed	24/05/06	0.449	0.449	0.898	
3	LC-02-F-02	WAREHOUSING	PRESTON	LANCASHIRE	1200	Fri	22/06/07	0.333	0.333	0.666	
4	DS-02-F-01	ARMADILLO S. S	DERBY	DERBYSHIRE	1900	Tue	05/07/11	0.053	0.368	0.421	
5	HC-02-F-01	WAREHOUSING	SOUTHAMPTON	HAMPSHIRE	4000	Wed	21/11/07	0.250	0.150	0.400	
6	SC-02-F-04	WAREHOUSING	CHERTSEY	SURREY	4460	Tue	27/11/07	0.022	0.314	0.336	
7	CW-02-F-01	WAREHOUSING	NEAR TRURO	CORNWALL	5150	Tue	18/09/07	0.039	0.252	0.291	
8	WM-02-F-01	LEGETT LOGIS.	BIRMINGHAM	WEST MIDLANDS	4000	Wed	17/06/09	0.100	0.150	0.250	
9	NW-02-F-01	LOGISTICS CENT	NEWPORT	NEWPORT	16275	Fri	12/10/07	0.043	0.129	0.172	
10	HF-02-F-03	DISTRIBUTION C	HATFIELD	HERTFORDSHIRE	76000	Thu	10/07/08	0.036	0.099	0.135	
11	SF-02-F-02	WAREHOUSING	FELIXSTOWE	SUFFOLK	22270	Thu	11/07/13	0.045	0.085	0.130	
12	WR-02-F-01	WAREHOUSE	NEAR WREXHAM	WREXHAM	9000	Tue	18/10/11	0.000	0.111	0.111	
13	TV-02-F-02	ARGOS WAREHOUS	DARLINGTON	TEES VALLEY	80066	Tue	07/10/08	0.020	0.045	0.065	Yes
14	LN-02-F-01	BOOK SERVICE	GRANTHAM	LINCOLNSHIRE	30685	Mon	29/11/10	0.007	0.029	0.036	
15	ML-02-F-01	WINDOWS	DALKEITH	MIDLOTHIAN	750	Wed	04/05/11	0.000	0.000	0.000	

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : E - WAREHOUSING (SELF STORAGE)
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	KC	KENT	2 days
	WS	WEST SUSSEX	1 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	2 days
	NF	NORFOLK	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	2 days
	WM	WEST MIDLANDS	2 days
08	NORTH WEST		
	MS	MERSEYSIDE	1 days
10	WALES		
	NW	NEWPORT	1 days

Filtering Stage 2 selection:

Parameter:	Gross floor area
Actual Range:	2675 to 8000 (units: sqm)
Range Selected by User:	2500 to 14000 (units: sqm)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 31/10/11

Selected survey days:

Monday	2 days
Tuesday	3 days
Wednesday	1 days
Thursday	3 days
Friday	3 days

Selected survey types:

Manual count	12 days
Directional ATC Count	0 days

Selected Locations:

Town Centre	1
Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	6
Edge of Town	3

Selected Location Sub Categories:

Industrial Zone	5
Commercial Zone	1
Development Zone	1
Residential Zone	1
Retail Zone	1
Built-Up Zone	3

Filtering Stage 3 selection:

Use Class:

B8	12 days

Filtering Stage 3 selection (Cont.):

Population within 1 mile:

5,001 to 10,000	2 days
10,001 to 15,000	2 days
15,001 to 20,000	2 days
20,001 to 25,000	2 days
25,001 to 50,000	4 days

Population within 5 miles:

75,001 to 100,000	1 days
125,001 to 250,000	6 days
250,001 to 500,000	3 days
500,001 or More	2 days

Car ownership within 5 miles:

0.5 or Less	3 days
0.6 to 1.0	3 days
1.1 to 1.5	6 days

Travel Plan:

No	12 days

LIST OF SITES relevant to selection parameters

1 CA-02-E-02 SELF STORAGE CAMBRIDGESHIRE
CLIFTON WAY

CAMBRIDGE
Suburban Area (PPS6 Out of Centre)
Built-Up Zone
Total Gross floor area: 2675 sqm
Survey date: FRIDAY 16/10/09 Survey Type: MANUAL

2 CA-02-E-03 ARMADILLO SELF STORAGE CAMBRIDGESHIRE
WESTFIELD ROAD
NETHERTON
PETERBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 3205 sqm
Survey date: THURSDAY 20/10/11 Survey Type: MANUAL

3 KC-02-E-01 EASI STORE KENT
LONGFIELD ROAD

TUNBRIDGE WELLS
Edge of Town
Industrial Zone
Total Gross floor area: 5925 sqm
Survey date: TUESDAY 01/12/09 Survey Type: MANUAL

4 KC-02-E-03 BIG YELLOW STORAGE KENT
LONGFIELD ROAD

TUNBRIDGE WELLS
Edge of Town
Industrial Zone
Total Gross floor area: 5575 sqm
Survey date: TUESDAY 01/12/09 Survey Type: MANUAL

5 MS-02-E-01 BIG YELLOW MERSEYSIDE
MILL LANE

LIVERPOOL
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 8000 sqm
Survey date: THURSDAY 09/09/10 Survey Type: MANUAL

6 NF-02-E-02 BIG YELLOW STORAGE NORFOLK
CANARY WAY
RIVERSIDE
NORWICH
Suburban Area (PPS6 Out of Centre)
Development Zone
Total Gross floor area: 6830 sqm
Survey date: WEDNESDAY 21/09/05 Survey Type: MANUAL

7 NW-02-E-01 STORAGE GIANT NEWPORT
LEEWAY COURT
LEEWAY INDUSTRIAL EST.
NEWPORT
Edge of Town
Commercial Zone
Total Gross floor area: 4261 sqm
Survey date: FRIDAY 22/10/10 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 WK-02-E-01 SELF STORAGE WARWICKSHIRE
HOOD STREET

COVENTRY
Edge of Town Centre
Built-Up Zone
Total Gross floor area: 5046 sqm
Survey date: MONDAY 31/10/11 Survey Type: MANUAL

9 WK-02-E-02 STORAGE KING WARWICKSHIRE
145 FOLESHILL ROAD

COVENTRY
Edge of Town Centre
Retail Zone
Total Gross floor area: 2769 sqm
Survey date: FRIDAY 21/10/11 Survey Type: MANUAL

10 WM-02-E-01 SPACES STORAGE WEST MIDLANDS
STANIFORTH STREET
NEW TOWN ROW
BIRMINGHAM
Town Centre
Built-Up Zone
Total Gross floor area: 4645 sqm
Survey date: THURSDAY 16/06/05 Survey Type: MANUAL

11 WM-02-E-02 EXTRASPACE WEST MIDLANDS
101 LOCKHURST LANE

COVENTRY
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 7000 sqm
Survey date: TUESDAY 31/01/06 Survey Type: MANUAL

12 WS-02-E-01 SELF STORAGE WEST SUSSEX
DURBAN ROAD
SOUTH BERSTED
BOGNOR REGIS
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 3000 sqm
Survey date: MONDAY 06/11/06 Survey Type: MANUAL

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/E - WAREHOUSING (SELF STORAGE)
VEHICLES

Ranking Type: TOTALS Time Range: 08:30-09:30

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 10
85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	0.164	Arrivals:	0.178
Departures:	0.072	Departures:	0.112
Totals:	0.236	Totals:	0.290

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	NW-02-E-01	STORAGE GIANT	NEWPORT	NEWPORT	4261	Fri	22/10/10	0.516	0.305	0.821	
2	CA-02-E-03	ARMADILLO SELF	PETERBOROUGH	CAMBRIDGESHIRE	3205	Thu	20/10/11	0.343	0.343	0.686	
3	WS-02-E-01	SELF STORAGE	BOGNOR REGIS	WEST SUSSEX	3000	Mon	06/11/06	0.300	0.133	0.433	
4	KC-02-E-01	EASI STORE	TUNBRIDGE WELLS	KENT	5925	Tue	01/12/09	0.219	0.152	0.371	
5	CA-02-E-02	SELF STORAGE	CAMBRIDGE	CAMBRIDGESHIRE	2675	Fri	16/10/09	0.150	0.112	0.262	
6	WK-02-E-01	SELF STORAGE	COVENTRY	WARWICKSHIRE	5046	Mon	31/10/11	0.198	0.059	0.257	
7	WM-02-E-01	SPACES STORAGE	BIRMINGHAM	WEST MIDLANDS	4645	Thu	16/06/05	0.129	0.086	0.215	
8	MS-02-E-01	BIG YELLOW	LIVERPOOL	MERSEYSIDE	8000	Thu	09/09/10	0.100	0.025	0.125	
9	NF-02-E-02	BIG YELLOW STO	NORWICH	NORFOLK	6150	Wed	21/09/05	0.049	0.065	0.114	
10	WK-02-E-02	STORAGE KING	COVENTRY	WARWICKSHIRE	2769	Fri	21/10/11	0.072	0.000	0.072	
11	KC-02-E-03	BIG YELLOW STO	TUNBRIDGE WELLS	KENT	5575	Tue	01/12/09	0.036	0.036	0.072	
12	WM-02-E-02	EXTRASPACE	COVENTRY	WEST MIDLANDS	7000	Tue	31/01/06	0.029	0.029	0.058	

Capita 52 Grosvenor Gardens London Licence No: 504501

RANK ORDER for Land Use 02 - EMPLOYMENT/E - WAREHOUSING (SELF STORAGE)
VEHICLES

Ranking Type: TOTALS Time Range: 16:30-17:30

WARNING: Using 85th and 15th percentile highlighted trip rates in data sets of under 20 surveys is not recommended by TRICS and may be misleading.

15th Percentile = No. 10
85th Percentile = No. 3

Median Values		Mean Values	
Arrivals:	0.080	Arrivals:	0.114
Departures:	0.199	Departures:	0.167
Totals:	0.278	Totals:	0.280

Rank	Site-Ref	Description	Town/City	Area	GFA	Day	Date	Trip Rate (Sorted by Totals)			Travel Plan
								Arrivals	Departures	Totals	
1	CA-02-E-03	ARMADILLO SELF	PETERBOROUGH	CAMBRIDGESHIRE	3205	Thu	20/10/11	0.374	0.374	0.748	
2	NW-02-E-01	STORAGE GIANT	NEWPORT	NEWPORT	4261	Fri	22/10/10	0.188	0.375	0.563	
3	WK-02-E-02	STORAGE KING	COVENTRY	WARWICKSHIRE	2769	Fri	21/10/11	0.181	0.181	0.362	
4	KC-02-E-03	BIG YELLOW STO	TUNBRIDGE WELLS	KENT	5575	Tue	01/12/09	0.126	0.197	0.323	
5	WM-02-E-01	SPACES STORAGE	BIRMINGHAM	WEST MIDLANDS	4645	Thu	16/06/05	0.108	0.194	0.302	
6	WS-02-E-01	SELF STORAGE	BOGNOR REGIS	WEST SUSSEX	3000	Mon	06/11/06	0.100	0.200	0.300	
7	WK-02-E-01	SELF STORAGE	COVENTRY	WARWICKSHIRE	5046	Mon	31/10/11	0.059	0.198	0.257	
8	CA-02-E-02	SELF STORAGE	CAMBRIDGE	CAMBRIDGESHIRE	2675	Fri	16/10/09	0.075	0.112	0.187	
9	KC-02-E-01	EASI STORE	TUNBRIDGE WELLS	KENT	5925	Tue	01/12/09	0.051	0.084	0.135	
10	NF-02-E-02	BIG YELLOW STO	NORWICH	NORFOLK	6150	Wed	21/09/05	0.065	0.049	0.114	
11	MS-02-E-01	BIG YELLOW	LIVERPOOL	MERSEYSIDE	8000	Thu	09/09/10	0.037	0.037	0.074	
12	WM-02-E-02	EXTRASPACE	COVENTRY	WEST MIDLANDS	7000	Tue	31/01/06	0.000	0.000	0.000	

Appendix B
Automatic Number Plate Recognition (ANPR) Survey

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00 & 16:00-18:00

				07:00-09:00				16:00-18:00				
Area	Site	Road Name	IN/OUT	MCC AM	MATCHED AM	UNMATCHED AM	AM MACTH PERCENTAGE	MCC PM	MATCHED PM	UNMATCHED PM	PM MATCH PERCENTAGE	Comments
1	A	Site A - Heol-Y-Bwnsi	Inbound	347	261	84	**75.22%**	827	878	163	**106.17%**	
1	A	Site A - Heol-Y-Bwnsi	Outbound	465	371	81	**79.78%**	1162	1028	292	**88.47%**	
1	B	Site B - A470 Slip Road	Inbound	978	772	270	**78.94%**	1490	1360	185	**91.28%**	
1	B	Site B - A470 Slip Road	Outbound	1483	1454	196	**98.04%**	1258	1322	227	**105.09%**	
1	C	Site C - Gwaedlod-Y-Garth Road	Inbound	2512	1717	592	**68.35%**	1725	1229	264	**71.25%**	
1	C	Site C - Gwaedlod-Y-Garth Road	Outbound	1987	1325	465	**66.68%**	2655	1849	1045	**69.64%**	
1	D	Site D - A4054	Inbound	1335	968	402	**72.51%**	815	768	160	**94.23%**	
1	D	Site D - A4055	Outbound	647	571	116	**88.25%**	2291	1660	675	**72.46%**	
1	E	Site E - A470 Slip Road	Inbound	1473	747	584	**50.71%**	1474	906	256	**61.47%**	
1	E	Site E - A470 Slip Road	Outbound	944	648	238	**68.64%**	952	511	356	**53.68%**	
2	F	Site F - Heol Crochendy	Inbound	219	205	61	**93.61%**	1040	1067	207	**102.60%**	
2	F	Site F - Heol Crochendy	Outbound	585	484	216	**82.74%**	319	202	140	**63.32%**	
3	G	Site G - Heol Crochendy	Inbound	367	434	96	**118.26%**	1033	809	344	**78.32%**	
3	G	Site G - Heol Crochendy	Outbound	1053	888	140	**84.33%**	967	1155	186	**119.44%**	
3	H	Site H - Cefn Coed	Inbound	42	45	18	**107.14%**	284	198	91	**69.72%**	
3	H	Site H - Cefn Coed	Outbound	357	230	86	**64.43%**	57	56	31	**98.25%**	
3	J	Site J - Cardiff Road	Inbound	471	423	314	**89.81%**	326	622	355	**190.80%**	Video footage corrupt from 16.50
3	J	Site J - Cardiff Road	Outbound	968	616	363	**63.64%**	356	745	128	**209.27%**	Video footage corrupt from 16.50
4	K	Site K - A470 Slip Road	Inbound	1649	1460	433	**88.54%**	1349	1325	311	**98.22%**	
4	K	Site K - A470 Slip Road	Outbound	1059	838	212	**79.13%**	1091	1071	424	**98.17%**	
4	L	Site L - Caeerphilly Road	Inbound	3782	2589	1160	**68.46%**	3832	2866	1025	**74.79%**	
4	L	Site L - Caeerphilly Road	Outbound	3283	1756	1138	**53.49%**	3377	1932	1105	**57.21%**	
4	M	Site M - A470 Slip Road	Inbound	2020	838	1174	**41.49%**	1904	1080	735	**56.72%**	
4	M	Site M - A470 Slip Road	Outbound	1915	1278	584	**66.74%**	2340	1486	1072	**63.50%**	
				29941	**20918**	**69.86%**		**32924**	**26125**	**79.35%**		

Note	Area 4 Site F	Due to install restrictions cameras were North of Treforest Estate, registrations therefore will pick up delivery's
	Area 1 & 3	Heavily congested on arms B, E,L & K

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00

Hours **0700-0900**

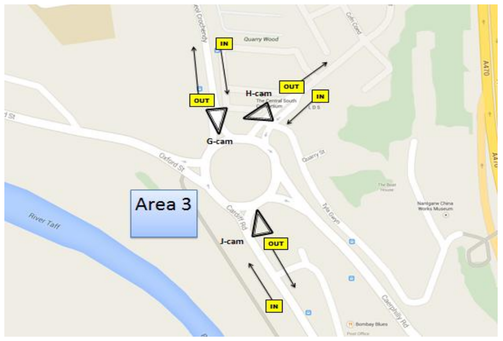
	Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
				Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
1	Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		87						3				2						1							93
2	Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	1		55		58		19		117		4						6		1		4		1		266
3	Site B - Inbound	Site B - A470 Slip Road	Area 1		1		9		2		1												169		5		1	188
4	Site B - Outbound	Site B - A470 Slip Road	Area 1	77		2		679		250		2												1		1		1012
13	Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1				3		101		1		3				3				1				5		3	120
	Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	25		348		17		224		332		36		3		2		47		1		165		9		1209
	Site D - Inbound	Site D - A4054	Area 1		13		1		3		107		1		1						1		2		2		2	133
	Site D - Outbound	Site D - A4055	Area 1	1		155		160		7		37		25		2				34				32		2		455
	Site E - Inbound	Site E - A470 Slip Road	Area 1		2		1		5		1		11								1		3		4		3	31
	Site E - Outbound	Site E - A470 Slip Road	Area 1	34		7		397		116		20		39						9		1		4		1		628
	Site F - Inbound	Site F - Heol Crochendy	Area 2												32		60								1			93
	Site F - Outbound	Site F - Heol Crochendy	Area 2	8		11		122		65		146		3						4		1		3		7		370
	Site G - Inbound	Site G - Heol Crochendy	Area 3		1										76		129								2			208
	Site G - Outbound	Site G - Heol Crochendy	Area 3	3		1		12		5		5		2		3		6		84		92		298		183		694
	Site H - Inbound	Site H - Cefn Coed	Area 3																18									18
	Site H - Outbound	Site H - Cefn Coed	Area 3					15		2		5				21		1		40		28		34		63		209
	Site J - Inbound	Site J - Cardiff Road	Area 3				1		1		1						1				42				1		2	49
	Site J - Outbound	Site J - Cardiff Road	Area 3	15				68		108		40				42		8		9		71		192		7		560
	Site K - Inbound	Site K - A470 Slip Road	Area 4				417						2		1						1		8		1		1	431
	Site K - Outbound	Site K - A470 Slip Road	Area 4							1		1				28		2		41		4		573		2		652
	Site L - Inbound	Site L - Caeerphilly Road	Area 4		1		6		4		2				1				3		6		2		86		4	115
	Site L - Outbound	Site L - Caeerphilly Road	Area 4	4		3		63		35		7				66		3		98		827		17		520		1643
	Site M - Inbound	Site M - A470 Slip Road	Area 4				4						3		1		1				3		2		5		13	32
	Site M - Outbound	Site M - A470 Slip Road	Area 4			2		6		3		4		3		61		5		2		3		1151		9		1249
	Grand Total			168	105	584	442	1597	116	835	116	716	20	112	114	226	194	27	21	374	56	1029	186	2474	112	805	29	10458

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00



Hours **07:00-07:15**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		7										1													8
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			6		4				5																15
Site B - Inbound	Site B - A470 Slip Road	Area 1				1		1														15		1			18
Site B - Outbound	Site B - A470 Slip Road	Area 1	9				79		35																		123
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						13		1		1														1	16
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	2		29		2		18		35		3						2				11				102
Site D - Inbound	Site D - A4054	Area 1								10		1								1				2		1	15
Site D - Outbound	Site D - A4055	Area 1			12		20				1		3						3				1				40
Site E - Inbound	Site E - A470 Slip Road	Area 1						1				2										1		1			5
Site E - Outbound	Site E - A470 Slip Road	Area 1	8				38		7		4																57
Site F - Inbound	Site F - Heol Crochendy	Area 2												1		5											6
Site F - Outbound	Site F - Heol Crochendy	Area 2	1				3		3		11												1				19
Site G - Inbound	Site G - Heol Crochendy	Area 3												7		6											13
Site G - Outbound	Site G - Heol Crochendy	Area 3																	3		2		10		8		23
Site H - Inbound	Site H - Cefn Coed	Area 3																									
Site H - Outbound	Site H - Cefn Coed	Area 3					1														2				3		6
Site J - Inbound	Site J - Cardiff Road	Area 3																		3							3
Site J - Outbound	Site J - Cardiff Road	Area 3					5		12		7				4				1		3		17				49
Site K - Inbound	Site K - A470 Slip Road	Area 4				29																		1			30
Site K - Outbound	Site K - A470 Slip Road	Area 4																					34				34
Site L - Inbound	Site L - Caeerphilly Road	Area 4				2		2		1														17		2	24
Site L - Outbound	Site L - Caeerphilly Road	Area 4	1				9		4		1				2				4		60		5		48		134
Site M - Inbound	Site M - A470 Slip Road	Area 4																		1		1				6	8
Site M - Outbound	Site M - A470 Slip Road	Area 4					2		1				1		7		2				1		156				170
Grand Total			21	7	47	32	163	17	80	12	64	4	7	9	13	11	2		13	5	68	17	235	22	59	10	918

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 07:00-09:00

Time **07:15-07:30**

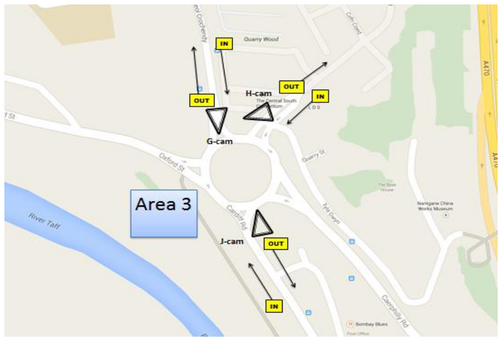
Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		19																							19
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			9		7		2		8								1						1		28
Site B - Inbound	Site B - A470 Slip Road	Area 1				1																15					16
Site B - Outbound	Site B - A470 Slip Road	Area 1	9				86		19																		114
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1				1		10				1				1											13
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	1		35		2		9		24		2						2				11		1		87
Site D - Inbound	Site D - A4054	Area 1		1						12																	13
Site D - Outbound	Site D - A4055	Area 1			9		14				2		2						3						1		31
Site E - Inbound	Site E - A470 Slip Road	Area 1										4												1			5
Site E - Outbound	Site E - A470 Slip Road	Area 1			2		65		6		3		4										1				81
Site F - Inbound	Site F - Heol Crochendy	Area 2												2		3											5
Site F - Outbound	Site F - Heol Crochendy	Area 2			1		14		3		16												1		3		38
Site G - Inbound	Site G - Heol Crochendy	Area 3												16		12											28
Site G - Outbound	Site G - Heol Crochendy	Area 3																	1				16		17		34
Site H - Inbound	Site H - Cefn Coed	Area 3																									
Site H - Outbound	Site H - Cefn Coed	Area 3					1								2								1		4		8
Site J - Inbound	Site J - Cardiff Road	Area 3														1				5						1	7
Site J - Outbound	Site J - Cardiff Road	Area 3	3				13		21		16				2		1				6		34		4		100
Site K - Inbound	Site K - A470 Slip Road	Area 4				34						1										1					36
Site K - Outbound	Site K - A470 Slip Road	Area 4													4				3				34				41
Site L - Inbound	Site L - Caeerphilly Road	Area 4				2				1										3				8			14
Site L - Outbound	Site L - Caeerphilly Road	Area 4					10		3		4				3				5		63		2		64		154
Site M - Inbound	Site M - A470 Slip Road	Area 4				1						1												1		4	7
Site M - Outbound	Site M - A470 Slip Road	Area 4					1		1		1				7								183		2		195
Grand Total			13	20	56	39	213	10	64	13	74	7	8	18	18	17	1		15	8	69	16	283	10	97	5	1074

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00



Time **07:30-07:45**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		13						1																	14
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			11		6				8												1				26
Site B - Inbound	Site B - A470 Slip Road	Area 1		1		3																27					31
Site B - Outbound	Site B - A470 Slip Road	Area 1	10				99		30																		139
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						20								1											21
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	5		44		1		30		38		1						6				24		2		151
Site D - Inbound	Site D - A4054	Area 1		2						9																	11
Site D - Outbound	Site D - A4055	Area 1			13		14				4								3				3				37
Site E - Inbound	Site E - A470 Slip Road	Area 1										1															1
Site E - Outbound	Site E - A470 Slip Road	Area 1	4		1		55		13		2		4								1						80
Site F - Inbound	Site F - Heol Crochendy	Area 2												2		6											8
Site F - Outbound	Site F - Heol Crochendy	Area 2					12		10		20																42
Site G - Inbound	Site G - Heol Crochendy	Area 3												7		16											23
Site G - Outbound	Site G - Heol Crochendy	Area 3																	5		2		39		19		65
Site H - Inbound	Site H - Cefn Coed	Area 3															1										1
Site H - Outbound	Site H - Cefn Coed	Area 3					1				2				3				1				2		6		15
Site J - Inbound	Site J - Cardiff Road	Area 3				1														7							8
Site J - Outbound	Site J - Cardiff Road	Area 3	4				7		18		8				4		1		1		5		37		1		86
Site K - Inbound	Site K - A470 Slip Road	Area 4				48						1										1				1	51
Site K - Outbound	Site K - A470 Slip Road	Area 4													4		1		2				81		2		90
Site L - Inbound	Site L - Caeerphilly Road	Area 4		1		1		1						1						3				15		1	23
Site L - Outbound	Site L - Caeerphilly Road	Area 4	2				18		8						5				7		113		3		91		247
Site M - Inbound	Site M - A470 Slip Road	Area 4				3						1		1										1		1	7
Site M - Outbound	Site M - A470 Slip Road	Area 4			1				1						5								179		2		188
Grand Total			25	17	70	56	213	21	110	10	82	3	5	11	21	23	2	1	25	10	121	28	369	16	123	3	1365

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00

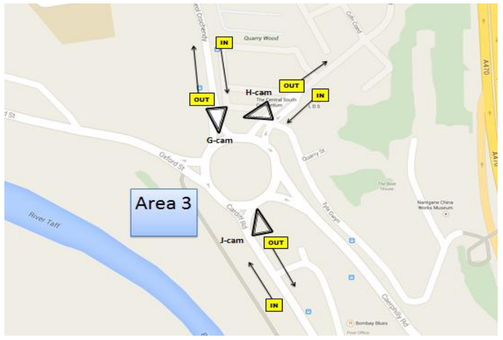
Time **07:45-08:00**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		3																							3
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			2		1				1																4
Site B - Inbound	Site B - A470 Slip Road	Area 1				1		1		1												28		2			33
Site B - Outbound	Site B - A470 Slip Road	Area 1	7		1		91		32		1																132
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						19																1		1	21
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	5		73		2		31		55		2				1		5				29		1		204
Site D - Inbound	Site D - A4054	Area 1						1		3												2					6
Site D - Outbound	Site D - A4055	Area 1			10		14		2		3		1						3				2				35
Site E - Inbound	Site E - A470 Slip Road	Area 1				1						1								1		1		1		2	7
Site E - Outbound	Site E - A470 Slip Road	Area 1	3		3		44		15		1		5										1				72
Site F - Inbound	Site F - Heol Crochendy	Area 2												3		7								1			11
Site F - Outbound	Site F - Heol Crochendy	Area 2	1		1		18		8		22								1		1						52
Site G - Inbound	Site G - Heol Crochendy	Area 3												12		15											27
Site G - Outbound	Site G - Heol Crochendy	Area 3	1				3		1						1		1		11		4		26		17		65
Site H - Inbound	Site H - Cefn Coed	Area 3																1									1
Site H - Outbound	Site H - Cefn Coed	Area 3					4								1		1		1		4		4		3		18
Site J - Inbound	Site J - Cardiff Road	Area 3																		11				1			12
Site J - Outbound	Site J - Cardiff Road	Area 3	3				11		13		3				5		1		4		17		38				95
Site K - Inbound	Site K - A470 Slip Road	Area 4				59								1								1					61
Site K - Outbound	Site K - A470 Slip Road	Area 4									1				2				7				88				98
Site L - Inbound	Site L - Caeerphilly Road	Area 4																						13			13
Site L - Outbound	Site L - Caeerphilly Road	Area 4			1		4		5						8				11		126				67		222
Site M - Inbound	Site M - A470 Slip Road	Area 4																		1				1		1	3
Site M - Outbound	Site M - A470 Slip Road	Area 4					1								8								155		1		165
Grand Total			20	3	91	61	193	21	107	4	87	1	8	16	25	22	4	1	43	13	152	32	343	20	89	4	1360

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 07:00-09:00



Time **08:00-08:15**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		12						1				1						1							15
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			6		7		2		9								1				3				28
Site B - Inbound	Site B - A470 Slip Road	Area 1																				22		1		1	24
Site B - Outbound	Site B - A470 Slip Road	Area 1	8				72		40																1		121
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1				1		11				1								1							14
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	1		40		2		28		58		3		1				9		1		38		1		182
Site D - Inbound	Site D - A4054	Area 1		2						12																	14
Site D - Outbound	Site D - A4055	Area 1			29		19		2		4		7		1				4				7				73
Site E - Inbound	Site E - A470 Slip Road	Area 1		1				2		1		1										1		1			7
Site E - Outbound	Site E - A470 Slip Road	Area 1	2				43		13		1		6						3								68
Site F - Inbound	Site F - Heol Crochendy	Area 2												6		7											13
Site F - Outbound	Site F - Heol Crochendy	Area 2	2		5		14		6		26		1						1								55
Site G - Inbound	Site G - Heol Crochendy	Area 3												5		15											20
Site G - Outbound	Site G - Heol Crochendy	Area 3									2				1		1		12		5		39		11		71
Site H - Inbound	Site H - Cefn Coed	Area 3																2									2
Site H - Outbound	Site H - Cefn Coed	Area 3					1				2				2				10		6		6		8		35
Site J - Inbound	Site J - Cardiff Road	Area 3						1		1										5							7
Site J - Outbound	Site J - Cardiff Road	Area 3	2				11		10		3				8		1		1		13		13				62
Site K - Inbound	Site K - A470 Slip Road	Area 4				71																1					72
Site K - Outbound	Site K - A470 Slip Road	Area 4													5				8		2		98				113
Site L - Inbound	Site L - Caeerphilly Road	Area 4						1										2				1		15		1	20
Site L - Outbound	Site L - Caeerphilly Road	Area 4					11		3		2				11				17		123		3		50		220
Site M - Inbound	Site M - A470 Slip Road	Area 4										1								1				1		1	4
Site M - Outbound	Site M - A470 Slip Road	Area 4											1		3				1		2		119				126
Grand Total			15	15	80	72	180	15	104	15	107	3	18	12	32	22	2	4	67	8	152	25	326	18	71	3	1366

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00

Time **08:15-08:30**

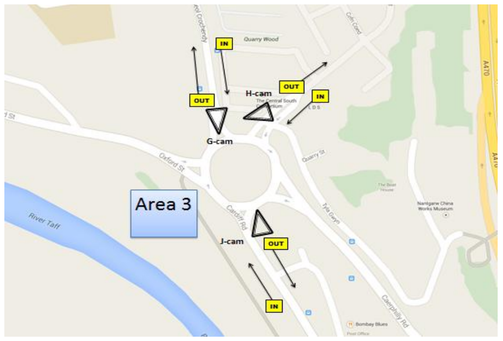
Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		17						1			1														18
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			7		9		5		31		1						2								55
Site B - Inbound	Site B - A470 Slip Road	Area 1				2																29		1			32
Site B - Outbound	Site B - A470 Slip Road	Area 1	14		1		91		38		1																145
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						12																3		1	16
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	3		30		3		37		32		7						10				19		2		143
Site D - Inbound	Site D - A4054	Area 1		2				1		30																1	34
Site D - Outbound	Site D - A4055	Area 1	1		31		28		1		8		1						7				10		1		88
Site E - Inbound	Site E - A470 Slip Road	Area 1																								1	1
Site E - Outbound	Site E - A470 Slip Road	Area 1	10				54		24		5		3						3				1				100
Site F - Inbound	Site F - Heol Crochendy	Area 2												2		6											8
Site F - Outbound	Site F - Heol Crochendy	Area 2	1		2		16		12		20		1						1								53
Site G - Inbound	Site G - Heol Crochendy	Area 3		1										11		20											32
Site G - Outbound	Site G - Heol Crochendy	Area 3	1				2				2								10		13		52		31		111
Site H - Inbound	Site H - Cefn Coed	Area 3															1										1
Site H - Outbound	Site H - Cefn Coed	Area 3					3		2						4				7		5		6		7		34
Site J - Inbound	Site J - Cardiff Road	Area 3																		5							5
Site J - Outbound	Site J - Cardiff Road	Area 3	1				13		16		2				3		1		1		10		18		1		66
Site K - Inbound	Site K - A470 Slip Road	Area 4				71														1		2					74
Site K - Outbound	Site K - A470 Slip Road	Area 4													3		1		12		1		115				132
Site L - Inbound	Site L - Caeerphilly Road	Area 4				1												1						6			8
Site L - Outbound	Site L - Caeerphilly Road	Area 4			1		4		3						10		1		17		131		2		74		243
Site M - Inbound	Site M - A470 Slip Road	Area 4																				1					1
Site M - Outbound	Site M - A470 Slip Road	Area 4					1				2				15				1				95		3		117
Grand Total			31	20	72	74	224	13	138	31	103		13	13	35	26	3	2	71	6	160	32	318	10	119	3	1517

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00



Time **08:30-08:45**

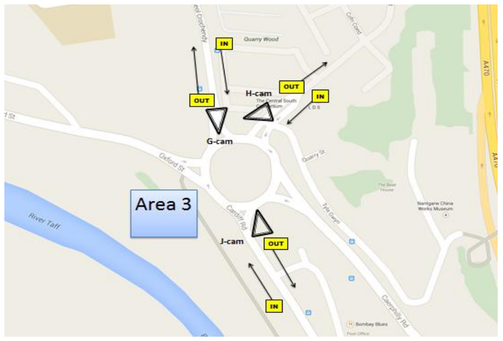
Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		10																							10
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	1		10		9		5		28		2						2		1						58
Site B - Inbound	Site B - A470 Slip Road	Area 1																				23					23
Site B - Outbound	Site B - A470 Slip Road	Area 1	15				84		26														1				126
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						13								1								1			15
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	4		59		4		44		49		7		2				6				22		2		199
Site D - Inbound	Site D - A4054	Area 1		5		1		1		23				1													31
Site D - Outbound	Site D - A4055	Area 1			30		18		1		9		5		1				8				5				77
Site E - Inbound	Site E - A470 Slip Road	Area 1		1				2				2															5
Site E - Outbound	Site E - A470 Slip Road	Area 1	4		1		41		22		2		6						1				1		1		79
Site F - Inbound	Site F - Heol Crochendy	Area 2												10		12											22
Site F - Outbound	Site F - Heol Crochendy	Area 2	2		2		22		17		17								1				1		1		63
Site G - Inbound	Site G - Heol Crochendy	Area 3												11		21								2			34
Site G - Outbound	Site G - Heol Crochendy	Area 3	1				2		2				1		1				17		30		54		40		148
Site H - Inbound	Site H - Cefn Coed	Area 3																5									5
Site H - Outbound	Site H - Cefn Coed	Area 3					2				1				5				13		7		9		19		56
Site J - Inbound	Site J - Cardiff Road	Area 3																		5						1	6
Site J - Outbound	Site J - Cardiff Road	Area 3	1				4		12						10		3		1		8		14				53
Site K - Inbound	Site K - A470 Slip Road	Area 4				54																2					56
Site K - Outbound	Site K - A470 Slip Road	Area 4							1						3				5		1		61				71
Site L - Inbound	Site L - Caeerphilly Road	Area 4																				1		10			11
Site L - Outbound	Site L - Caeerphilly Road	Area 4	1		1		2		7						16		2		19		112				56		216
Site M - Inbound	Site M - A470 Slip Road	Area 4																									
Site M - Outbound	Site M - A470 Slip Road	Area 4					1				1				7		3						128				140
Grand Total			29	16	103	55	189	16	137	23	107	2	21	22	45	34	8	5	73	5	159	26	296	13	119	1	1504

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015

Hours: 07:00-09:00



Time **08:45-09:00**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		6																							6
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			4		15		5		27		1														52
Site B - Inbound	Site B - A470 Slip Road	Area 1				1																10					11
Site B - Outbound	Site B - A470 Slip Road	Area 1	5				77		30																		112
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1				1		3																			4
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	4		38		1		27		41		11				1		7				11				141
Site D - Inbound	Site D - A4054	Area 1		1						8																	9
Site D - Outbound	Site D - A4055	Area 1			21		33		1		6		6						3				4				74
Site E - Inbound	Site E - A470 Slip Road	Area 1																									
Site E - Outbound	Site E - A470 Slip Road	Area 1	3				57		16		2		11						2								91
Site F - Inbound	Site F - Heol Crochendy	Area 2												6		14											20
Site F - Outbound	Site F - Heol Crochendy	Area 2	1				23		6		14		1												3		48
Site G - Inbound	Site G - Heol Crochendy	Area 3												7		24											31
Site G - Outbound	Site G - Heol Crochendy	Area 3			1		5		2		1		1				4		25		36		62		40		177
Site H - Inbound	Site H - Cefn Coed	Area 3																8									8
Site H - Outbound	Site H - Cefn Coed	Area 3					2								4				8		4		6		13		37
Site J - Inbound	Site J - Cardiff Road	Area 3																		1							1
Site J - Outbound	Site J - Cardiff Road	Area 3	1				4		6		1				6						9		21		1		49
Site K - Inbound	Site K - A470 Slip Road	Area 4				51																					51
Site K - Outbound	Site K - A470 Slip Road	Area 4													7				4				62				73
Site L - Inbound	Site L - Caeerphilly Road	Area 4																						2			2
Site L - Outbound	Site L - Caeerphilly Road	Area 4					5		2						11				18		99		2		70		207
Site M - Inbound	Site M - A470 Slip Road	Area 4														1								1			2
Site M - Outbound	Site M - A470 Slip Road	Area 4			1								1		9								136		1		148
Grand Total			14	7	65	53	222	3	95	8	92		32	13	37	39	5	8	67	1	148	10	304	3	128		1354

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Hours **16:00-19:00**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		265				1		5		1										1		1		1	275
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	7		130		105		48		293		61		4		3		21				33		14		719
Site B - Inbound	Site B - A470 Slip Road	Area 1				3		2														301				2	308
Site B - Outbound	Site B - A470 Slip Road	Area 1	181		12		417		218		11		8						2				2				851
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1		1		2		110		5		1										1		2		2	124
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	171		285		19		211		414		232		7		18		62		3		236		54		1712
Site D - Inbound	Site D - A4054	Area 1		39		1		1		96		2										1		2			142
Site D - Outbound	Site D - A4055	Area 1	63		568		261		30		36		232		5		5		116		1		149		48		1514
Site E - Inbound	Site E - A470 Slip Road	Area 1		2				9		16		6										5		1			39
Site E - Outbound	Site E - A470 Slip Road	Area 1	42		20		209		51		8		94		6				21				32		12		495
Site F - Inbound	Site F - Heol Crochendy	Area 2				1		1						37		333		1						3			376
Site F - Outbound	Site F - Heol Crochendy	Area 2	9				41		21		48		1				2						2		3		127
Site G - Inbound	Site G - Heol Crochendy	Area 3		1				1				1		35		148								1			187
Site G - Outbound	Site G - Heol Crochendy	Area 3	7		1		7		5		9		5		7		12		131		61		289		138		672
Site H - Inbound	Site H - Cefn Coed	Area 3																17						2			19
Site H - Outbound	Site H - Cefn Coed	Area 3							2		1		1		10				4		7		7		6		38
Site J - Inbound	Site J - Cardiff Road	Area 3				11		2		3		1				1						1		1		5	25
Site J - Outbound	Site J - Cardiff Road	Area 3	27		33		28		30		36		31		59		33		51		50		221		146		745
Site K - Inbound	Site K - A470 Slip Road	Area 4		1		446		3		15		2										4					471
Site K - Outbound	Site K - A470 Slip Road	Area 4	1				1		3		2		9		82		30		73		2		550		4		757
Site L - Inbound	Site L - Caeerphilly Road	Area 4				3		5		3				3										112		3	129
Site L - Outbound	Site L - Caeerphilly Road	Area 4	3		2		9		6		3		11		250		29		108		726		43		613		1803
Site M - Inbound	Site M - A470 Slip Road	Area 4				4		2		3		2				1								4		16	32
Site M - Outbound	Site M - A470 Slip Road	Area 4	1		1		8		1		6		6		191		47		8		4		1173		10		1456
Grand Total			512	309	1052	471	1105	137	626	146	867	16	691	75	621	483	179	18	597		854	314	2737	129	1048	29	13016

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Hours **16:00-16:15**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		52				1		1																	54
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	3		22		15		7		40		11		1		1		2				1		2		105
Site B - Inbound	Site B - A470 Slip Road	Area 1				1																65				1	67
Site B - Outbound	Site B - A470 Slip Road	Area 1	28		5		50		33		2		2														120
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1				1		25		2														1			29
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	25		47		6		34		50		37		2		3		5				17		7		233
Site D - Inbound	Site D - A4054	Area 1		8						19												1		1			29
Site D - Outbound	Site D - A4055	Area 1	5		97		46		14		5		26				1		9				9		4		216
Site E - Inbound	Site E - A470 Slip Road	Area 1						3		3												3		1			10
Site E - Outbound	Site E - A470 Slip Road	Area 1	2		2		26		7		1		15		3				1				2		2		61
Site F - Inbound	Site F - Heol Crochendy	Area 2												5		17											22
Site F - Outbound	Site F - Heol Crochendy	Area 2	1				4		3		6						1										15
Site G - Inbound	Site G - Heol Crochendy	Area 3		1								1		4		26								1			33
Site G - Outbound	Site G - Heol Crochendy	Area 3					1		1		2		2				2		5		9		11		20		53
Site H - Inbound	Site H - Cefn Coed	Area 3																3						1			4
Site H - Outbound	Site H - Cefn Coed	Area 3																	2		1				1		4
Site J - Inbound	Site J - Cardiff Road	Area 3				3		1																		1	5
Site J - Outbound	Site J - Cardiff Road	Area 3	4		5		3		2		3		1		17		2		4		7		21		27		96
Site K - Inbound	Site K - A470 Slip Road	Area 4				57				4												2					63
Site K - Outbound	Site K - A470 Slip Road	Area 4	1						1						20		3		5		1		119				150
Site L - Inbound	Site L - Caeerphilly Road	Area 4				1				2				2										30			35
Site L - Outbound	Site L - Caeerphilly Road	Area 4							2				1		41		2		11		91		4		125		277
Site M - Inbound	Site M - A470 Slip Road	Area 4				3		1																1		5	10
Site M - Outbound	Site M - A470 Slip Road	Area 4					2				1				23		2		2		1		117		1		149
Grand Total			69	61	178	66	153	31	104	31	110	1	95	11	107	43	17	3	46		110	71	301	36	189	7	1840

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Time **16:15-16:30**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		53						1														1			55
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			26		12		10		45		2						2				6		6		109
Site B - Inbound	Site B - A470 Slip Road	Area 1				1		1														50					52
Site B - Outbound	Site B - A470 Slip Road	Area 1	27		3		54		25		1												2				112
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						17		2		1										1					21
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	26		58		4		28		57		24		2		2		9		1		52		16		279
Site D - Inbound	Site D - A4054	Area 1		11		1				28		2															42
Site D - Outbound	Site D - A4055	Area 1	12		113		28		3		5		18		1		3		8				32		12		235
Site E - Inbound	Site E - A470 Slip Road	Area 1		2				2		3		1										1					9
Site E - Outbound	Site E - A470 Slip Road	Area 1	5		3		24		5		1		8						3				2		3		54
Site F - Inbound	Site F - Heol Crochendy	Area 2						1						5		18								1			25
Site F - Outbound	Site F - Heol Crochendy	Area 2	1				5		2		4												1				13
Site G - Inbound	Site G - Heol Crochendy	Area 3						1						2		15											18
Site G - Outbound	Site G - Heol Crochendy	Area 3	2				1		1		2		2		1				4		2		20		8		43
Site H - Inbound	Site H - Cefn Coed	Area 3																2									2
Site H - Outbound	Site H - Cefn Coed	Area 3							1						2												3
Site J - Inbound	Site J - Cardiff Road	Area 3				1				1						1								1			4
Site J - Outbound	Site J - Cardiff Road	Area 3			7		2		4		6		3		9		2		1		5		20		21		80
Site K - Inbound	Site K - A470 Slip Road	Area 4		1		51		2		6		1															61
Site K - Outbound	Site K - A470 Slip Road	Area 4													18		4		3				81				106
Site L - Inbound	Site L - Caeerphilly Road	Area 4				1																		24		1	26
Site L - Outbound	Site L - Caeerphilly Road	Area 4					1		1				1		25		3		6		84		4		93		218
Site M - Inbound	Site M - A470 Slip Road	Area 4								2		1												1		5	9
Site M - Outbound	Site M - A470 Slip Road	Area 4					2								38		2						147		2		191
Grand Total			73	67	210	55	133	24	80	43	121	6	58	7	96	34	16	2	36		92	52	367	28	161	6	1767

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Time **16:30-16:45**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		41						2																1	44
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	1		18		13		7		47		11		1		2		4				4		1		109
Site B - Inbound	Site B - A470 Slip Road	Area 1				1																35				1	37
Site B - Outbound	Site B - A470 Slip Road	Area 1	27		1		47		31		4		1						1								112
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1				1		16		1																	18
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	19		34		1		20		54		36				2		8				23		12		209
Site D - Inbound	Site D - A4054	Area 1		6						12																	18
Site D - Outbound	Site D - A4055	Area 1	13		78		35		6		3		27						23				21		8		214
Site E - Inbound	Site E - A470 Slip Road	Area 1						1		4		1															6
Site E - Outbound	Site E - A470 Slip Road	Area 1	5		4		26		8		2		19										2		1		67
Site F - Inbound	Site F - Heol Crochendy	Area 2												7		35											42
Site F - Outbound	Site F - Heol Crochendy	Area 2	3				3		2		8						1										17
Site G - Inbound	Site G - Heol Crochendy	Area 3												7		15											22
Site G - Outbound	Site G - Heol Crochendy	Area 3	1								2								12		7		33		20		75
Site H - Inbound	Site H - Cefn Coed	Area 3																1						1			2
Site H - Outbound	Site H - Cefn Coed	Area 3																					1				1
Site J - Inbound	Site J - Cardiff Road	Area 3				2				2																1	5
Site J - Outbound	Site J - Cardiff Road	Area 3	5		3				6		3		3		11		9		2		7		21		20		90
Site K - Inbound	Site K - A470 Slip Road	Area 4				55				1												2					58
Site K - Outbound	Site K - A470 Slip Road	Area 4					1						4		9		10		11				60		2		97
Site L - Inbound	Site L - Caeerphilly Road	Area 4								1														18		1	20
Site L - Outbound	Site L - Caeerphilly Road	Area 4	1		1		2						2		40		6		16		93		11		72		244
Site M - Inbound	Site M - A470 Slip Road	Area 4														1								1		3	5
Site M - Outbound	Site M - A470 Slip Road	Area 4					1				3		1		38		10		3				152				208
Grand Total			75	47	139	59	129	17	80	23	126	1	104	14	99	51	40	1	80		107	37	328	20	136	7	1720

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Time **16:45-17:00**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		41																		1					42
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			15		14		3		53		13						1				8		2		109
Site B - Inbound	Site B - A470 Slip Road	Area 1						1														40					41
Site B - Outbound	Site B - A470 Slip Road	Area 1	17		1		48		29										1								96
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1		1				20																1		1	23
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	23		32		2		26		55		30		3		1		6				30		4		212
Site D - Inbound	Site D - A4054	Area 1		5				1		21																	27
Site D - Outbound	Site D - A4055	Area 1	9		68		34		3		3		41		2				16				23		5		204
Site E - Inbound	Site E - A470 Slip Road	Area 1						2		4																	6
Site E - Outbound	Site E - A470 Slip Road	Area 1	5		2		25		7		1		9		2				3				4				58
Site F - Inbound	Site F - Heol Crochendy	Area 2												3		76								1			80
Site F - Outbound	Site F - Heol Crochendy	Area 2					4		2		8														1		15
Site G - Inbound	Site G - Heol Crochendy	Area 3												5		28											33
Site G - Outbound	Site G - Heol Crochendy	Area 3	2		1		2		1		1				2		1		27		10		56		19		122
Site H - Inbound	Site H - Cefn Coed	Area 3																2									2
Site H - Outbound	Site H - Cefn Coed	Area 3													1						1		1				3
Site J - Inbound	Site J - Cardiff Road	Area 3				2		1				1										1				3	8
Site J - Outbound	Site J - Cardiff Road	Area 3	8		4		5		5		5		5		3		2		4		9		39		24		113
Site K - Inbound	Site K - A470 Slip Road	Area 4				57		1		1																	59
Site K - Outbound	Site K - A470 Slip Road	Area 4											2		8				8				52				70
Site L - Inbound	Site L - Caeerphilly Road	Area 4				1		1																20			22
Site L - Outbound	Site L - Caeerphilly Road	Area 4					1				2		1		35		7		20		99		7		55		227
Site M - Inbound	Site M - A470 Slip Road	Area 4																								1	1
Site M - Outbound	Site M - A470 Slip Road	Area 4									1		2		22		6		1		1		159		1		193
Grand Total			64	47	123	60	135	27	76	26	129	1	103	8	78	104	17	2	87		120	42	379	22	111	5	1766

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Time **17:00-17:15**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		40						1																	41
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	1		15		22		5		29		12		1				2				2				89
Site B - Inbound	Site B - A470 Slip Road	Area 1																				29					29
Site B - Outbound	Site B - A470 Slip Road	Area 1	32		1		63		33		2		1														132
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						18																		1	19
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	25		31		3		36		69		34				4		7		2		27		4		242
Site D - Inbound	Site D - A4054	Area 1		7						5														1			13
Site D - Outbound	Site D - A4055	Area 1	4		70		40		2		5		58		1				15		1		14		5		215
Site E - Inbound	Site E - A470 Slip Road	Area 1						1		2		3															6
Site E - Outbound	Site E - A470 Slip Road	Area 1			3		27		10		1		18										4				63
Site F - Inbound	Site F - Heol Crochendy	Area 2				1								6		67		1									75
Site F - Outbound	Site F - Heol Crochendy	Area 2	2				3		2		4		1										1		1		14
Site G - Inbound	Site G - Heol Crochendy	Area 3												5		24											29
Site G - Outbound	Site G - Heol Crochendy	Area 3					1		2				1		3		6		32		9		51		30		135
Site H - Inbound	Site H - Cefn Coed	Area 3																3									3
Site H - Outbound	Site H - Cefn Coed	Area 3							1						2				1		2		1		1		8
Site J - Inbound	Site J - Cardiff Road	Area 3				1																					1
Site J - Outbound	Site J - Cardiff Road	Area 3	6		3		2		1		3		10		6		10		10		4		33		18		106
Site K - Inbound	Site K - A470 Slip Road	Area 4				63				3		1															67
Site K - Outbound	Site K - A470 Slip Road	Area 4							1		1		2		12		8		24				56				104
Site L - Inbound	Site L - Caeerphilly Road	Area 4						2																10			12
Site L - Outbound	Site L - Caeerphilly Road	Area 4					1		3				4		45		5		17		99		3		75		252
Site M - Inbound	Site M - A470 Slip Road	Area 4				1		1				1												1		2	6
Site M - Outbound	Site M - A470 Slip Road	Area 4			1		2				1		2		21		7		1				157		3		195
Grand Total			70	47	124	66	164	22	96	11	115	5	143	11	91	91	40	4	109		117	29	349	12	137	3	1856

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Time **17:15-17:30**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		13																							13
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	1		4		4		5		20		8		1				1				5		2		51
Site B - Inbound	Site B - A470 Slip Road	Area 1																				45					45
Site B - Outbound	Site B - A470 Slip Road	Area 1	12				62		31		1		3														109
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						8																			8
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	18		24		1		28		53		36				1		5				27		6		199
Site D - Inbound	Site D - A4054	Area 1		1						7																	8
Site D - Outbound	Site D - A4055	Area 1	8		45		30		1		6		31						12				16		3		152
Site E - Inbound	Site E - A470 Slip Road	Area 1																									
Site E - Outbound	Site E - A470 Slip Road	Area 1	3				18		5				7										2				35
Site F - Inbound	Site F - Heol Crochendy	Area 2												3		72								1			76
Site F - Outbound	Site F - Heol Crochendy	Area 2					6		6		7																19
Site G - Inbound	Site G - Heol Crochendy	Area 3												5		19											24
Site G - Outbound	Site G - Heol Crochendy	Area 3	2				1								1		1		28		7		60		16		116
Site H - Inbound	Site H - Cefn Coed	Area 3																1									1
Site H - Outbound	Site H - Cefn Coed	Area 3													1										1		2
Site J - Inbound	Site J - Cardiff Road	Area 3				1																					1
Site J - Outbound	Site J - Cardiff Road	Area 3	1		2		2		4		6		6		10		2		8		9		27		15		92
Site K - Inbound	Site K - A470 Slip Road	Area 4				54																					54
Site K - Outbound	Site K - A470 Slip Road	Area 4													7		4		10				51				72
Site L - Inbound	Site L - Caeerphilly Road	Area 4												1										4			5
Site L - Outbound	Site L - Caeerphilly Road	Area 4	1		1		2				1		2		27		2		16		86		10		51		199
Site M - Inbound	Site M - A470 Slip Road	Area 4																									
Site M - Outbound	Site M - A470 Slip Road	Area 4					1								23		4		1		1		160		1		191
Grand Total			46	14	76	55	127	8	80	7	94		93	9	70	91	14	1	81		103	45	358	5	95		1472

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

Time **17:30-17:45**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		19								1															20
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1	1		16		14		5		32		3						6				6		1		84
Site B - Inbound	Site B - A470 Slip Road	Area 1																				18					18
Site B - Outbound	Site B - A470 Slip Road	Area 1	19		1		38		19				1														78
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1						6																			6
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	14		30		2		15		45		31				2		15				38		2		194
Site D - Inbound	Site D - A4054	Area 1		1						3																	4
Site D - Outbound	Site D - A4055	Area 1	5		66		19		1		2		23		1				15				22		8		162
Site E - Inbound	Site E - A470 Slip Road	Area 1										1										1					2
Site E - Outbound	Site E - A470 Slip Road	Area 1	7		5		27		6		2		11						4				5		1		68
Site F - Inbound	Site F - Heol Crochendy	Area 2												5		34											39
Site F - Outbound	Site F - Heol Crochendy	Area 2	1				9				6																16
Site G - Inbound	Site G - Heol Crochendy	Area 3												3		17											20
Site G - Outbound	Site G - Heol Crochendy	Area 3					1				2						1		13		11		34		17		79
Site H - Inbound	Site H - Cefn Coed	Area 3																4									4
Site H - Outbound	Site H - Cefn Coed	Area 3											1		1				1		1		3		1		8
Site J - Inbound	Site J - Cardiff Road	Area 3				1																					1
Site J - Outbound	Site J - Cardiff Road	Area 3	2		5		3		6		7		1		2		5		10		4		36		13		94
Site K - Inbound	Site K - A470 Slip Road	Area 4				48																					48
Site K - Outbound	Site K - A470 Slip Road	Area 4							1		1		1		4		1		6		1		60				75
Site L - Inbound	Site L - Caeerphilly Road	Area 4						1																3		1	5
Site L - Outbound	Site L - Caeerphilly Road	Area 4					1								24		2		10		95		1		64		197
Site M - Inbound	Site M - A470 Slip Road	Area 4								1																	1
Site M - Outbound	Site M - A470 Slip Road	Area 4	1										1		11		7				1		158		2		181
Grand Total			50	20	123	49	114	7	53	4	97	2	73	8	43	51	18	4	80		113	19	363	3	109	1	1404

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest ANPR Survey

Date: Thursday 12th February 2015
Hours: 16:00-19:00

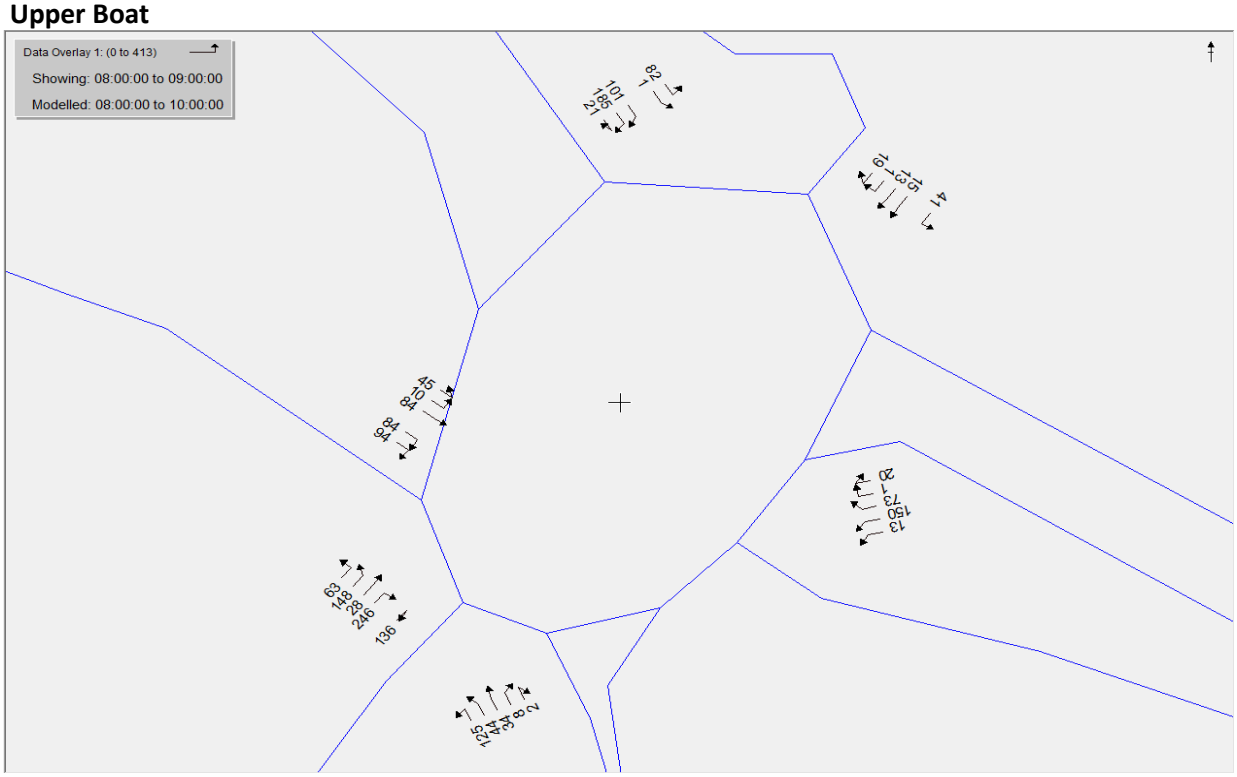
Time **17:45-18:00**

Site	Name of Road	Area	Site A - Inbound	Site A - Outbound	Site B - Inbound	Site B - Outbound	Site C - Inbound	Site C - Outbound	Site D - Inbound	Site D - Outbound	Site E - Inbound	Site E - Outbound	Site F - Inbound	Site F - Outbound	Site G - Inbound	Site G - Outbound	Site H - Inbound	Site H - Outbound	Site J - Inbound	Site J - Outbound	Site K - Inbound	Site K - Outbound	Site L - Inbound	Site L - Outbound	Site M - Inbound	Site M - Outbound	Grand Total
			Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 1	Area 2	Area 2	Area 3	Area 3	Area 3	Area 3	Area 3	Area 3	Area 4	Area 4	Area 4	Area 4	Area 4	Area 4	
Site A - Inbound	Site A - Heol-Y-Bwnsi	Area 1		6																							6
Site A - Outbound	Site A - Heol-Y-Bwnsi	Area 1			14		11		6		27		1						3				1				63
Site B - Inbound	Site B - A470 Slip Road	Area 1																				19					19
Site B - Outbound	Site B - A470 Slip Road	Area 1	19				55		17		1																92
Site C - Inbound	Site C - Gwaedlod-Y-Garth Road	Area 1																									
Site C - Outbound	Site C - Gwaedlod-Y-Garth Road	Area 1	21		29				24		31		4				3		7				22		3		144
Site D - Inbound	Site D - A4054	Area 1								1																	1
Site D - Outbound	Site D - A4055	Area 1	7		31		29				7		8				1		18				12		3		116
Site E - Inbound	Site E - A470 Slip Road	Area 1																									
Site E - Outbound	Site E - A470 Slip Road	Area 1	15		1		36		3				7		1				10				11		5		89
Site F - Inbound	Site F - Heol Crochendy	Area 2												3		14											17
Site F - Outbound	Site F - Heol Crochendy	Area 2	1				7		4		5														1		18
Site G - Inbound	Site G - Heol Crochendy	Area 3												4		4											8
Site G - Outbound	Site G - Heol Crochendy	Area 3															1		10		6		24		8		49
Site H - Inbound	Site H - Cefn Coed	Area 3																1									1
Site H - Outbound	Site H - Cefn Coed	Area 3									1				3						2		1		2		9
Site J - Inbound	Site J - Cardiff Road	Area 3																									
Site J - Outbound	Site J - Cardiff Road	Area 3	1		4		11		2		3		2		1		1		12		5		24		8		74
Site K - Inbound	Site K - A470 Slip Road	Area 4				61																					61
Site K - Outbound	Site K - A470 Slip Road	Area 4													4				6				71		2		83
Site L - Inbound	Site L - Caeerphilly Road	Area 4						1																3			4
Site L - Outbound	Site L - Caeerphilly Road	Area 4	1				1								13		2		12		79		3		78		189
Site M - Inbound	Site M - A470 Slip Road	Area 4																									
Site M - Outbound	Site M - A470 Slip Road	Area 4							1						15		9						123				148
Grand Total			65	6	79	61	150	1	57	1	75		22	7	37	18	17	1	78		92	19	292	3	110		1191

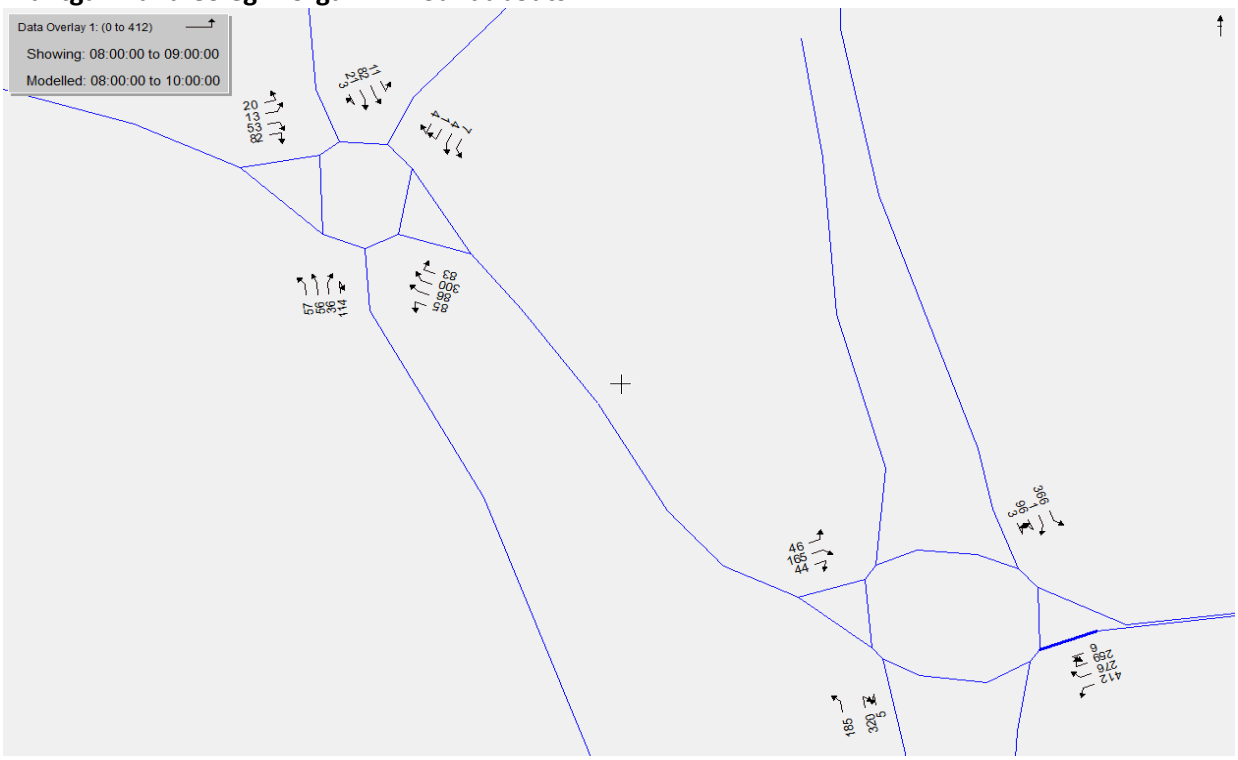
Appendix C
PARAMICS Output

2015 AM Base Traffic Flow (50% flow provided)

Upper Boat

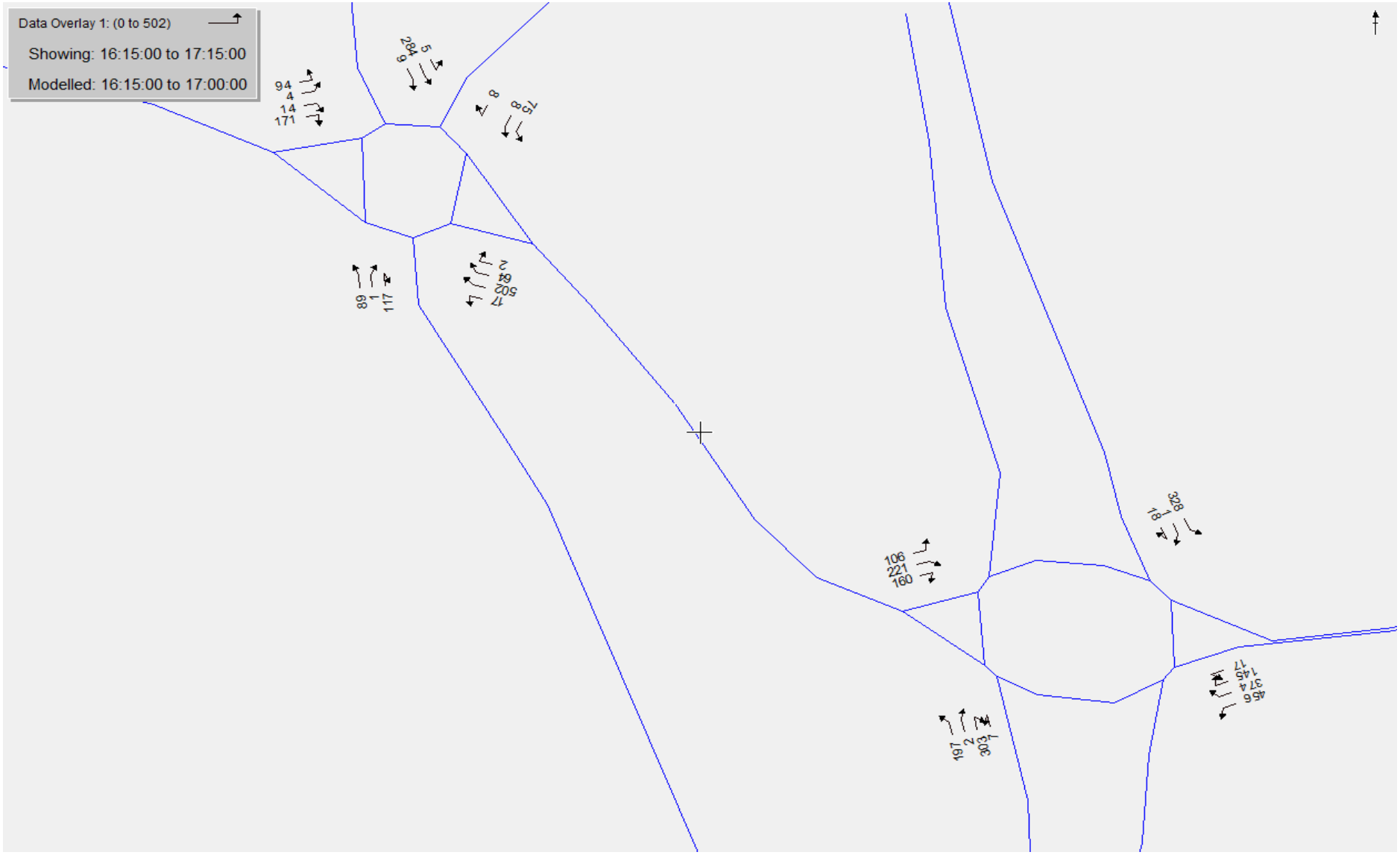


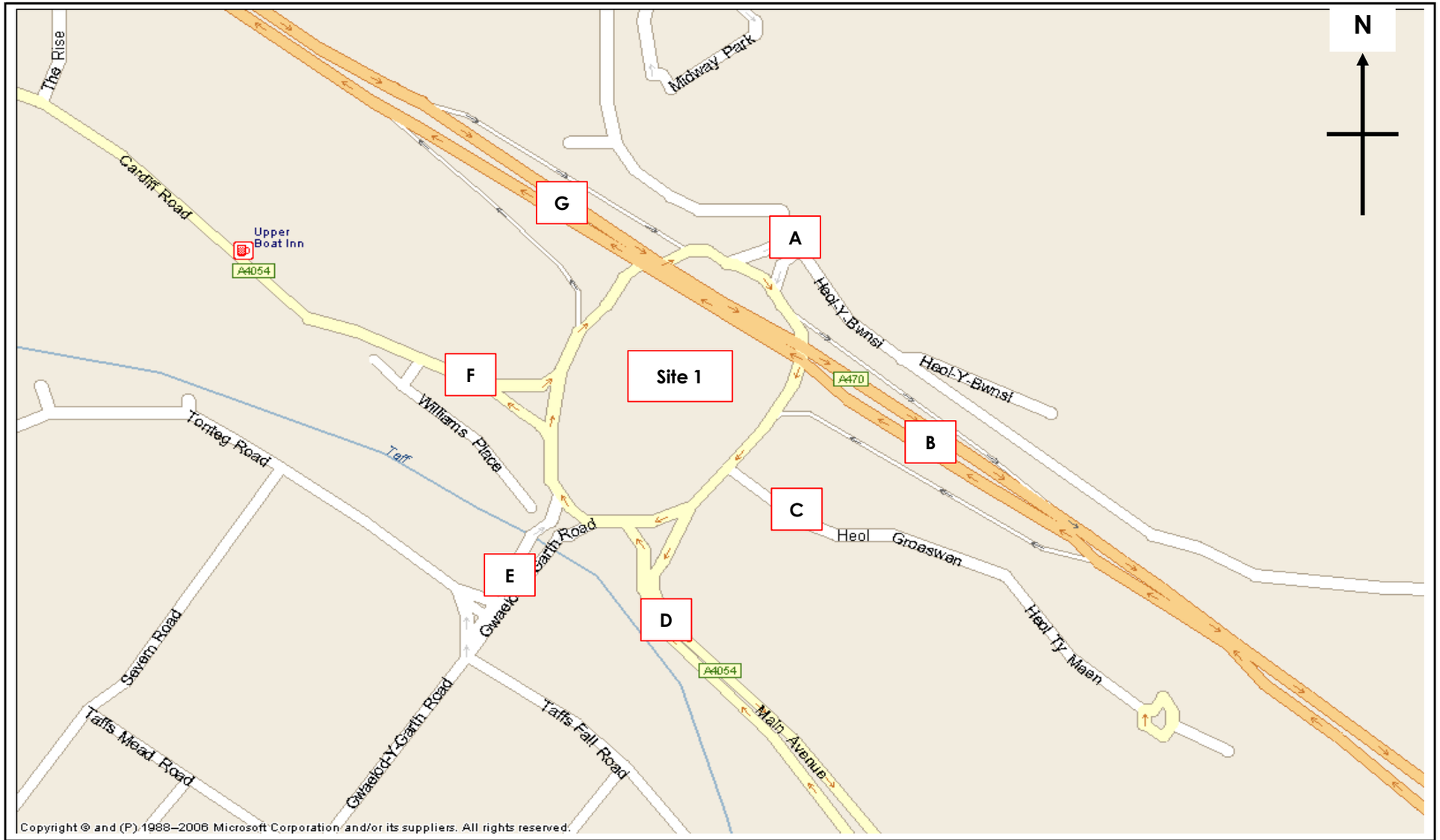
Nantgarw and Coleg Morgannw Roundabouts



2015 PM Base Traffic Flow (50% flow provided)

Nantgarw and Coleg Morgannw Roundabouts





NDC	**Site / Location:**	Site 1, A470 / A4054 roundabout	**Project No:**	1354	**Drawing No:**	1354-01	**Drawn By:** NT
	Survey Date:	Tuesday 7th June 2011	**Project Name:**	Upper Boat			
	Survey Times:	07:30 to 09:30 and 16:30 to 18:30	**Drawing Title:**	Site Layout and Observed Movements			

2011 Upper Boat

AM

	a	b	c	d	e	f	g	TOTAL
a	1	93	12	58	66	27	24	281
b	93	0	6	64	332	151	2	648
c	1	0	0	11	7	5	2	26
d	23	4	0	2	170	107	84	390
e	48	562	0	161	0	180	394	1345
f	84	96	0	134	126	0	70	510
g	220	2	0	434	447	47	0	1150
TOTAL	470	757	18	864	1148	517	576	4350

Upper Boat

PM

	a	b	c	d	e	f	g	TOTAL
a	1	169	6	42	124	52	151	545
b	161	0	5	43	610	125	15	959
c	0	5	1	3	6	2	11	28
d	18	10	0	0	173	152	150	503
e	73	424	0	36	0	196	483	1212
f	93	104	0	100	111	0	98	506
g	218	0	2	138	380	12	0	750
	564	712	14	362	1404	539	908	4503

2015 PM

Level	Area	Local Growth Figure
00PF2	Pontypridd	1.02719965

	a	b	c	d	e	f	g	TOTAL
a	1	174	6	43	127	53	155	560
b	165	0	5	44	627	128	15	985
c	0	5	1	3	6	2	11	29
d	18	10	0	0	178	156	154	517
e	75	436	0	37	0	201	496	1245
f	96	107	0	103	114	0	101	520
g	224	0	2	142	390	12	0	770
	579	731	14	372	1442	554	933	4625

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	A - G CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	A - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	4	3	0	0	0	0	7	08:00	0	0	0	0	0	0	0
08:15	7	0	0	0	0	0	7	08:15	7	4	0	0	0	0	11
08:30	9	0	0	0	0	0	9	08:30	13	0	0	0	0	0	13
08:45	1	0	0	0	0	0	1	08:45	3	0	0	0	0	0	3
P/TOT	**21**	**3**	**0**	**0**	**0**	**0**	**24**	**P/TOT**	**23**	**4**	**0**	**0**	**0**	**0**	**27**
PCU	21	3	0	0	0	0	**24**	**PCU**	23	4	0	0	0	0	**27**

TIME	A - G CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	A - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	42	7	0	0	0	0	49	16:30	21	0	0	0	0	0	21
16:45	23	0	1	0	0	0	24	16:45	23	0	0	0	0	0	23
17:00	34	6	0	0	0	0	40	17:00	8	0	0	0	0	0	8
17:15	34	4	0	0	0	0	38	17:15	0	0	0	0	0	0	0
P/TOT	**133**	**17**	**1**	**0**	**0**	**0**	**151**	**P/TOT**	**52**	**0**	**0**	**0**	**0**	**0**	**52**
PCU	133	17	2	0	0	0	**152**	**PCU**	52	0	0	0	0	0	**52**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	A - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	18	5	0	0	0	0	23
08:15	11	4	0	0	0	0	15
08:30	9	3	0	0	0	0	12
08:45	14	2	0	0	0	0	16
P/TOT	**52**	**14**	**0**	**0**	**0**	**0**	**66**
PCU	52	14	0	0	0	0	**66**

TIME	A - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	11	2	0	0	0	0	13
08:15	12	2	1	0	0	0	15
08:30	14	1	0	0	0	0	15
08:45	10	5	0	0	0	0	15
P/TOT	**47**	**10**	**1**	**0**	**0**	**0**	**58**
PCU	47	10	2	0	0	0	**59**

TIME	A - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	34	1	0	0	0	0	35
16:45	12	0	0	0	0	0	12
17:00	40	0	0	0	0	0	40
17:15	31	3	3	0	0	0	37
P/TOT	**117**	**4**	**3**	**0**	**0**	**0**	**124**
PCU	117	4	7	0	0	0	**128**

TIME	A - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	8	0	0	0	0	0	8
16:45	8	0	0	0	0	0	8
17:00	10	2	0	0	0	0	12
17:15	14	0	0	0	0	0	14
P/TOT	**40**	**2**	**0**	**0**	**0**	**0**	**42**
PCU	40	2	0	0	0	0	**42**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	A - C CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	A - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0	08:00	13	5	2	0	0	0	20
08:15	0	0	0	0	0	0	0	08:15	15	0	1	0	0	0	16
08:30	7	0	0	0	0	0	7	08:30	20	3	3	1	0	0	27
08:45	5	0	0	0	0	0	5	08:45	18	8	2	2	0	0	30
P/TOT	**12**	**0**	**0**	**0**	**0**	**0**	**12**	**P/TOT**	**66**	**16**	**8**	**3**	**0**	**0**	**93**
PCU	12	0	0	0	0	0	**12**	**PCU**	66	16	18	6	0	0	**106**

TIME	A - C CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	A - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0	16:30	35	4	2	1	1	0	43
16:45	2	4	0	0	0	0	6	16:45	26	3	1	0	0	0	30
17:00	0	0	0	0	0	0	0	17:00	44	3	0	0	0	0	47
17:15	0	0	0	0	0	0	0	17:15	42	5	2	0	0	0	49
P/TOT	**2**	**4**	**0**	**0**	**0**	**0**	**6**	**P/TOT**	**147**	**15**	**5**	**1**	**1**	**0**	**169**
PCU	2	4	0	0	0	0	**6**	**PCU**	147	15	12	2	0	0	**176**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	A - A CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	B - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0	08:00	12	8	3	0	0	0	23
08:15	0	0	0	0	0	0	0	08:15	23	3	2	0	0	0	28
08:30	1	0	0	0	0	0	1	08:30	20	5	2	0	0	0	27
08:45	0	0	0	0	0	0	0	08:45	14	1	0	0	0	0	15
P/TOT	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**P/TOT**	**69**	**17**	**7**	**0**	**0**	**0**	**93**
PCU	1	0	0	0	0	0	**1**	**PCU**	69	17	16	0	0	0	**102**

TIME	A - A CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	B - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0	16:30	11	9	0	0	0	0	20
16:45	0	0	0	0	0	0	0	16:45	41	6	0	0	0	0	47
17:00	0	0	0	0	0	0	0	17:00	48	9	2	0	0	0	59
17:15	0	1	0	0	0	0	1	17:15	27	8	0	0	0	0	35
P/TOT	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**P/TOT**	**127**	**32**	**2**	**0**	**0**	**0**	**161**
PCU	0	1	0	0	0	0	**1**	**PCU**	127	32	5	0	0	0	**164**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	B - G CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	B - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	1	0	0	0	0	0	1	08:00	23	0	0	0	0	0	23
08:15	0	0	0	0	0	0	0	08:15	47	8	0	0	0	0	55
08:30	0	0	0	0	0	0	0	08:30	33	2	0	1	0	0	36
08:45	1	0	0	0	0	0	1	08:45	28	6	3	0	0	0	37
P/TOT	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**P/TOT**	**131**	**16**	**3**	**1**	**0**	**0**	**151**
PCU	2	0	0	0	0	0	**2**	**PCU**	131	16	7	2	0	0	**156**

TIME	B - G CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	B - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	8	0	0	0	0	0	8	16:30	18	0	0	0	0	0	18
16:45	2	1	0	0	0	0	3	16:45	17	0	0	0	0	0	17
17:00	2	0	0	0	0	0	2	17:00	28	8	0	0	3	0	39
17:15	2	0	0	0	0	0	2	17:15	51	0	0	0	0	0	51
P/TOT	**14**	**1**	**0**	**0**	**0**	**0**	**15**	**P/TOT**	**114**	**8**	**0**	**0**	**3**	**0**	**125**
PCU	14	1	0	0	0	0	**15**	**PCU**	114	8	0	0	1	0	**123**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	B - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	68	11	5	0	0	0	84
08:15	71	3	5	0	0	0	79
08:30	86	10	8	2	0	0	106
08:45	44	12	7	0	0	0	63
P/TOT	**269**	**36**	**25**	**2**	**0**	**0**	**332**
PCU	269	36	58	4	0	0	**367**

TIME	B - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	18	4	0	0	0	0	22
08:15	13	2	3	0	0	0	18
08:30	3	2	0	0	0	0	5
08:45	16	3	0	0	0	0	19
P/TOT	**50**	**11**	**3**	**0**	**0**	**0**	**64**
PCU	50	11	7	0	0	0	**68**

TIME	B - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	114	17	4	3	0	0	138
16:45	139	24	8	3	0	0	174
17:00	137	13	2	2	0	0	154
17:15	137	5	1	0	1	0	144
P/TOT	**527**	**59**	**15**	**8**	**1**	**0**	**610**
PCU	527	59	35	16	0	0	**637**

TIME	B - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	21	0	0	0	0	0	21
16:45	12	0	0	0	0	0	12
17:00	3	1	0	0	0	0	4
17:15	3	3	0	0	0	0	6
P/TOT	**39**	**4**	**0**	**0**	**0**	**0**	**43**
PCU	39	4	0	0	0	0	**43**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	B - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	1	1	1	0	0	0	3
08:15	0	1	0	0	0	0	1
08:30	0	1	1	0	0	0	2
08:45	0	0	0	0	0	0	0
P/TOT	**1**	**3**	**2**	**0**	**0**	**0**	**6**
PCU	1	3	5	0	0	0	**9**

TIME	B - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	B - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	2	1	0	0	0	0	3
17:00	1	0	0	0	0	0	1
17:15	1	0	0	0	0	0	1
P/TOT	**4**	**1**	**0**	**0**	**0**	**0**	**5**
PCU	4	1	0	0	0	0	**5**

TIME	B - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	C - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

TIME	C - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	1	0	0	0	0	0	1
08:45	0	0	0	0	0	0	0
P/TOT	**1**	**0**	**0**	**0**	**0**	**0**	**1**
PCU	1	0	0	0	0	0	**1**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	C - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	1	0	0	0	0	1
16:45	0	4	0	0	0	0	4
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**5**	**0**	**0**	**0**	**0**	**5**
PCU	0	5	0	0	0	0	**5**

TIME	C - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	C - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	1	0	0	0	0	0	1
08:45	1	0	0	0	0	0	1
P/TOT	**2**	**0**	**0**	**0**	**0**	**0**	**2**
PCU	2	0	0	0	0	0	**2**

TIME	C - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	2	0	0	0	0	0	2
08:45	3	0	0	0	0	0	3
P/TOT	**5**	**0**	**0**	**0**	**0**	**0**	**5**
PCU	5	0	0	0	0	0	**5**

TIME	C - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	5	0	0	0	0	0	5
16:45	4	0	0	0	0	0	4
17:00	0	1	0	0	0	0	1
17:15	1	0	0	0	0	0	1
P/TOT	**10**	**1**	**0**	**0**	**0**	**0**	**11**
PCU	10	1	0	0	0	0	**11**

TIME	C - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	2	0	0	0	0	0	2
17:15	0	0	0	0	0	0	0
P/TOT	**2**	**0**	**0**	**0**	**0**	**0**	**2**
PCU	2	0	0	0	0	0	**2**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	C - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	1	1	0	0	0	0	2
08:15	1	1	0	0	0	0	2
08:30	0	1	0	0	0	0	1
08:45	1	1	0	0	0	0	2
P/TOT	**3**	**4**	**0**	**0**	**0**	**0**	**7**
PCU	3	4	0	0	0	0	**7**

TIME	C - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	2	1	0	0	0	0	3
08:15	1	1	1	0	0	0	3
08:30	2	0	1	0	0	0	3
08:45	0	1	1	0	0	0	2
P/TOT	**5**	**3**	**3**	**0**	**0**	**0**	**11**
PCU	5	3	7	0	0	0	**15**

TIME	C - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	1	0	0	0	0	0	1
16:45	2	0	0	0	0	0	2
17:00	2	0	0	0	0	0	2
17:15	1	0	0	0	0	0	1
P/TOT	**6**	**0**	**0**	**0**	**0**	**0**	**6**
PCU	6	0	0	0	0	0	**6**

TIME	C - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	1	0	0	0	0	1
16:45	1	0	0	0	0	0	1
17:00	0	1	0	0	0	0	1
17:15	0	0	0	0	0	0	0
P/TOT	**1**	**2**	**0**	**0**	**0**	**0**	**3**
PCU	1	2	0	0	0	0	**3**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

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1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	C - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

TIME	D - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

TIME	C - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	1	0	0	0	0	1
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**1**	**0**	**0**	**0**	**0**	**1**
PCU	0	1	0	0	0	0	**1**

TIME	D - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	D - B CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	D - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0	08:00	2	0	0	0	0	0	2
08:15	0	0	0	0	0	0	0	08:15	1	0	0	0	0	0	1
08:30	0	2	0	0	0	0	2	08:30	5	3	0	1	0	0	9
08:45	2	0	0	0	0	0	2	08:45	9	2	0	0	0	0	11
P/TOT	**2**	**2**	**0**	**0**	**0**	**0**	**4**	**P/TOT**	**17**	**5**	**0**	**1**	**0**	**0**	**23**
PCU	2	2	0	0	0	0	**4**	**PCU**	17	5	0	2	0	0	**24**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	D - B CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	D - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	2	0	0	0	0	0	2	16:30	3	0	0	0	0	0	3
16:45	2	0	0	0	0	0	2	16:45	4	0	0	0	0	0	4
17:00	4	0	0	0	0	0	4	17:00	0	0	0	0	0	0	0
17:15	2	0	0	0	0	0	2	17:15	11	0	0	0	0	0	11
P/TOT	**10**	**0**	**0**	**0**	**0**	**0**	**10**	**P/TOT**	**18**	**0**	**0**	**0**	**0**	**0**	**18**
PCU	10	0	0	0	0	0	**10**	**PCU**	18	0	0	0	0	0	**18**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	D - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	9	11	2	0	0	0	22
08:15	7	6	4	0	0	0	17
08:30	6	13	0	0	0	0	19
08:45	15	8	1	2	0	0	26
P/TOT	**37**	**38**	**7**	**2**	**0**	**0**	**84**
PCU	37	38	16	4	0	0	**95**

TIME	D - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	56	2	3	0	0	0	61
16:45	31	7	1	0	0	0	39
17:00	14	0	0	0	0	0	14
17:15	33	3	0	0	0	0	36
P/TOT	**134**	**12**	**4**	**0**	**0**	**0**	**150**
PCU	134	12	9	0	0	0	**155**

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JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	D - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	18	6	0	4	0	0	28
08:15	27	2	1	2	0	0	32
08:30	21	5	2	1	0	0	29
08:45	8	6	2	2	0	0	18
P/TOT	**74**	**19**	**5**	**9**	**0**	**0**	**107**
PCU	74	19	12	18	0	0	**123**

TIME	D - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	30	8	0	2	0	0	40
16:45	30	0	1	1	0	0	32
17:00	36	2	0	2	0	0	40
17:15	37	0	0	3	0	0	40
P/TOT	**133**	**10**	**1**	**8**	**0**	**0**	**152**
PCU	133	10	2	16	0	0	**161**

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SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	D - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	28	11	4	2	0	0	45
08:15	25	13	3	1	0	1	43
08:30	26	7	2	1	0	0	36
08:45	30	9	3	3	0	1	46
P/TOT	**109**	**40**	**12**	**7**	**0**	**2**	**170**
PCU	109	40	28	14	0	0	**191**

TIME	D - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	40	3	1	0	0	1	45
16:45	40	2	0	0	0	0	42
17:00	39	2	0	0	1	0	42
17:15	35	7	1	1	0	0	44
P/TOT	**154**	**14**	**2**	**1**	**1**	**1**	**173**
PCU	154	14	5	2	0	0	**175**

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CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	D - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	1	1	0	0	0	0	2
08:45	0	0	0	0	0	0	0
P/TOT	**1**	**1**	**0**	**0**	**0**	**0**	**2**
PCU	1	1	0	0	0	0	**2**

TIME	D - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

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JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	E - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	48	10	0	0	0	0	58
08:15	20	1	0	0	0	0	21
08:30	28	8	0	1	0	0	37
08:45	33	7	4	1	0	0	45
P/TOT	**129**	**26**	**4**	**2**	**0**	**0**	**161**
PCU	129	26	9	4	0	0	**168**

TIME	E - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

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CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	E - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	3	1	0	0	0	0	4
16:45	6	4	0	1	0	0	11
17:00	8	2	0	0	0	0	10
17:15	10	1	0	0	0	0	11
P/TOT	**27**	**8**	**0**	**1**	**0**	**0**	**36**
PCU	27	8	0	2	0	0	**37**

TIME	E - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

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SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	E - B CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	E - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	115	15	8	0	1	0	139	08:00	14	0	0	0	0	0	14
08:15	141	15	1	2	0	0	159	08:15	13	3	0	0	0	0	16
08:30	102	23	7	0	3	0	135	08:30	6	0	0	1	0	0	7
08:45	101	19	9	0	0	0	129	08:45	9	1	0	1	0	0	11
P/TOT	**459**	**72**	**25**	**2**	**4**	**0**	**562**	**P/TOT**	**42**	**4**	**0**	**2**	**0**	**0**	**48**
PCU	459	72	58	4	2	0	**594**	**PCU**	42	4	0	4	0	0	**50**

TIME	E - B CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	E - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	80	13	0	0	4	0	97	16:30	45	1	0	0	0	0	46
16:45	72	15	2	0	0	0	89	16:45	15	1	0	0	0	0	16
17:00	103	14	7	0	0	0	124	17:00	9	0	0	0	0	0	9
17:15	96	15	2	0	1	0	114	17:15	2	0	0	0	0	0	2
P/TOT	**351**	**57**	**11**	**0**	**5**	**0**	**424**	**P/TOT**	**71**	**2**	**0**	**0**	**0**	**0**	**73**
PCU	351	57	25	0	2	0	**435**	**PCU**	71	2	0	0	0	0	**73**

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SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	E - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	74	19	10	0	0	0	103
08:15	79	9	6	1	0	0	95
08:30	68	19	10	0	0	0	97
08:45	80	14	5	0	0	0	99
P/TOT	**301**	**61**	**31**	**1**	**0**	**0**	**394**
PCU	301	61	71	2	0	0	**435**

TIME	E - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	34	5	0	0	0	0	39
08:15	47	3	1	0	0	0	51
08:30	40	5	1	1	0	0	47
08:45	38	3	2	0	0	0	43
P/TOT	**159**	**16**	**4**	**1**	**0**	**0**	**180**
PCU	159	16	9	2	0	0	**186**

TIME	E - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	83	20	9	0	0	0	112
16:45	113	16	2	0	2	0	133
17:00	100	16	3	0	1	0	120
17:15	105	12	1	0	0	0	118
P/TOT	**401**	**64**	**15**	**0**	**3**	**0**	**483**
PCU	401	64	35	0	1	0	**501**

TIME	E - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	43	3	1	0	0	0	47
16:45	47	10	0	1	1	1	60
17:00	46	3	1	0	0	0	50
17:15	33	6	0	0	0	0	39
P/TOT	**169**	**22**	**2**	**1**	**1**	**1**	**196**
PCU	169	22	5	2	0	0	**198**

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CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	E - E CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	F - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0	08:00	28	0	0	0	0	0	28
08:15	0	0	0	0	0	0	0	08:15	30	8	0	2	0	0	40
08:30	0	0	0	0	0	0	0	08:30	30	5	0	5	0	0	40
08:45	0	0	0	0	0	0	0	08:45	16	2	0	0	0	0	18
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**P/TOT**	**104**	**15**	**0**	**7**	**0**	**0**	**126**
PCU	0	0	0	0	0	0	**0**	**PCU**	104	15	0	14	0	0	**133**

TIME	E - E CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	F - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0	16:30	16	2	0	0	1	0	19
16:45	0	0	0	0	0	0	0	16:45	19	1	3	1	0	0	24
17:00	0	0	0	0	0	0	0	17:00	28	2	0	0	0	0	30
17:15	0	0	0	0	0	0	0	17:15	34	2	0	2	0	0	38
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**P/TOT**	**97**	**7**	**3**	**3**	**1**	**0**	**111**
PCU	0	0	0	0	0	0	**0**	**PCU**	97	7	7	6	0	0	**117**

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CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	F - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	26	7	0	1	0	0	34
08:15	30	2	0	1	0	0	33
08:30	23	5	1	3	0	0	32
08:45	24	4	0	6	1	0	35
P/TOT	**103**	**18**	**1**	**11**	**1**	**0**	**134**
PCU	103	18	2	22	0	0	**146**

TIME	F - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

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SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	F - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	16	2	1	3	0	0	22
16:45	17	3	0	2	0	0	22
17:00	21	1	3	2	2	0	29
17:15	24	3	0	0	0	0	27
P/TOT	**78**	**9**	**4**	**7**	**2**	**0**	**100**
PCU	78	9	9	14	1	0	**111**

TIME	F - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

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SITE: 1 DATE: 07/06/11

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TIME	F - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	18	4	0	0	0	0	22
08:15	19	8	3	2	0	0	32
08:30	21	2	0	0	0	0	23
08:45	11	6	0	2	0	0	19
P/TOT	**69**	**20**	**3**	**4**	**0**	**0**	**96**
PCU	69	20	7	8	0	0	**104**

TIME	F - B CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	31	10	0	0	0	0	41
16:45	22	3	0	0	0	0	25
17:00	19	2	1	0	0	0	22
17:15	14	2	0	0	0	0	16
P/TOT	**86**	**17**	**1**	**0**	**0**	**0**	**104**
PCU	86	17	2	0	0	0	**105**

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SITE: 1 DATE: 07/06/11

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TIME	F - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	14	0	0	0	0	0	14
08:15	21	3	0	0	0	0	24
08:30	23	4	0	0	0	0	27
08:45	17	2	0	0	0	0	19
P/TOT	**75**	**9**	**0**	**0**	**0**	**0**	**84**
PCU	75	9	0	0	0	0	**84**

TIME	F - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	16	2	0	0	0	0	18
16:45	15	2	0	0	0	0	17
17:00	28	0	1	0	0	0	29
17:15	29	0	0	0	0	0	29
P/TOT	**88**	**4**	**1**	**0**	**0**	**0**	**93**
PCU	88	4	2	0	0	0	**94**

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TIME	F - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	8	5	1	1	0	0	15
08:15	13	8	0	1	0	0	22
08:30	12	0	1	3	0	0	16
08:45	10	6	0	1	0	0	17
P/TOT	**43**	**19**	**2**	**6**	**0**	**0**	**70**
PCU	43	19	5	12	0	0	**79**

TIME	F - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

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TIME	F - G CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	25	3	1	0	0	0	29
16:45	18	5	0	0	0	0	23
17:00	26	3	0	0	0	0	29
17:15	17	0	0	0	0	0	17
P/TOT	**86**	**11**	**1**	**0**	**0**	**0**	**98**
PCU	86	11	2	0	0	0	**99**

TIME	F - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

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SITE: 1 DATE: 07/06/11

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TIME	G - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	4	5	0	0	0	0	9
08:15	9	0	0	0	0	0	9
08:30	7	2	0	0	0	0	9
08:45	20	0	0	0	0	0	20
P/TOT	**40**	**7**	**0**	**0**	**0**	**0**	**47**
PCU	40	7	0	0	0	0	**47**

TIME	G - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	87	17	0	0	1	0	105
08:15	86	52	2	0	1	0	141
08:30	77	19	0	0	0	0	96
08:45	79	24	1	0	1	0	105
P/TOT	**329**	**112**	**3**	**0**	**3**	**0**	**447**
PCU	329	112	7	0	1	0	**449**

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LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	G - F CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	6	0	0	0	0	0	6
16:45	6	0	0	0	0	0	6
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**12**	**0**	**0**	**0**	**0**	**0**	**12**
PCU	12	0	0	0	0	0	**12**

TIME	G - E CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	66	8	5	0	0	0	79
16:45	78	8	6	0	0	0	92
17:00	92	12	3	0	2	0	109
17:15	86	11	2	0	1	0	100
P/TOT	**322**	**39**	**16**	**0**	**3**	**0**	**380**
PCU	322	39	37	0	1	0	**399**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	G - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	82	10	2	3	0	0	97
08:15	90	42	1	0	1	0	134
08:30	78	7	11	0	0	0	96
08:45	96	9	2	0	0	0	107
P/TOT	**346**	**68**	**16**	**3**	**1**	**0**	**434**
PCU	346	68	37	6	0	0	**457**

TIME	G - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

TIME	G - D CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	26	3	0	1	0	0	30
16:45	30	2	0	0	0	0	32
17:00	32	1	0	0	0	0	33
17:15	41	2	0	0	0	0	43
P/TOT	**129**	**8**	**0**	**1**	**0**	**0**	**138**
PCU	129	8	0	2	0	0	**139**

TIME	G - C CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	2	0	0	0	0	0	2
P/TOT	**2**	**0**	**0**	**0**	**0**	**0**	**2**
PCU	2	0	0	0	0	0	**2**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

TIME	G - B CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	G - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
08:00	1	1	0	0	0	0	2	08:00	33	8	1	0	0	0	42
08:15	0	0	0	0	0	0	0	08:15	33	6	0	3	0	0	42
08:30	0	0	0	0	0	0	0	08:30	53	9	0	3	0	0	65
08:45	0	0	0	0	0	0	0	08:45	61	8	2	0	0	0	71
P/TOT	**1**	**1**	**0**	**0**	**0**	**0**	**2**	**P/TOT**	**180**	**31**	**3**	**6**	**0**	**0**	**220**
PCU	1	1	0	0	0	0	**2**	**PCU**	180	31	7	12	0	0	**230**

TIME	G - B CAR	LGV	HGV	PSV	MCL	PCL	TOT	TIME	G - A CAR	LGV	HGV	PSV	MCL	PCL	TOT
16:30	0	0	0	0	0	0	0	16:30	46	3	2	0	1	0	52
16:45	0	0	0	0	0	0	0	16:45	50	3	1	0	0	0	54
17:00	0	0	0	0	0	0	0	17:00	56	2	1	0	0	0	59
17:15	0	0	0	0	0	0	0	17:15	51	2	0	0	0	0	53
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**P/TOT**	**203**	**10**	**4**	**0**	**1**	**0**	**218**
PCU	0	0	0	0	0	0	**0**	**PCU**	203	10	9	0	0	0	**223**

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

LOCATION: A470 / A4054 roundabout DAY: Tuesday

1354 / UPPER BOAT
JUNE 2011
CLASSIFIED TURNING COUNT

SITE: 1 DATE: 07/06/11

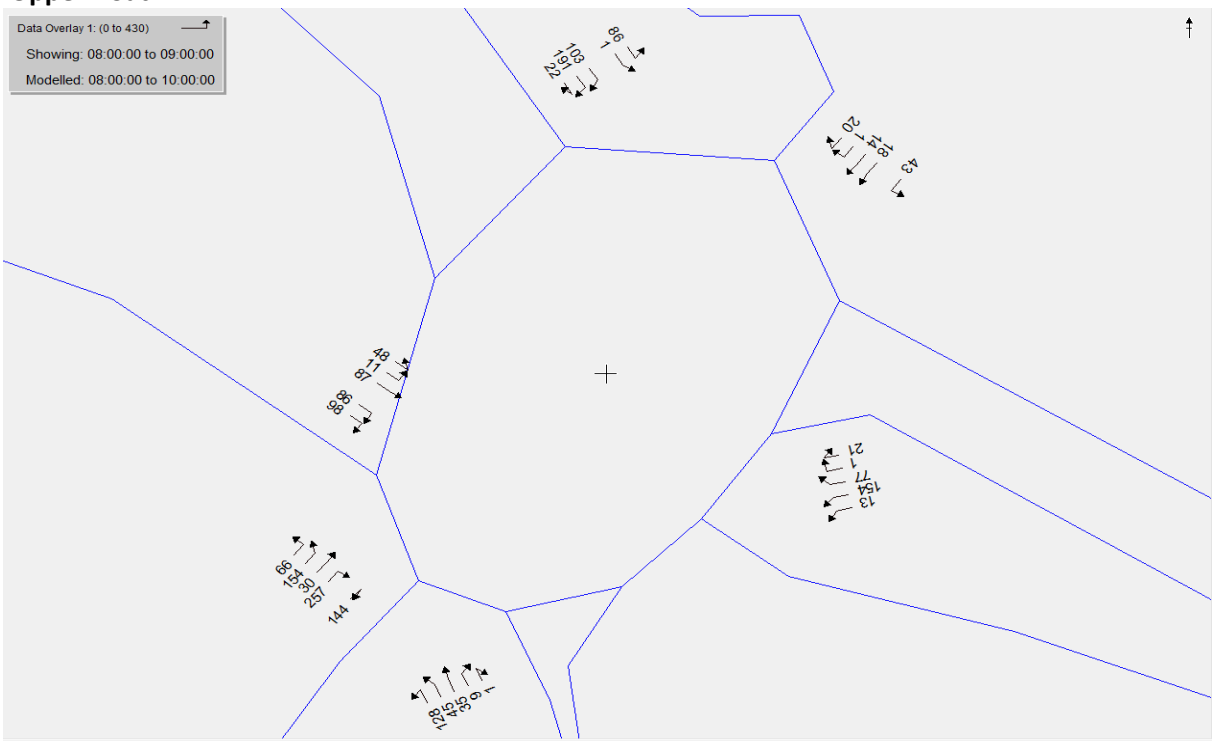
LOCATION: A470 / A4054 roundabout DAY: Tuesday

	G - G						
TIME	**CAR**	**LGV**	**HGV**	**PSV**	**MCL**	**PCL**	**TOT**
08:00	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0
08:30	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

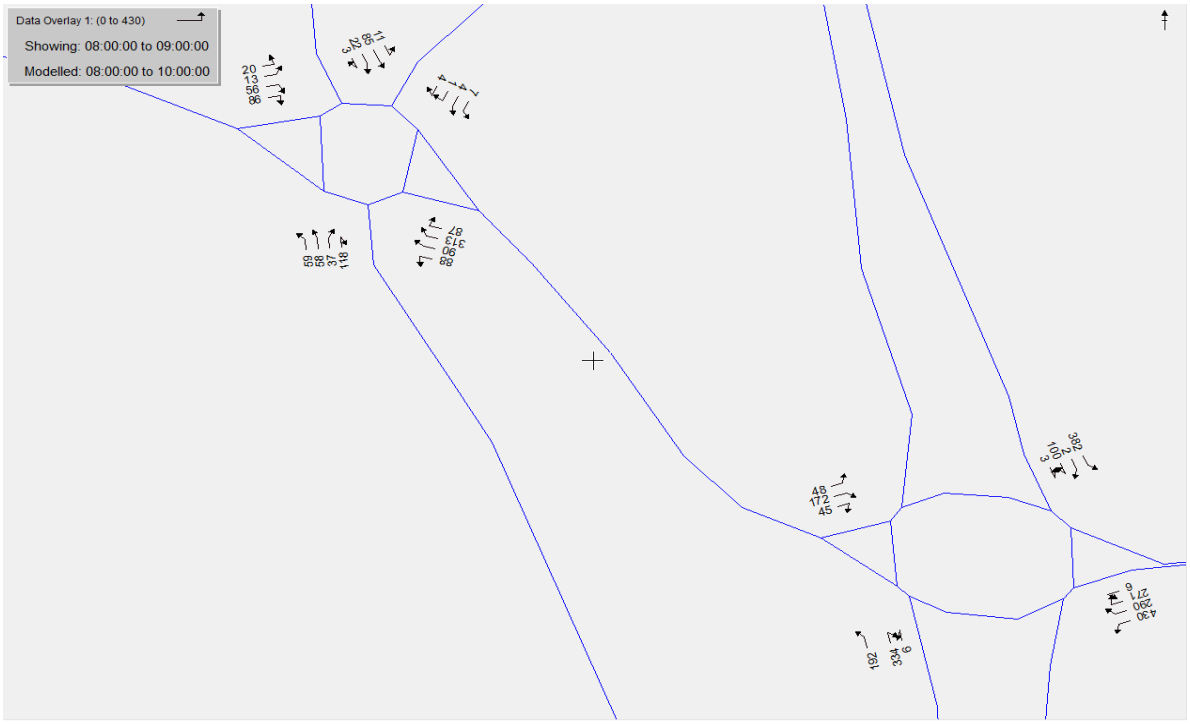
	G - G						
TIME	**CAR**	**LGV**	**HGV**	**PSV**	**MCL**	**PCL**	**TOT**
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
P/TOT	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PCU	0	0	0	0	0	0	**0**

AM 2018 Traffic Flow No Development

Upper Boat

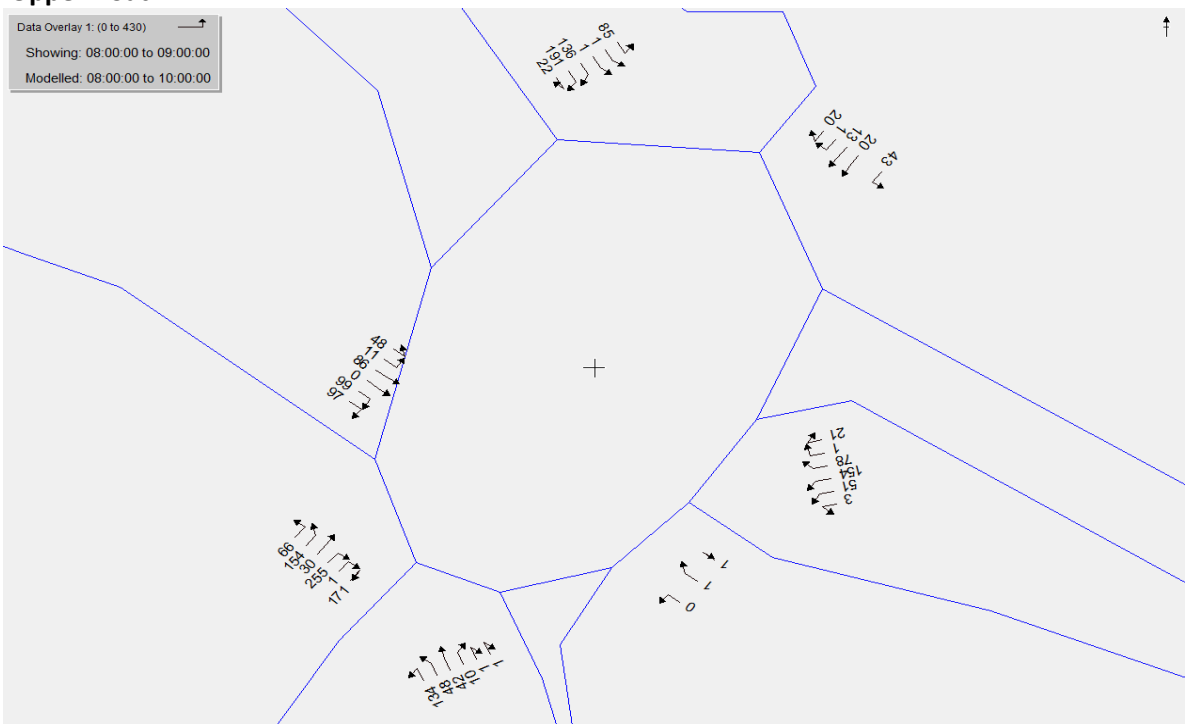


Nantgarw and Coleg Morgannw Roundabouts

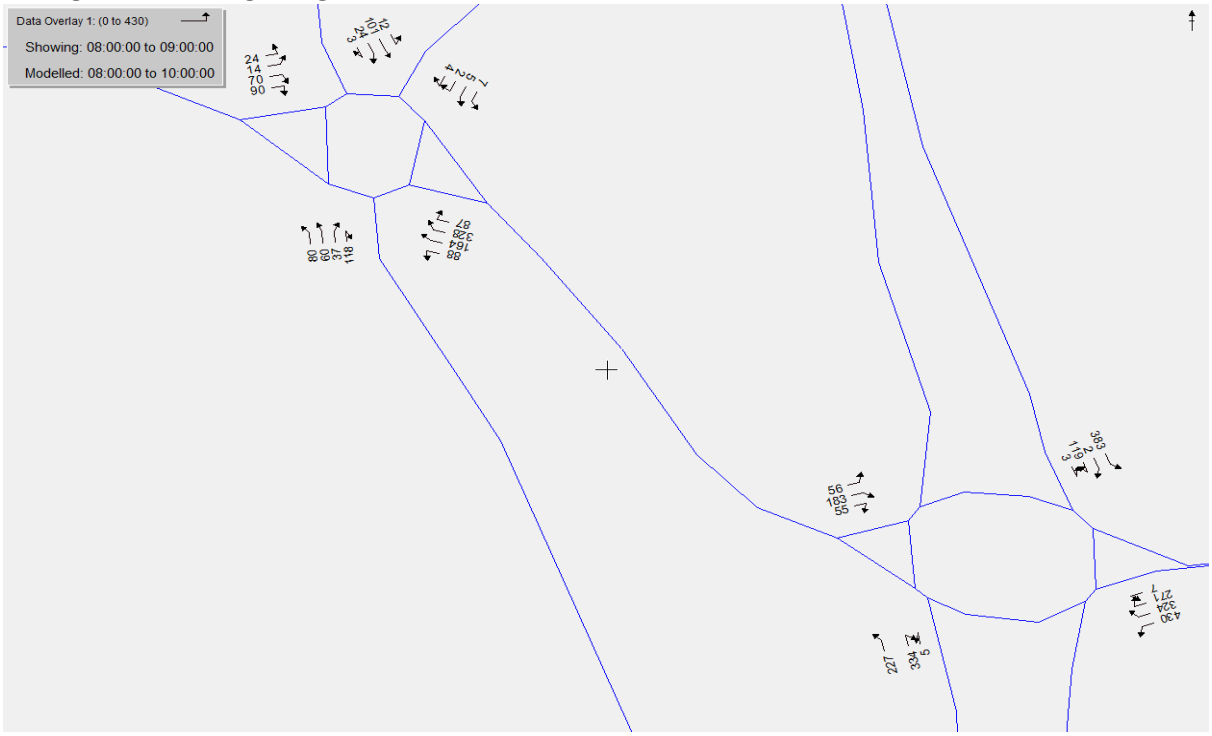


AM 2018 Traffic Flow with Development

Upper Boat

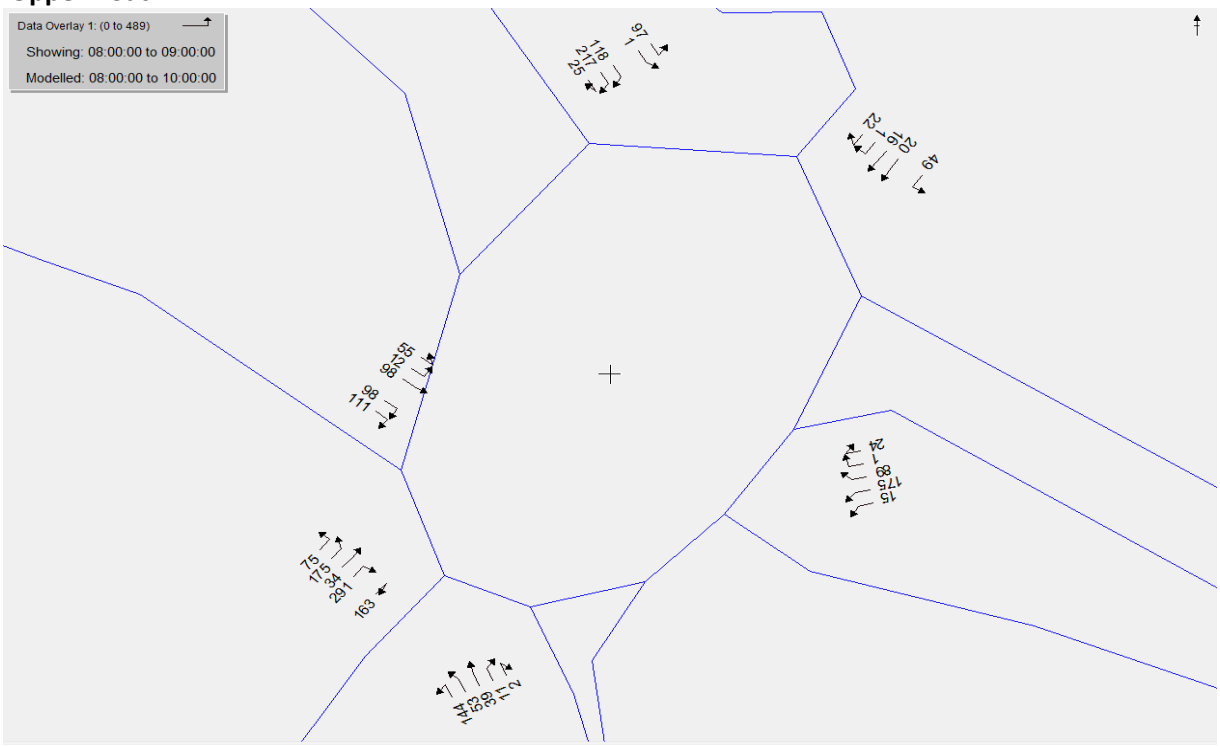


Nantgarw and Coleg Morgannw Roundabouts

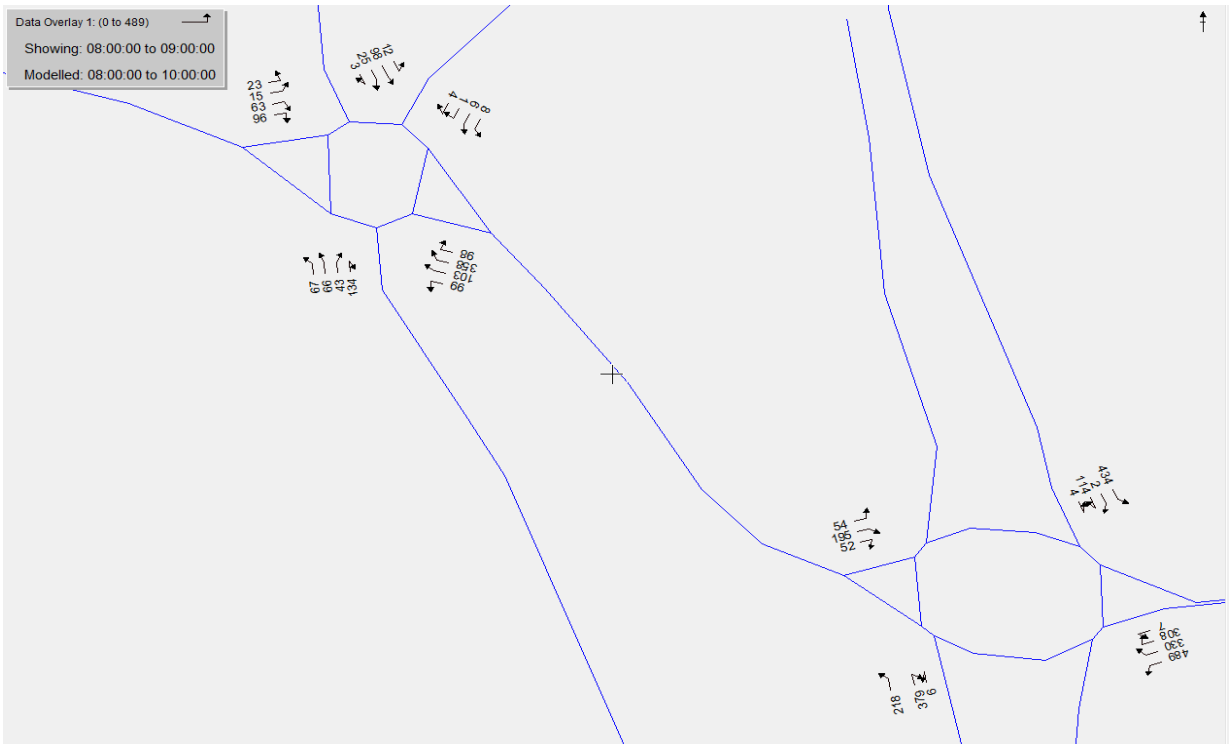


AM 2028 Traffic Flow No Development

Upper Boat

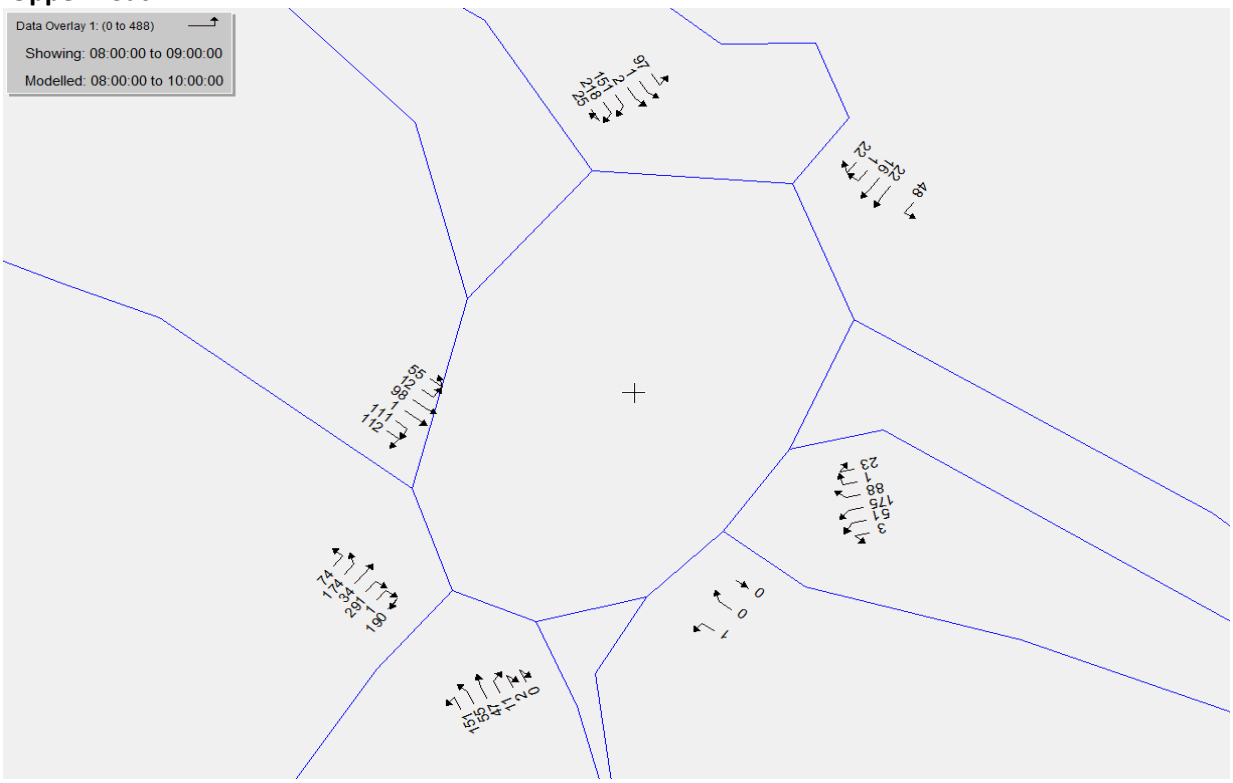


Nantgarw and Coleg Morgannw Roundabouts

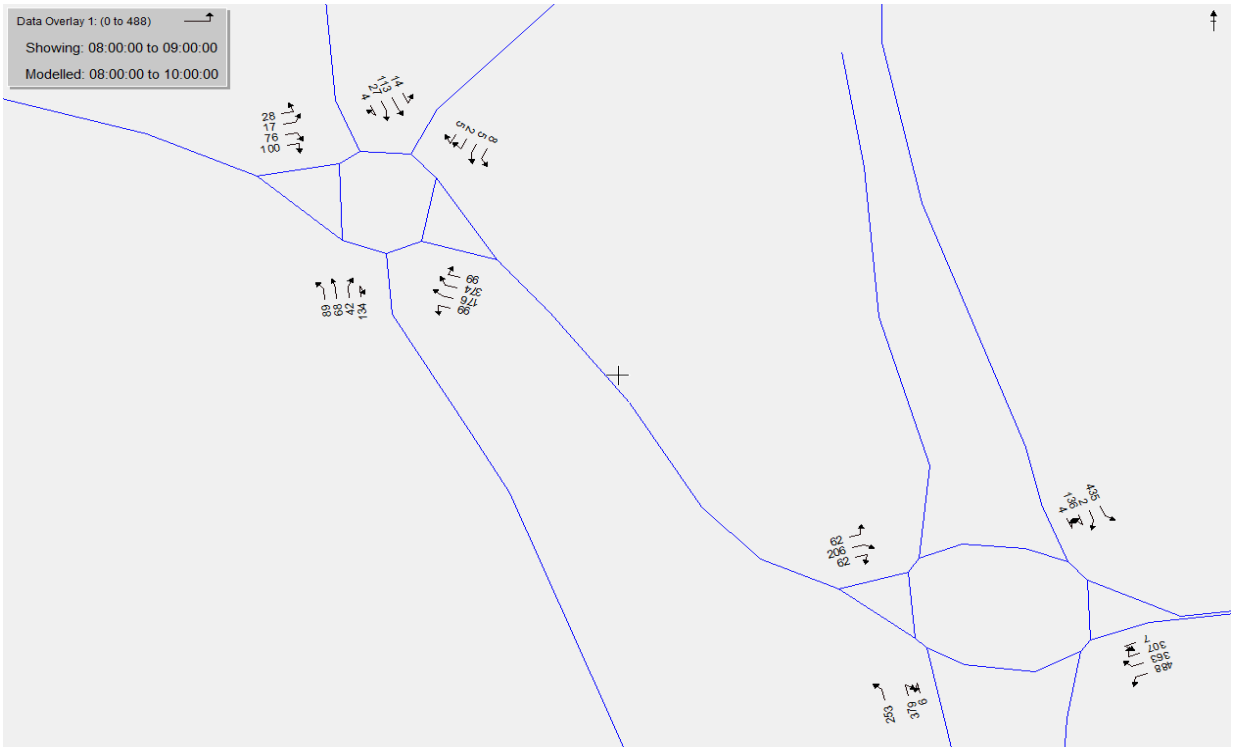


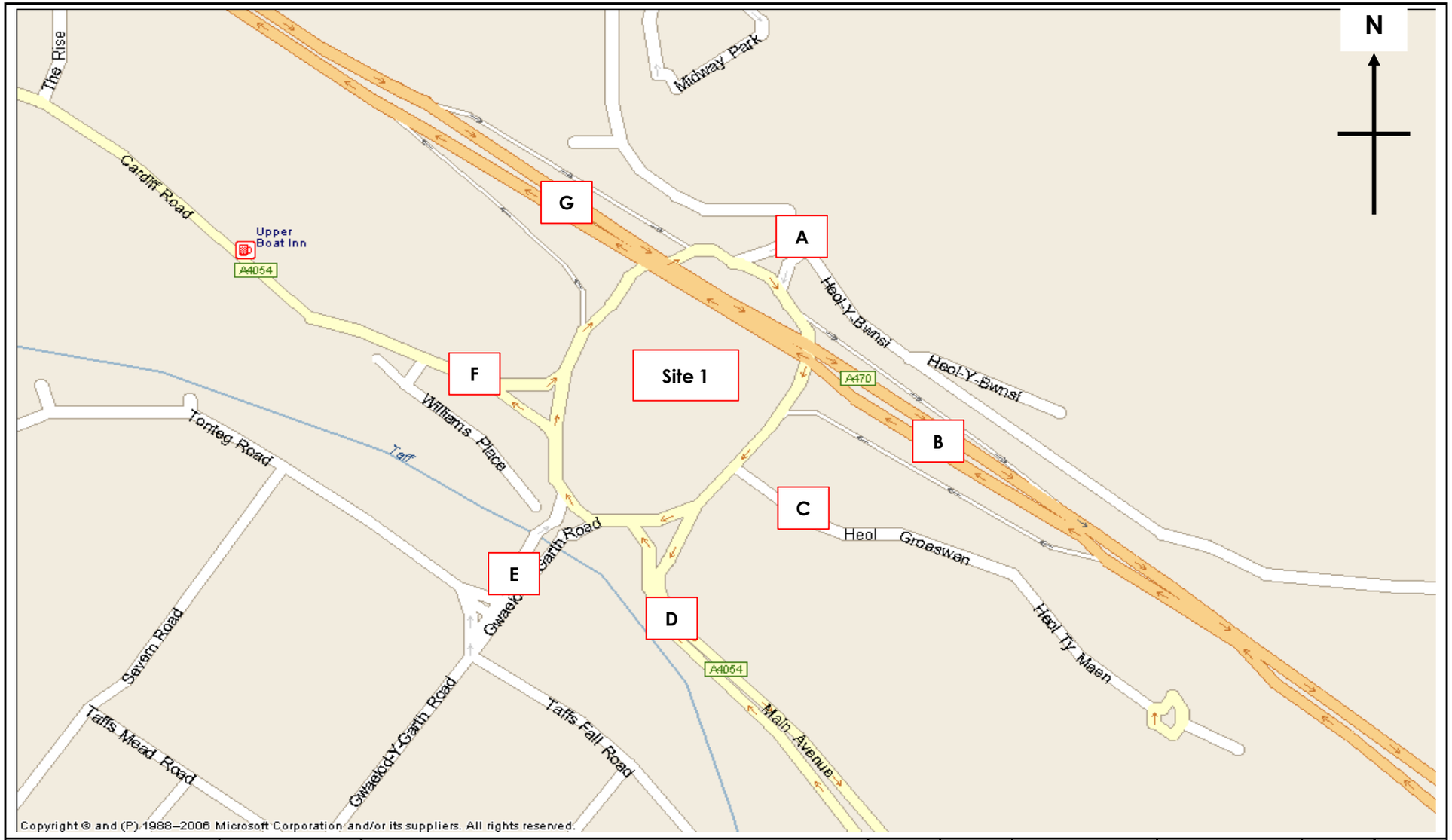
AM 2028 Traffic Flow with Development

Upper Boat



Nantgarw and Coleg Morgannw Roundabouts





NDC NATIONWIDE DATA COLLECTION	**Site / Location:**	Site 1, A470 / A4054 roundabout	**Project No:**	1354	**Drawing No:**	1354-01	**Drawn By:** NT
	Survey Date:	Tuesday 7th June 2011	**Project Name:**	Upper Boat			
	Survey Times:	07:30 to 09:30 and 16:30 to 18:30	**Drawing Title:**	Site Layout and Observed Movements			

2011 Upper Boat

AM

	a	b	c	d	e	f	g	TOTAL
a	1	93	12	58	66	27	24	281
b	93	0	6	64	332	151	2	648
c	1	0	0	11	7	5	2	26
d	23	4	0	2	170	107	84	390
e	48	562	0	161	0	180	394	1345
f	84	96	0	134	126	0	70	510
g	220	2	0	434	447	47	0	1150
TOTAL	470	757	18	864	1148	517	576	4350

Upper Boat

PM

	a	b	c	d	e	f	g	TOTAL
a	1	169	6	42	124	52	151	545
b	161	0	5	43	610	125	15	959
c	0	5	1	3	6	2	11	28
d	18	10	0	0	173	152	150	503
e	73	424	0	36	0	196	483	1212
f	93	104	0	100	111	0	98	506
g	218	0	2	138	380	12	0	750
	564	712	14	362	1404	539	908	4503

2015 PM

Level	Area	Local Growth Figure
00PF2	Pontypridd	1.027199652

	a	b	c	d	e	f	g	TOTAL
a	1	174	6	43	127	53	155	560
b	165	0	5	44	627	128	15	985
c	0	5	1	3	6	2	11	29
d	18	10	0	0	178	156	154	517
e	75	436	0	37	0	201	496	1245
f	96	107	0	103	114	0	101	520
g	224	0	2	142	390	12	0	770
	579	731	14	372	1442	554	933	4625

2018 PM

Level	Area	Local Growth Figure
00PF2	Pontypridd	1.072489425

	a	b	c	d	e	f	g	TOTAL
a	1	181	6	45	133	56	162	585
b	173	0	5	46	654	134	16	1029
c	0	5	1	3	6	2	12	30
d	19	11	0	0	186	163	161	539
e	78	455	0	39	0	210	518	1300
f	100	112	0	107	119	0	105	543
g	234	0	2	148	408	13	0	804
	605	764	15	388	1506	578	974	4829

2028 PM

Level	Area	Local Growth Figure
00PF2	Pontypridd	1.218807

	a	b	c	d	e	f	g	TOTAL
a	1	206	7	51	151	63	184	664
b	196	0	6	52	743	152	18	1169
c	0	6	1	4	7	2	13	34
d	22	12	0	0	211	185	183	613
e	89	517	0	44	0	239	589	1477
f	113	127	0	122	135	0	119	617
g	266	0	2	168	463	15	0	914
	687	868	17	441	1711	657	1107	5488

Development trips

	a	b	c	d	e	f	g
a	0	0	0	2	0	0	0
b	0	0	1	9	0	0	0
c	1	5	0	0	2	2	2
d	21	0	0	0	64	72	63
e	0	0	0	5	0	0	0
f	0	0	0	2	0	0	0
g	0	0	0	5	0	0	0

2018 + Development

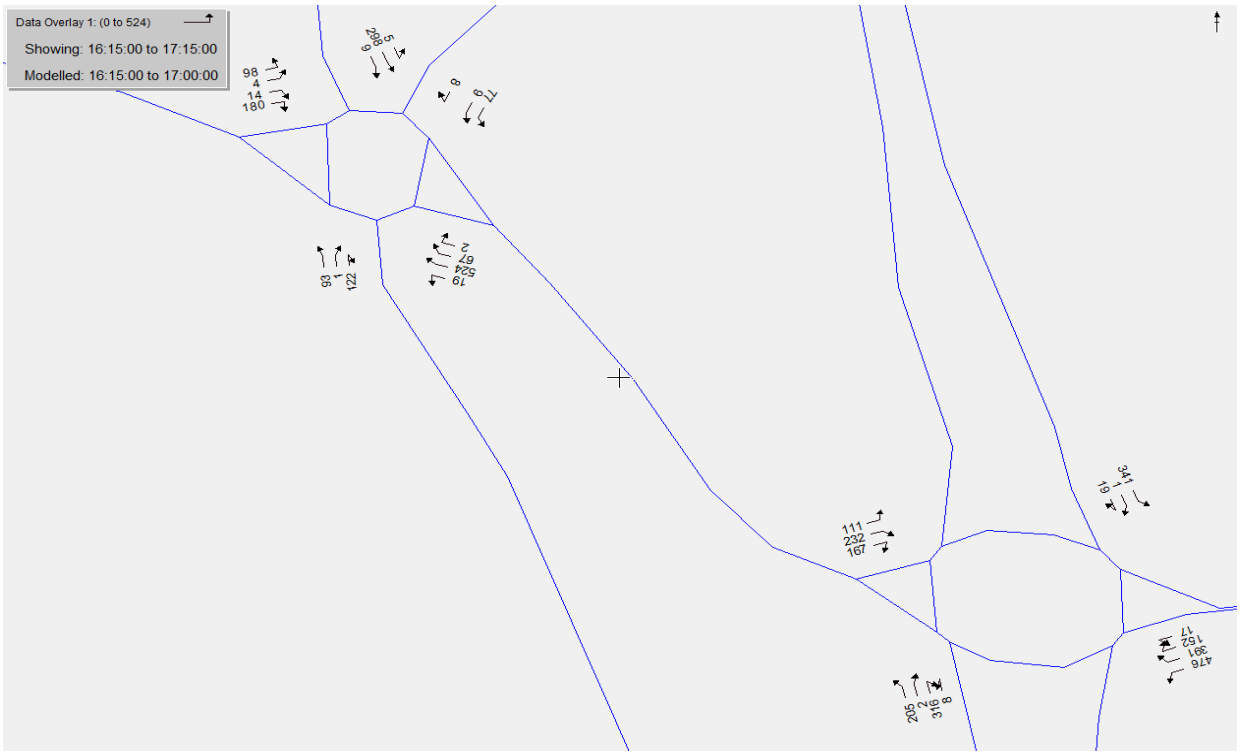
	a	b	c	d	e	f	g
a	1	181	6	47	133	56	162
b	173	0	6	55	654	134	16
c	1	11	1	3	8	4	14
d	40	11	0	0	250	235	223
e	78	455	0	43	0	210	518
f	100	112	0	110	119	0	105
g	234	0	2	153	408	13	0

2028 + Development

	a	b	c	d	e	f	g
a	1	206	7	53	151	63	184
b	196	0	7	61	743	152	18
c	1	12	1	4	9	5	15
d	43	12	0	0	275	258	245
e	89	517	0	49	0	239	589
f	113	127	0	124	135	0	119
g	266	0	2	174	463	15	0

PM 2018 Traffic Flow No Development

Nantgarw and Coleg Morgannw Roundabouts

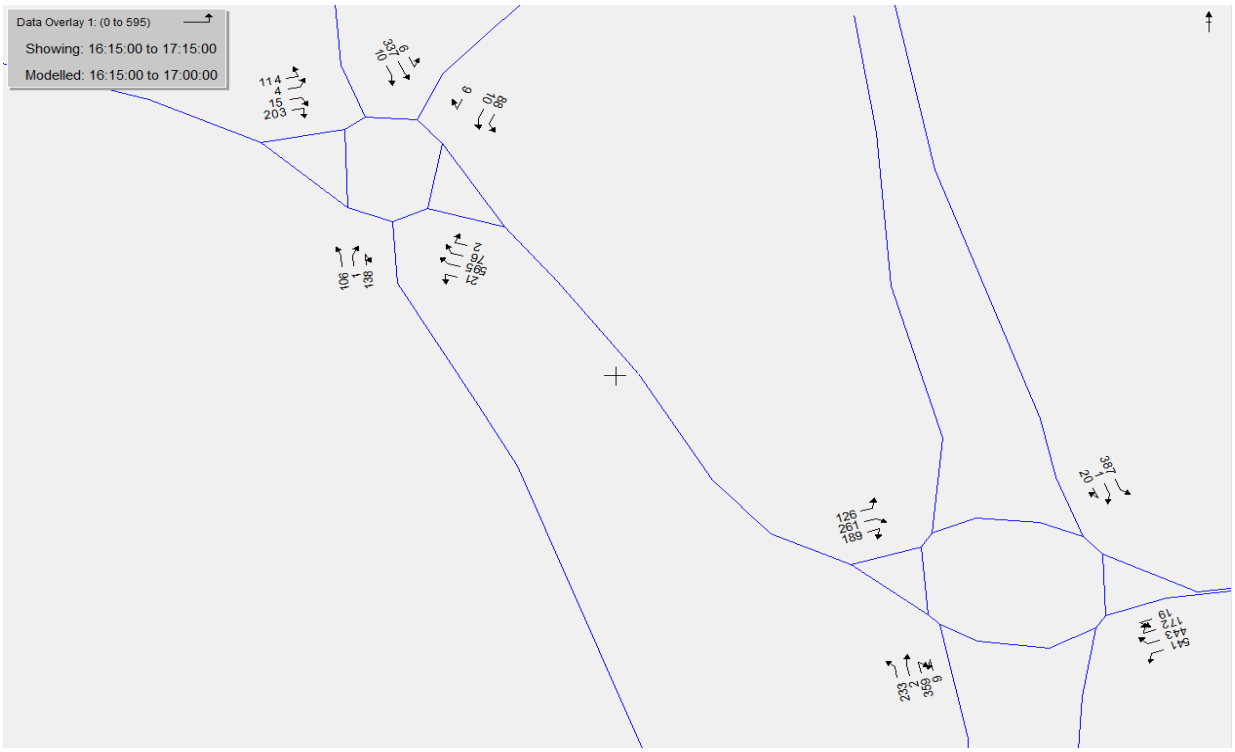


PM 2018 Traffic Flow with Development

Nantgarw and Coleg Morgannw Roundabouts

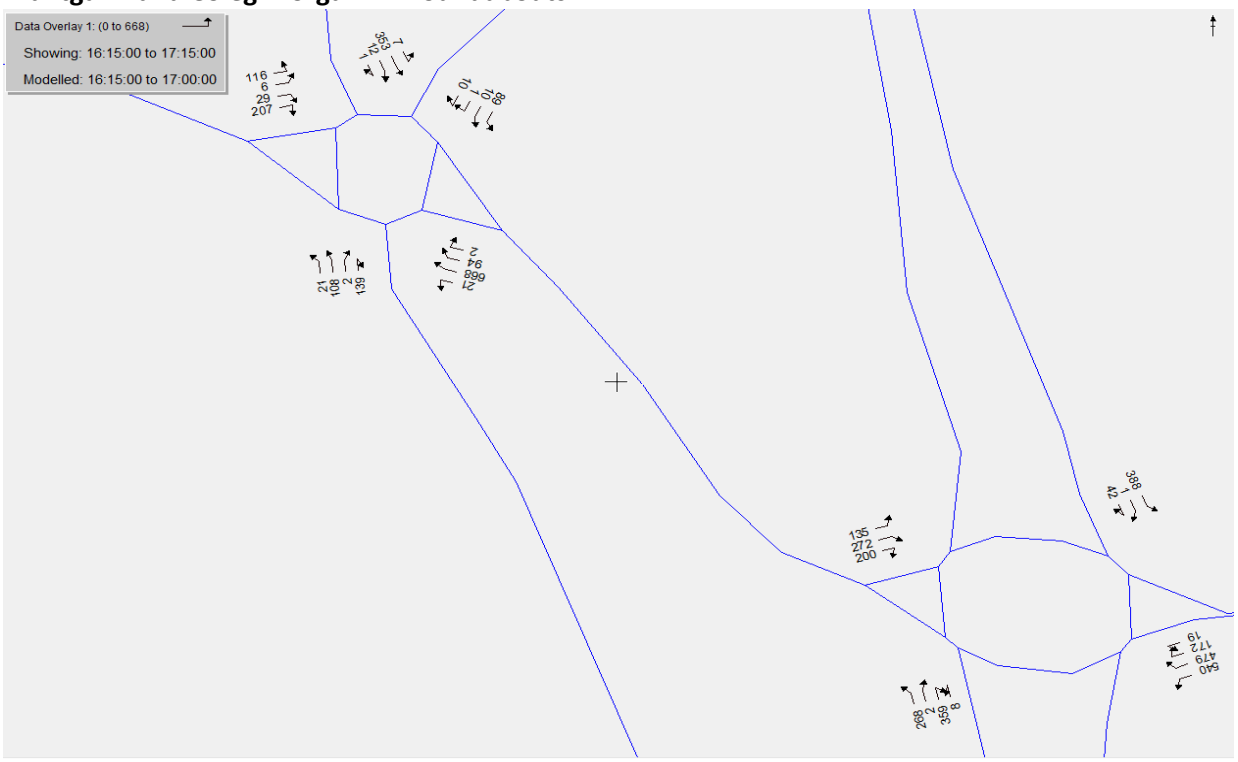
PM 2028 Traffic Flow No Development

Nantgarw and Coleg Morgannw Roundabouts



PM 2028 Traffic Flow with Development

Nantgarw and Coleg Morgannw Roundabouts



Appendix D
A470 Upper Boat Proposed improvements Plan

Retained embankment
(Soil nailing option shown)

Extended 3.65m wide
left-turn traffic lane

Twin pole electricity pylon

Overhead electricity cables

Cattle grid removed

Reinforced concrete retaining
wall at electricity pylon

Lane markings added to
circulatory carriageway

A470 Southbound Offslip
New traffic signal
controlled junction and
pedestrian crossing

Circulatory carriageway
widening for additional
traffic lane

Lane markings added to
circulatory carriageway

A470 Northbound Offslip
New traffic signal
controlled junction and
pedestrian crossing

Additional 3.65m
wide traffic lanes

Relocated highway
apparatus behind
safety barrier

Reconstructed
forecourt

Cattle grid removed

Retaining wall

A4054 Main Avenue
Existing traffic signal
controlled junction

A 470

HEOL-Y-BWNSY

HEOL GROESWEN

CARDIFF ROAD

Upper Boat Industrial Estate

Upper Boat Industrial Park

Upper Boat Inn (PH)

Williams Place

Treforest Industrial Estate

Quality Cars

Gelli Ddu Bungalow

Gelli Ddu House

Gelli-ddu

Bridge House

El Sub Sta

Cattle Grid

Drain

Spring

BM 45.51m

42.5m

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© Hawlfraint y Goron a hawliau cronfa ddata 2010 Arolwg Ordnans 100023458

KEY:

- Carriageway resurfacing (Details on separate drawing)
- Carriageway extension
- Footway reconstruction
- Highway verges / grassed areas
- Highway embankments
- Embankment retention (Soil nailing option shown)
- Reinforced concrete retaining wall
- Kerbing renewal
- New tactile paving at pedestrian crossings

Highway Features

- New traffic signal
- New traffic sign
- New lamp column
- New gully
- New safety barrier

Rev	Amendment Details	Date	Made	Chk'd
A	Minor corrections to pedestrian crossing location at A470 southbound offslip.	16/12/14	NJM	NJM

COMMERCIAL IN CONFIDENCE

Client :
RHONDDA CYNON TAF
COUNTY BOROUGH COUNCIL

Project :
UPPER BOAT
METRO

Purpose :
PRELIMINARY

Title :
GENERAL ARRANGEMENT
(Including Resurfacing Works
excluding River Taff Bridge Works)

Scale	Drawn	Checked	Approved
1 : 500 Original drawing A1	J Stacey	N Morris	W Palmer

Job No. GC/001976 — Date 10/12/2014

Drg No. G/0/15 — Rev. A

Consultant :
CAPITA
Property and infrastructure

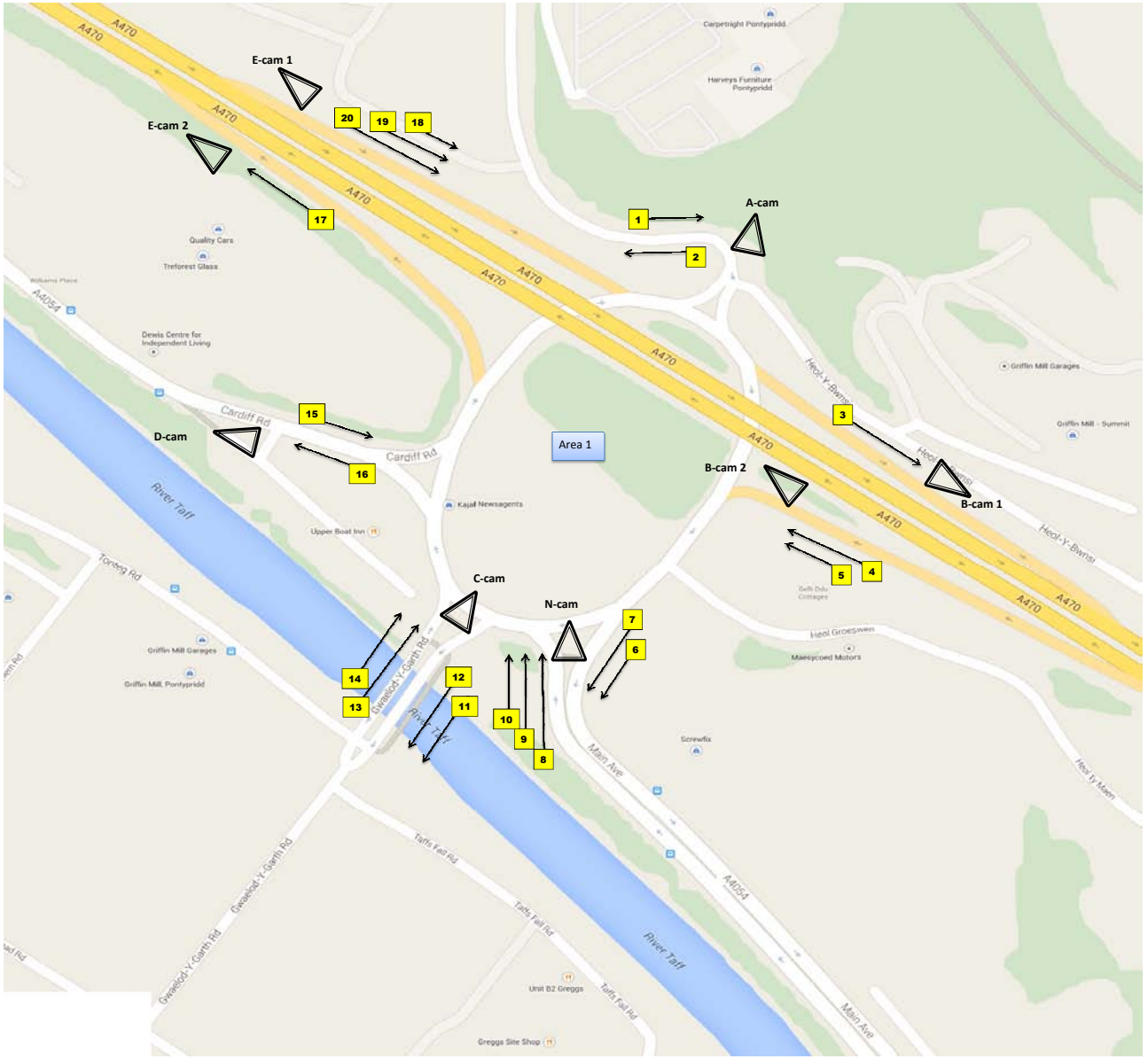
St Davids House, Pascal Close, St Mellons, Cardiff, CF3 0LW
T 02920 803500 www.capita.co.uk/infrastructure

Appendix E
ARCADY Output - A470 Nantgarw Roundabout

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest - Queue Length Survey

Date: Thursday 12th February 2015
Hours: 07:00-09:00 & 16:00-18:00



Queue Length Surveys

Site: Treforest Estate Project - Site 1
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Queue Length Surveys

Site: Treforest Estate Project - Site 1
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Lane	1a		1b		4		5		8		9		10		13		14		15a		15b		18		19		20	
	Camera A		Camera A		Camera B		Camera B		Camera N		Camera N		Camera N		Camera C		Camera C		Camera D		Camera D		Camera E		Camera E		Camera E	
Time	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres
07:00	0	0	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0
07:02	2	10	1	5	0	0	0	0	0	0	0	0	1	5	0	0	0	0	5	25	5	25	0	0	0	0	0	0
07:03	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0
07:04	1	5	2	10	0	0	0	0	0	0	1	5	1	5	0	0	0	0	0	0	0	0	0	0	5	25	0	0
07:05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15
07:06	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	0	0	0
07:07	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	0	0	0	0	0	0
07:08	0	0	0	0	1	5	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	1	5	2	10
07:09	1	5	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	25	2	10
07:10	3	15	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10
07:11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	5	25
07:12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	0	0	0	0	3	15
07:13	0	0	0	0	0	0	0	0	1	5	1	5	0	0	0	0	0	0	0	0	0	0	0	0	1	5	2	10
07:14	1	5	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	2	10
07:15	1	5	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	5
07:16	0	0	0	0	0	0	1	5	0	0	0	0	1	5	0	0	0	0	0	0	3	15	0	0	3	15	4	20
07:17	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	2	10
07:18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	0	0	0	0
07:19	2	10	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	3	15	0	0	5	25	3	15
07:21	1	5	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	2	10	2	10	0	0	5	25	2	10
07:22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	1	5	5	25	0	0
07:23	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	1	5
07:24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	0	0	0
07:25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	0	0	2	10	3	15
07:26	0	0	0	0	0	0	5	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0
07:27	1	5	0	0	2	10	0	0	0	0	0	0	0	0	0	0	0	0	3	15	4	20	0	0	4	20	3	15
07:28	1	5	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	1	5
07:29	1	5	0	0	0	0	0	0	0	0	0	0	3	15	0	0	0	0	0	0	2	10	0	0	4	20	1	5
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	2	10
07:31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	0	0
07:32	0	0	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0
07:33	4	20	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:34	4	20	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	4	20
07:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	1	5
07:36	3	15	3	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	6	30	4	20
07:37	0	0	0	0	0	0	0	0	0	0	1	5	2	10	0	0	0	0	0	0	5	25	0	0	7	35	10	50
07:38	4	20	2	10	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	10	50	6	30
07:39	3	15	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	10	50	8	40
07:40	3	15	0	0	4	20	7	35	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	10	50	10	50
07:41	0	0	0	0	8	40	7	35	0	0	0	0	3	15	0	0	0	0	0	0	0	0	0	0	10	50	8	40
07:42	2	10	0	0	6	30	9	45	1	5	0	0	1	5	0	0	0	0	4	20	5	25	0	0	10	50	10	50
07:43	2	10	0	0	6	30	8	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	40	8	40
07:44	0	0	0	0	5	25	11	55	0	0	0	0	0	0	0	0	0	0	2	10	4	20	0	0	9	45	9	45
07:45	0	0	2	10	6	30	9	45	0	0	1	5	1	5	0	0	0	0	0	0	4	20	0	0	10	50	8	40
07:46	0	0	2	10	9	45	9	45	0	0	1	5	0	0	0	0	0	0	0	0	5	25	0	0	6	30	6	30
07:47	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	0	0	10	50	10	50
07:48	0	0	0	0	9	45	9	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	40	8	40
07:49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	10	50	10	50
07:50	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	50	10	50
07:51	1	5	0	0	0	0	0	0	1	5	0	0	2	10	0	0	0	0	0	0	5	25	0	0	10	50	10	50
07:52	0	0	0	0	3	15	5	25	1	5	0	0	0	0	0	0	0	0	4	20	6	30	0	0	10	50	10	50
07:53	4	20	2	10	0	0	3	15	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	10	50	10	50
07:54	0	0	0	0	1	5	2	10	1	5	1	5	2	10	0	0	0	0	3	15	4	20	0	0	10	50	10	50
07:55	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	45	9	45
07:56	0	0	1	5	3	15	6	30	0	0	0	0	6	30	0	0	0	0	3	15	3	15	0	0	10	50	10	50
07:57	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	10	50	10	50
07:58	0	0	1	5	8	40	10	50	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	10	50	10	50
07:59	1	5	0	0	4	20	9	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	50	10	50

Queue Length Surveys

Site: Treforest Estate Project - Site 1
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Queue Length Surveys

Site: Treforest Estate Project - Site 1
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Lane	1a		1b		4		5		8		9		10		13		14		15a		15b		18		19		20	
	Camera A		Camera A		Camera B		Camera B		Camera N		Camera N		Camera N		Camera C		Camera C		Camera D		Camera D		Camera E		Camera E		Camera E	
Time	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres
08:00	2	10	3	15	3	15	10	50	0	0	0	0	0	0	0	0	0	0	2	10	4	20	0	0	10	50	10	50
08:01	3	15	3	15	1	5	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	50	10	50
08:02	0	0	0	0	2	10	0	0	0	0	0	0	2	10	0	0	0	0	2	10	4	20	0	0	10	50	10	50
08:03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	35	10	50
08:04	1	5	0	0	0	0	0	0	1	5	0	0	1	5	0	0	0	0	0	0	2	10	0	0	10	50	10	50
08:05	1	5	0	0	0	0	0	0	0	0	3	15	2	10	0	0	0	0	0	0	0	0	0	0	10	50	10	50
08:06	1	5	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	1	5	0	0	10	50	10	50
08:07	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	0	0	0	0	3	15	0	0	12	60	12	60
08:08	1	5	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:09	0	0	2	10	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	3	15	12	60	12	60
08:10	0	0	0	0	0	0	0	0	1	5	2	10	3	15	0	0	0	0	0	0	2	10	0	0	12	60	12	60
08:11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:12	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:13	0	0	0	0	2	10	6	30	0	0	3	15	1	5	0	0	0	0	0	0	2	10	0	0	12	60	12	60
08:14	2	10	2	10	8	40	10	50	0	0	0	0	0	0	0	0	0	0	0	0	6	30	0	0	7	35	6	30
08:15	2	10	0	0	2	10	8	40	0	0	1	5	0	0	0	0	0	0	0	0	3	15	0	0	10	50	6	30
08:16	2	10	2	10	4	20	11	55	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	35	6	30
08:17	2	10	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	7	35	3	15
08:18	2	10	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	0	0	7	35	4	20
08:19	0	0	0	0	1	5	0	0	0	0	0	0	3	15	0	0	0	0	0	0	0	0	0	0	12	60	3	15
08:20	0	0	1	5	0	0	1	5	0	0	0	0	0	0	0	0	0	0	2	10	3	15	0	0	10	50	4	20
08:21	2	10	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	3	15	0	0	12	60	12	60
08:22	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	10	50
08:23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	0	0	0	0	12	60	12	60
08:24	3	15	3	15	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:25	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	25	0	0	12	60	12	60
08:26	4	20	2	10	1	5	0	0	1	5	0	0	1	5	0	0	0	0	0	0	0	0	0	0	10	50	12	60
08:27	0	0	2	10	0	0	6	30	0	0	0	0	0	0	0	0	0	0	6	30	0	0	0	0	12	60	12	60
08:28	3	15	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	30	0	0	0	0	12	60	12	60
08:29	2	10	2	10	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	7	35	7	35
08:30	2	10	2	10	0	0	4	20	3	15	3	15	5	25	0	0	0	0	5	25	4	20	0	0	12	60	12	60
08:31	2	10	2	10	0	0	0	0	0	0	0	0	0	0	7	35	0	0	0	0	0	0	0	0	10	50	8	40
08:32	0	0	0	0	0	0	7	35	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:33	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	35	12	60
08:34	1	5	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	5	25	1	5	8	40	12	60
08:35	1	5	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	4	20	4	20	0	0	12	60	12	60
08:36	3	15	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	25	5	25	0	0	8	40	12	60
08:37	3	15	0	0	11	55	11	55	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	12	60	12	60
08:38	3	15	0	0	0	0	0	0	2	10	0	0	2	10	0	0	0	0	0	0	3	15	2	10	12	60	12	60
08:39	2	10	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:40	3	15	2	10	5	25	11	55	1	5	2	10	3	15	12	60	0	0	0	0	6	30	0	0	12	60	12	60
08:41	1	5	0	0	0	0	0	0	1	5	1	5	0	0	0	0	0	0	3	15	4	20	0	0	8	40	12	60
08:42	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	0	0	10	50	12	60
08:43	2	10	0	0	7	35	0	0	0	0	1	5	0	0	0	0	0	0	0	0	2	10	0	0	8	40	12	60
08:44	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	0	0	12	60	12	60
08:45	3	15	0	0	0	0	0	0	0	0	3	15	5	25	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	4	20	0	0	12	60	12	60
08:47	1	5	0	0	0	0	2	10	0	0	0	0	3	15	0	0	0	0	0	0	2	10	0	0	12	60	12	60
08:48	0	0	0	0	0	0	0	0	2	10	2	10	2	10	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:49	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	4	20	0	0	12	60	12	60
08:50	0	0	1	5	3	15	4	20	0	0	1	5	4	20	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:51	0	0	1	5	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	12	60	8	40
08:52	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	0	0	8	40	7	35
08:53	1	5	0	0	0	0	0	0	1	5	1	5	0	0	0	0	0	0	0	0	2	10	0	0	12	60	12	60
08:54	2	10	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:55	0	0	0	0	0	0	0	0	0	0	2	10	0	0	0	0	0	0	0	0	2	10	3	15	7	35	8	40
08:56	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:57	4	20	1	5	0	0	0	0	0	0	1	5	1	5	0	0	0	0	0	0	0	0	0	0	7	35	12	60
08:58	0	0	0	0	2	10	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	12	60
08:59	5	25	3	15	3	15	6	30	0	0	0	0	1	5	0	0	0	0	0	0	0	0	1	5	12	60	12	60

Queue Length Surveys

Site:	Treforest Estate Project - Site 1
Location:	Cardiff
Date:	Thursday 12th February 2015
Time:	0700 - 0900
Weather:	Dry AM and PM

Queue Length Surveys

Site:	Treforest Estate Project - Site 1
Location:	Cardiff
Date:	Thursday 12th February 2015
Time:	0700 - 0900
Weather:	Dry AM and PM

Lane	1a		1b		4		5		8		9		10		13		14		15a		15b		18		19		20	
	Camera A		Camera A		Camera B		Camera B		Camera N		Camera N		Camera N		Camera C		Camera C		Camera D		Camera D		Camera E		Camera E		Camera E	
Time	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres
16:00	2	10	4	20	0	0	6	30	1	5	3	15	2	10	0	0	11	55	0	0	0	0	4	20	2	10	1	5
16:01	2	10	1	5	5	25	10	50	1	5	0	0	2	10	0	0	0	0	3	15	5	25	3	15	0	0	0	0
16:02	0	0	0	0	0	0	0	0	2	10	2	10	1	5	0	0	0	0	0	0	3	15	0	0	0	0	1	5
16:03	2	10	5	25	0	0	0	0	3	15	0	0	0	0	0	0	12	60	0	0	3	15	0	0	2	10	1	5
16:04	0	0	0	0	11	55	4	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	2	10
16:05	1	5	4	20	11	55	11	55	0	0	0	0	0	0	0	0	0	0	2	10	1	5	0	0	2	10	5	25
16:06	0	0	0	0	11	55	11	55	0	0	0	0	0	0	0	0	0	0	2	10	3	15	0	0	0	0	2	10
16:07	0	0	0	0	0	0	0	0	5	25	2	10	5	25	0	0	0	0	0	0	3	15	2	10	2	10	4	20
16:08	0	0	2	10	10	50	11	55	2	10	3	15	7	35	0	0	0	0	2	10	3	15	0	0	1	5	2	10
16:09	0	0	1	5	11	55	10	50	6	30	3	15	4	20	11	55	2	10	0	0	0	0	0	0	0	0	1	5
16:10	5	25	2	10	10	50	10	50	4	20	4	20	4	20	0	0	0	0	2	10	3	15	0	0	1	5	0	0
16:11	0	0	0	0	10	50	8	40	3	15	3	15	1	5	12	60	5	25	0	0	3	15	3	15	1	5	2	10
16:12	2	10	3	15	11	55	11	55	4	20	5	25	4	20	8	40	5	25	0	0	3	15	1	5	3	15	3	15
16:13	0	0	0	0	11	55	11	55	1	5	1	5	13	65	9	45	5	25	0	0	4	20	0	0	1	5	2	10
16:14	0	0	5	25	11	55	11	55	3	15	1	5	8	40	0	0	0	0	4	20	3	15	0	0	0	0	2	10
16:15	1	5	4	20	11	55	11	55	2	10	6	30	8	40	12	60	10	50	0	0	3	15	0	0	0	0	0	0
16:16	0	0	2	10	11	55	11	55	0	0	0	0	0	0	11	55	5	25	0	0	0	0	1	5	2	10	7	35
16:17	2	10	3	15	11	55	10	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	4	20	7	35
16:18	3	15	2	10	11	55	11	55	0	0	0	0	0	0	0	0	0	0	0	0	4	20	4	20	0	0	0	0
16:19	1	5	0	0	11	55	11	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10
16:20	4	20	3	15	11	55	11	55	1	5	15	75	15	75	4	20	7	35	0	0	0	0	0	0	4	20	0	0
16:21	0	0	0	0	0	0	0	0	2	10	11	55	11	55	2	10	12	60	0	0	1	5	0	0	1	5	2	10
16:22	0	0	2	10	0	0	0	0	2	10	11	55	11	55	0	0	0	0	0	0	1	5	2	10	4	20		
16:23	2	10	0	0	11	55	11	55	4	20	8	40	8	40	9	45	7	35	0	0	0	0	0	0	0	0	1	5
16:24	0	0	0	0	0	0	0	0	1	5	3	15	6	30	5	25	7	35	0	0	3	15	0	0	0	0	0	0
16:25	0	0	0	0	11	55	11	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10
16:26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:27	0	0	0	0	0	0	0	0	5	25	12	60	12	60	12	60	0	0	0	0	1	5	1	5	3	15	2	10
16:28	0	0	2	10	0	0	0	0	11	55	12	60	14	70	10	50	0	0	0	0	3	15	0	0	0	0	4	20
16:29	0	0	0	0	11	55	2	10	8	40	10	50	10	50	0	0	0	0	0	0	0	0	0	0	0	0	5	25
16:30	1	5	1	5	0	0	0	0	11	55	12	60	12	60	9	45	0	0	0	0	0	0	0	0	0	0	4	20
16:31	0	0	0	0	0	0	0	0	10	50	12	60	14	70	11	55	8	40	0	0	0	0	1	5	1	5	4	20
16:32	0	0	1	5	0	0	0	0	13	65	13	65	14	70	7	35	0	0	0	0	0	0	2	10	1	5	3	15
16:33	0	0	2	10	0	0	0	0	15	75	15	75	15	75	10	50	5	25	0	0	2	10	0	0	3	15	0	0
16:34	0	0	5	25	0	0	0	0	7	35	11	55	12	60	0	0	0	0	0	0	0	0	0	0	2	10	0	0
16:35	0	0	0	0	0	0	0	0	2	10	7	35	8	40	5	25	0	0	0	0	0	0	0	0	0	0	0	0
16:36	0	0	0	0	2	10	3	15	7	35	11	55	13	65	0	0	0	0	0	0	0	0	1	5	2	10	4	20
16:37	2	10	0	0	6	30	6	30	4	20	4	20	8	40	0	0	12	60	0	0	1	5	2	10	1	5	4	20
16:38	1	5	1	5	11	55	11	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10
16:39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	60	0	0	0	0	0	0	0	0	1	5
16:40	0	0	0	0	0	0	0	0	4	20	14	70	15	75	0	0	12	60	0	0	0	0	0	0	1	5	0	0
16:41	1	5	0	0	0	0	0	0	16	80	16	80	16	80	0	0	12	60	3	15	6	30	0	0	1	5	0	0
16:42	1	5	0	0	0	0	0	0	3	15	6	30	10	50	4	20	12	60	0	0	0	0	0	0	0	0	2	10
16:43	0	0	0	0	0	0	4	20	7	35	12	60	13	65	10	50	12	60	2	10	2	10	0	0	4	20	1	5
16:44	0	0	0	0	5	25	0	0	10	50	13	65	14	70	0	0	0	0	0	0	3	15	0	0	0	0	0	0
16:45	0	0	1	5	0	0	0	0	0	0	0	0	0	0	7	35	0	0	0	0	5	25	0	0	4	20	3	15
16:46	3	15	3	15	0	0	0	0	0	0	0	0	0	0	7	35	0	0	0	0	4	20	2	10	4	20	4	20
16:47	2	10	2	10	8	40	0	0	12	60	12	60	12	60	0	0	0	0	0	0	0	0	1	5	4	20	4	20
16:48	3	15	3	15	0	0	0	0	13	65	13	65	13	65	8	40	0	0	0	0	0	0	1	5	3	15	5	25
16:49	0	0	0	0	5	25	2	10	7	35	10	50	11	55	0	0	0	0	0	0	4	20	0	0	1	5	1	5
16:50	0	0	1	5	0	0	0	0	7	35	7	35	8	40	12	60	6	30	2	10	3	15	0	0	0	0	1	5
16:51	1	5	0	0	0	0	0	0	5	25	10	50	11	55	0	0	0	0	0	0	0	0	0	0	0	0	3	15
16:52	0	0	1	5	0	0	0	0	7	35	4	20	6	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:53	1	5	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	15	0	0	0	0	1	5
16:54	0	0	4	20	0	0	3	15	4	20	4	20	3	15	12	60	3	15	0	0	0	0	0	0	3	15	1	5
16:55	3	15	5	25	3	15	4	20	4	20	11	55	11	55	0	0	0	0	0	0	0	0	0	0	1	5	0	0
16:56	0	0	0	0	1	5	0	0	13	65	14	70	14	70	0	0	0	0	0	0	0	0	0	0	0	0	3	15
16:57	2	10	3	15	4	20	1	5	6	30	12	60	12	60	0	0	0	0	0	0	0	0	0	0	2	10	1	5
16:58	0	0	0	0	2	10	0	0	11	55	12	60	12	60	8	40	10	50	0	0	0	0	0	0	1	5	0	0
16:59	1	5	1	5	0	0	0	0	0	0	0	0	0	0	6	30	8	40	0	0	0	0	0	0	0	0	0	0
17:00	0	0	1	5	0	0	0	0	0	0	0	0	0	0	4	20	8	40	0	0	0	0	1	5	3	15	4	20
17:01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	50	3	15	2	10	2	10	0	0	0	0	0	0
17:02	0	0	0	0	0	0	4	20	0	0	0	0	0	0	6	30	0	0	2	10	3	15	0	0	1	5	3	15
17:03	6	30	2	10	0	0	0	0	0	0	0	0	0	0	9	45	0	0	0	0	2	10	0	0	1	5	4	20
17:04	0	0	0	0	0	0	0	0	0	0	4	20	3	15	10	50	12	60	0	0	2	10	0	0	3	15	4	20
17:05	1	5	1	5	0	0	0	0	6	30	8	40	10	50	8	40	0	0	0	0	1	5	1	5	0	0	6	30
17:06	2	10	0	0	0	0	0	0	8	40	7	35	10	50	10	50	4	20	2	10	2	10	0	0	0	0	4	20
17:07	1	5	2	10	0	0	0	0	14	70	14	70	15	75	0	0	0	0	2	10	3	15	0	0	0	0	0	0
17:08	0	0	0	0	5	25	1	5	11	55	11	55	13	65	0	0	0	0	0	0	0	0	1	5	2	10	6	30
17:09	0	0	2	10	2	10	0	0	16	80	15	75	14	70	0	0	0	0	5	25	7	35	0	0	0	0	0	0
17:10	0	0	0	0	5	25	1	5	6	30	7	35	6	30	0	0	0	0	3	15	4	20	0	0	0	0	3	15
17:11	0	0	0	0	2	10	0	0	1	5	7	35	8	40	10	50	5	25	3	15	5	25	0	0	1	5	1	5
17:12	1	5	1	5	5	25	0	0	0	0	0	0	0	0	7	35	5	25	4	20	6	30	0	0	3	15	2	10
17:13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	50	5	25	2	10	4	20	0	0	0	0	0	0
17:14	2	10	0	0	0	0	0	0	1	5	1	5	4	20	10	50	12	60	3	15	5	25	1	5	1	5	4	20

Queue Length Surveys

Site: Treforest Estate Project - Site 1
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Queue Length Surveys

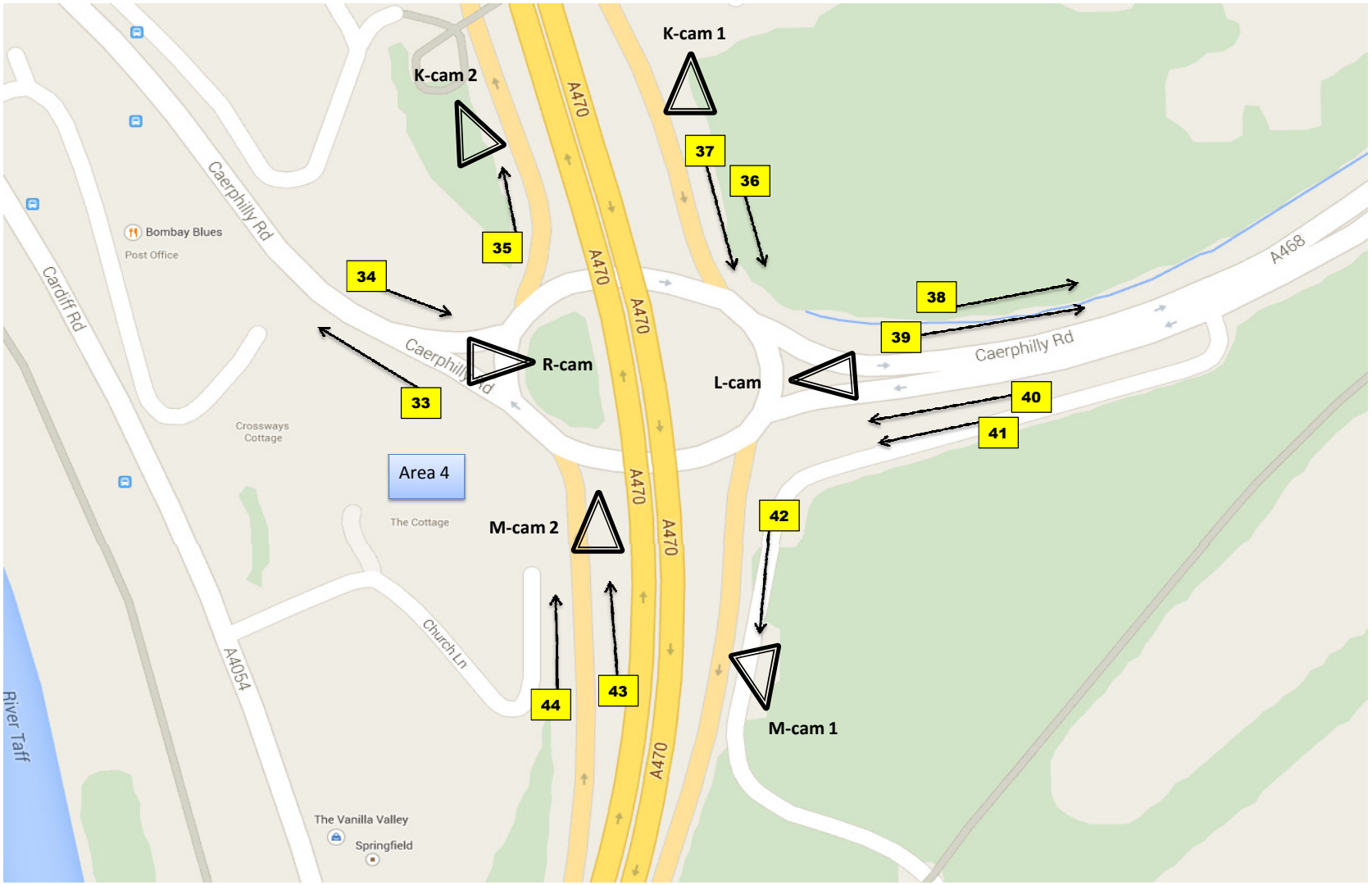
Site: Treforest Estate Project - Site 1
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Lane	1a		1b		4		5		8		9		10		13		14		15a		15b		18		19		20	
	Camera A		Camera A		Camera B		Camera B		Camera N		Camera N		Camera N		Camera C		Camera C		Camera D		Camera D		Camera E		Camera E		Camera E	
Time	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres
17:15	0	0	0	0	2	10	0	0	0	0	0	0	0	0	10	50	5	25	0	0	5	25	0	0	0	0	0	0
17:16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	5	25	1	5	3	15	2	10
17:17	2	10	4	20	3	15	0	0	16	80	15	75	15	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:18	1	5	0	0	0	0	0	0	16	80	14	70	13	65	0	0	0	0	0	0	0	0	0	0	1	5	4	20
17:19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	5	2	10
17:20	1	5	0	0	3	15	0	0	7	35	11	55	4	20	4	20	8	40	2	10	1	5	0	0	2	10	4	20
17:21	2	10	2	10	4	20	0	0	13	65	10	50	10	50	3	15	12	60	2	10	1	5	0	0	4	20	3	15
17:22	1	5	0	0	0	0	0	0	8	40	11	55	11	55	0	0	0	0	0	0	0	0	2	10	3	15	2	10
17:23	0	0	0	0	0	0	0	0	4	20	6	30	10	50	10	50	3	15	0	0	0	0	1	5	0	0	1	5
17:24	0	0	0	0	0	0	0	0	13	65	11	55	10	50	6	30	8	40	0	0	0	0	0	0	0	0	3	15
17:25	0	0	1	5	0	0	0	0	16	80	12	60	11	55	0	0	0	0	0	0	0	0	0	0	2	10	2	10
17:26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5
17:27	0	0	0	0	0	0	0	0	6	30	2	10	5	25	10	50	12	60	0	0	3	15	0	0	0	0	1	5
17:28	0	0	2	10	1	5	0	0	15	75	12	60	12	60	0	0	0	0	0	0	0	0	1	5	2	10	2	10
17:29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	2	10	1	5	2	10	4	20
17:30	0	0	0	0	0	0	1	5	1	5	1	5	4	20	8	40	4	20	0	0	3	15	0	0	0	0	0	0
17:31	2	10	1	5	0	0	0	0	0	0	0	0	0	0	9	45	2	10	0	0	0	0	1	5	1	5	3	15
17:32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	45	8	40	1	5	1	5	0	0	0	0	0	0
17:34	1	5	0	0	0	0	0	0	0	0	0	0	0	0	9	45	5	25	0	0	0	0	1	5	1	5	4	20
17:35	0	0	1	5	0	0	0	0	3	15	3	15	4	20	0	0	0	0	0	0	1	5	0	0	0	0	4	20
17:36	0	0	1	5	8	40	0	0	10	50	10	50	8	40	8	40	5	25	0	0	0	0	2	10	1	5	2	10
17:37	1	5	0	0	0	0	0	0	7	35	7	35	8	40	0	0	0	0	0	0	2	10	2	10	1	5	3	15
17:38	0	0	2	10	0	0	0	0	10	50	11	55	10	50	0	0	0	0	0	0	1	5	0	0	0	0	3	15
17:39	0	0	0	0	0	0	0	0	13	65	12	60	10	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:40	1	5	0	0	0	0	0	0	14	70	12	60	10	50	10	50	10	50	2	10	0	0	0	0	0	0	0	0
17:41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	3	15	0	0	0	0	1	5
17:42	1	5	0	0	0	0	0	0	1	5	1	5	2	10	10	50	10	50	0	0	2	10	0	0	2	10	0	0
17:43	0	0	1	5	0	0	0	0	0	0	0	0	0	0	10	50	10	50	0	0	0	0	0	0	2	10	3	15
17:44	1	5	3	15	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	5	1	5	0	0
17:45	0	0	0	0	0	0	0	0	1	5	0	0	2	10	10	50	0	0	0	0	2	10	4	20	2	10	3	15
17:46	2	10	2	10	0	0	0	0	1	5	6	30	13	65	10	50	0	0	0	0	2	10	0	0	1	5	0	0
17:47	0	0	0	0	2	10	0	0	2	10	4	20	13	65	10	50	0	0	0	0	1	5	0	0	2	10	2	10
17:48	1	5	1	5	1	5	0	0	0	0	0	0	0	0	8	40	0	0	0	0	1	5	0	0	0	0	0	0
17:49	2	10	2	10	0	0	0	0	0	0	0	0	0	0	10	50	0	0	0	0	0	0	0	0	1	5	2	10
17:50	1	5	1	5	0	0	0	0	0	0	3	15	1	5	0	0	0	0	3	15	2	10	1	5	0	0	2	10
17:51	2	10	2	10	0	0	0	0	3	15	7	35	1	5	0	0	0	0	0	0	7	35	0	0	2	10	3	15
17:52	3	15	3	15	2	10	0	0	0	0	0	0	0	0	0	0	0	0	3	15	3	15	1	5	1	5	4	20
17:53	0	0	2	10	0	0	0	0	2	10	2	10	1	5	0	0	0	0	0	0	2	10	0	0	0	0	4	20
17:54	2	10	5	25	0	0	0	0	5	25	6	30	0	0	0	0	0	0	0	0	4	20	0	0	2	10	1	5
17:55	0	0	0	0	5	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	3	15
17:56	0	0	5	25	0	0	0	0	0	0	0	0	1	5	7	35	5	25	0	0	0	0	0	0	1	5	1	5
17:57	3	15	3	15	2	10	0	0	1	5	2	10	3	15	10	50	12	60	0	0	0	0	0	0	0	0	0	0
17:58	0	0	0	0	0	0	0	0	1	5	5	25	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:59	2	10	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	10	3	15

Traffic Watch UK Ltd
Phone: 01689 824292

Treforest - Queue Length Survey

Date: Thursday 12th February 2015
Hours: 07:00-09:00 & 16:00-18:00



Queue Length Surveys

Site: Treforest Estate Project K-Cam
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Queue Length Surveys

Site: Treforest Estate Project K-Cam
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Queue's consistently moving slowly

Key
Camera visibility could only record minimum queues

Lane	34a		34b		34c		Caerphilly Road (Ind Est) Tot	Caerphilly Road (Ind Est) Ave	36		37a		37b		A470 Sbound off-slip Tot	A470 Sbound off-slip Ave	40		41		A468 Caerphilly Rd Tot.	A468 Caerphilly Rd Ave.	43		44		A470 Nbound on-slip Tot	A470 Nbound on-slip Ave.
	Camera R		Camera R		Camera R				Camera K1		Camera K1		Camera K1				Camera L		Camera L				M camera 2		M camera 2			
Time	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres			Vehicles	Metres	Vehicles	Metres	Vehicles	Metres			Vehicles	Metres	Vehicles	Metres			Vehicles	Metres	Vehicles	Metres		
08:00	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	7	35	32		30	150+	30	150+	60	
08:01	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	5	25	30		30	150+	30	150+	60	
08:02	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	3	15	28		30	150+	30	150+	60	
08:03	0	0	3	15	0	0	3		0	0	0	0	0	0	0		25	125+	4	20	29		30	150+	30	150+	60	
08:04	0	0	0	0	0	0	0		3	15	0	0	0	0	3		25	125+	5	25	30		30	150+	30	150+	60	
08:05	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	2	10	27		30	150+	30	150+	60	
08:06	0	0	0	0	0	0	0		2	10	2	10	0	0	4		16	80	7	35	23		30	150+	30	150+	60	
08:07	0	0	0	0	0	0	0		2	10	0	0	0	0	2		25	125+	6	30	31		30	150+	30	150+	60	
08:08	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	5	25	30		30	150+	30	150+	60	
08:09	0	0	2	10	0	0	2		0	0	0	0	0	0	0		12	60	5	25	17		30	150+	30	150+	60	
08:10	0	0	0	0	0	0	0		3	15	2	10	0	0	5		25	125+	4	20	29		30	150+	30	150+	60	
08:11	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	3	15	28		30	150+	30	150+	60	
08:12	0	0	0	0	0	0	0		0	0	0	0	1	5	1		9	45	3	15	12		30	150+	30	150+	60	
08:13	0	0	0	0	0	0	0		0	0	0	0	0	0	0		11	55	4	20	15		30	150+	30	150+	60	
08:14	0	0	0	0	0	0	0		0	0	0	0	0	0	0		10	50	6	30	16		30	150+	30	150+	60	
08:15	0	0	0	0	0	0	0		3	15	3	15	1	5	7		12	60	5	25	17		30	150+	30	150+	60	
08:16	0	0	0	0	0	0	0		0	0	0	0	0	0	0		22	110	4	20	26		30	150+	30	150+	60	
08:17	0	0	0	0	0	0	0		1	5	1	5	0	0	2		25	125+	7	35	32		30	150+	30	150+	60	
08:18	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	6	30	31		30	150+	30	150+	60	
08:19	0	0	0	0	0	0	0		1	5	0	0	1	5	2		25	125+	5	25	30		30	150+	30	150+	60	
08:20	0	0	0	0	0	0	0		0	0	1	5	1	5	2		25	125+	7	35	32		30	150+	30	150+	60	
08:21	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	6	30	31		30	150+	30	150+	60	
08:22	0	0	2	10	0	0	2		0	0	0	0	0	0	0		13	65	5	25	18		30	150+	30	150+	60	
08:23	0	0	0	0	0	0	0		1	5	2	10	1	5	4		25	125+	6	30	31		30	150+	30	150+	60	
08:24	0	0	0	0	0	0	0		4	20	4	20	0	0	8		25	125+	7	35	32		30	150+	30	150+	60	
08:25	0	0	0	0	0	0	0		0	0	1	5	0	0	1		25	125+	6	30	31		30	150+	30	150+	60	
08:26	0	0	0	0	0	0	0		1	5	1	5	1	5	3		25	125+	9	45	34		30	150+	30	150+	60	
08:27	0	0	0	0	0	0	0		0	0	0	0	0	0	0		4	20	7	35	11		30	150+	30	150+	60	
08:28	0	0	0	0	0	0	0		0	0	0	0	1	5	1		8	40	5	25	13		30	150+	30	150+	60	
08:29	0	0	0	0	0	0	0		0	0	0	0	4	20	4		5	25	2	10	7		30	150+	30	150+	60	
08:30	2	10	0	0	0	0	2	0.3	1	5	0	0	0	0	1	1.5	16	80	17	85	33	27.2	30	150+	30	150+	60	58.0
08:31	0	0	0	0	0	0	0		0	0	0	0	1	5	1		20	100	4	20	24		30	150+	30	150+	60	
08:32	0	0	0	0	0	0	0		0	0	0	0	0	0	0		14	70	16	80	30		30	150+	30	150+	60	
08:33	0	0	0	0	0	0	0		1	5	0	0	0	0	1		11	55	3	15	14		30	150+	30	150+	60	
08:34	0	0	0	0	0	0	0		0	0	0	0	1	5	1		12	60	4	20	16		30	150+	30	150+	60	
08:35	0	0	6	30	0	0	6		1	5	0	0	0	0	1		15	75	8	40	23		30	150+	30	150+	60	
08:36	0	0	0	0	0	0	0		4	20	4	20	0	0	8		14	70	3	15	17		30	150+	30	150+	60	
08:37	0	0	0	0	0	0	0		0	0	0	0	0	0	0		114	570	7	35	121		30	150+	30	150+	60	
08:38	0	0	0	0	0	0	0		0	0	0	0	0	0	0		14	70	11	55	25		30	150+	30	150+	60	
08:39	2	10	0	0	0	0	2		0	0	0	0	1	5	1		15	75	12	60	27		18	90	30	150+	48	
08:40	0	0	0	0	0	0	0		2	10	0	0	0	0	2		19	95	8	40	27		25	125	30	150+	55	
08:41	0	0	0	0	0	0	0		1	5	1	5	0	0	2		4	20	2	10	6		25	125	30	150+	55	
08:42	0	0	0	0	0	0	0		0	0	0	0	0	0	0		5	25	1	5	6		25	125	30	150+	55	
08:43	0	0	0	0	0	0	0		0	0	0	0	0	0	0		11	55	6	30	17		25	125	30	150+	55	
08:44	0	0	0	0	0	0	0		0	0	0	0	3	15	3		11	55	11	55	22		18	90	30	150+	48	
08:45	0	0	0	0	0	0	0		1	5	0	0	1	5	2		21	105	20	100	41		13	65	30	150+	43	
08:46	0	0	0	0	0	0	0		0	0	0	0	1	5	1		25	125+	5	25	30		14	70	30	150+	44	
08:47	0	0	0	0	0	0	0		0	0	0	0	1	5	1		14	70	11	55	25		17	85	30	150+	47	
08:48	0	0	0	0	0	0	0		2	10	2	10	0	0	4		15	75	4	20	19		16	80	30	150+	46	
08:49	0	0	0	0	0	0	0		0	0	0	0	2	10	2		25	125+	16	80	41		17	85	30	150+	47	
08:50	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		25	125	30	150+	55	
08:51	0	0	0	0	0	0	0		1	5	0	0	0	0	1		25	125+	25	125+	50		30	150+	30	150+	60	
08:52	0	0	0	0	0	0	0		0	0	0	0	2	10	2		25	125+	13	65	38		30	150+	30	150+	60	
08:53	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	3	15	28		30	150+	30	150+	60	
08:54	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	3	15	28		30	150+	30	150+	60	
08:55	0	0	0	0	0	0	0		2	10	1	5	1	5	4		25	125+	19	95	44		30	150+	30	150+	60	
08:56	0	0	0	0	0	0	0		2	10	0	0	2	10	4		19	95	12	60	31		30	150+	30	150+	60	
08:57	0	0	0	0	0	0	0		0	0	0	0	0	0	0		9	45	11	55	20		30	150+	30	150+	60	
08:58	0	0	0	0	0	0	0		0	0	0	0	1	5	1		7	35	8	40	15		30	150+	30	150+	60	
08:59	0	0	0	0	0	0	0		0	0	0	0	0	0	0		8	40	2	10	10		30	150+	30	150+	60	

Queue Length Surveys

Site: Treforest Estate Project K-Cam
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Queue Length Surveys

Site: Treforest Estate Project K-Cam
Location: Cardiff
Date: Thursday 12th February 2015
Time: 0700 - 0900
Weather: Dry AM and PM

Queue's consistently moving slowly

Key
Camera visibility could only record minimum queues

Lane	34a		34b		34c		Caerphilly Road (Ind Est) Tot	Caerphilly Road (Ind Est) Ave	36		37a		37b		A470 Sbound off-slip Tot	A470 Sbound off-slip Ave	40		41		A468 Caerphilly Rd Tot.	A468 Caerphilly Rd Ave.	43		44		A470 Nbound on-slip Tot	A470 Nbound on-slip Ave.
	Camera R		Camera R		Camera R				Camera K1		Camera K1		Camera K1				Camera L		Camera L				M camera 2		M camera 2			
Time	Vehicles	Metres	Vehicles	Metres	Vehicles	Metres			Vehicles	Metres	Vehicles	Metres	Vehicles	Metres			Vehicles	Metres	Vehicles	Metres			Vehicles	Metres	Vehicles	Metres		
16:15	4	20	0	0	0	0	4		0	0	0	0	0	0	0		17	85	13	65	30		7	35	8	40	15	
16:16	5	25	7	35	3	15	15		0	0	0	0	0	0	0		25	125+	17	85	42		9	45	7	35	16	
16:17	9	45	6	30	0	0	15		0	0	0	0	0	0	0		25	125+	17	85	42		12	60	10	50	22	
16:18	0	0	0	0	0	0	0		2	10	0	0	0	0	2		25	125+	25	125+	50		11	55	8	40	19	
16:19	0	0	0	0	0	0	0		2	10	1	5	0	0	3		25	125+	25	125+	50		5	25	7	35	12	
16:20	0	0	0	0	0	0	0		2	10	0	0	0	0	2		25	125+	25	125+	50		8	40	6	30	14	
16:21	0	0	0	0	0	0	0		4	20	2	10	0	0	6		25	125+	25	125+	50		4	20	7	35	11	
16:22	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		7	35	5	25	12	
16:23	0	0	0	0	0	0	0		0	0	1	5	0	0	1		25	125+	25	125+	50		5	25	7	35	12	
16:24	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		3	15	2	10	5	
16:25	7	35	0	0	0	0	7		4	20	0	0	0	0	4		25	125+	25	125+	50		8	40	6	30	14	
16:26	0	0	0	0	0	0	0		7	35	1	5	0	0	8		25	125+	25	125+	50		5	25	7	35	12	
16:27	0	0	0	0	0	0	0		1	5	2	10	1	5	4		25	125+	25	125+	50		6	30	4	20	10	
16:28	0	0	0	0	0	0	0		4	20	0	0	0	0	4		25	125+	25	125+	50		8	40	6	30	14	
16:29	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		14	70	11	55	25	
16:30	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		11	55	9	45	20	
16:31	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		12	60	8	40	20	
16:32	0	0	0	0	0	0	0		2	10	0	0	0	0	2		25	125+	25	125+	50		9	45	7	35	16	
16:33	0	0	4	20	0	0	4		1	5	0	0	0	0	1		25	125+	25	125+	50		7	35	5	25	12	
16:34	5	25	4	20	0	0	9		4	20	0	0	0	0	4		25	125+	25	125+	50		6	30	8	40	14	
16:35	0	0	0	0	0	0	0		0	0	1	5	0	0	1		25	125+	25	125+	50		9	45	6	30	15	
16:36	2	10	2	10	0	0	4		3	15	1	5	1	5	5		25	125+	25	125+	50		7	35	9	45	16	
16:37	0	0	0	0	0	0	0		1	5	1	5	0	0	2		25	125+	25	125+	50		10	50	7	35	17	
16:38	0	0	0	0	0	0	0		1	5	0	0	1	5	2		25	125+	25	125+	50		4	20	5	25	9	
16:39	0	0	0	0	0	0	0		5	25	0	0	1	5	6		25	125+	25	125+	50		7	35	6	30	13	
16:40	0	0	0	0	0	0	0		7	35	3	15	0	0	10		25	125+	25	125+	50		6	30	4	20	10	
16:41	0	0	0	0	0	0	0		5	25	1	5	1	5	7		25	125+	25	125+	50		8	40	5	25	13	
16:42	5	25	0	0	0	0	5		2	10	0	0	0	0	2		25	125+	25	125+	50		7	35	3	15	10	
16:43	0	0	0	0	2	10	2		3	15	0	0	0	0	3		25	125+	25	125+	50		4	20	2	10	6	
16:44	8	40	7	35	4	20	19	3.8	0	0	0	0	0	0	0	2.4	25	125+	25	125+	50	49.4	9	45	7	35	16	23.8
16:45	0	0	0	0	0	0	0		2	10	0	0	0	0	2		25	125+	25	125+	50		8	40	5	25	13	
16:46	4	20	0	0	0	0	4		0	0	0	0	0	0	0		25	125+	25	125+	50		5	25	3	15	8	
16:47	6	30	4	20	0	0	10		1	5	0	0	1	5	2		25	125+	25	125+	50		10	50	9	45	19	
16:48	7	35	8	40	4	20	19		0	0	0	0	0	0	0		25	125+	25	125+	50		13	65	11	55	24	
16:49	0	0	0	0	0	0	0		3	15	0	0	0	0	3		25	125+	25	125+	50		15	75	9	45	24	
16:50	0	0	0	0	0	0	0		3	15	1	5	0	0	4		25	125+	25	125+	50		14	70	20	100	34	
16:51	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		15	75	30	150+	45	
16:52	0	0	0	0	5	25	5		1	5	0	0	0	0	1		25	125+	25	125+	50		24	120	30	150+	54	
16:53	7	35	0	0	0	0	7		2	10	2	10	0	0	4		25	125+	25	125+	50		30	150+	30	150+	60	
16:54	0	0	0	0	0	0	0		2	10	2	10	2	10	6		25	125+	25	125+	50		30	150+	30	150+	60	
16:55	5	25	0	0	0	0	5		0	0	0	0	0	0	0		25	125+	25	125+	50		30	150+	30	150+	60	
16:56	0	0	0	0	0	0	0		2	10	0	0	0	0	2		25	125+	25	125+	50		30	150+	30	150+	60	
16:57	9	45	0	0	0	0	9		0	0	0	0	0	0	0		25	125+	25	125+	50		30	150+	30	150+	60	
16:58	0	0	0	0	0	0	0		3	15	0	0	1	5	4		25	125+	25	125+	50		30	150+	30	150+	60	
16:59	0	0	0	0	0	0	0		0	0	0	0	1	5	1		25	125+	25	125+	50		30	150+	30	150+	60	
17:00	0	0	0	0	0	0	0		5	25	1	5	2	10	8		25	125+	25	125+	50		20	100	30	150+	50	
17:01	0	0	2	10	0	0	2		2	10	0	0	0	0	2		25	125+	25	125+	50		19	95	19	95	38	
17:02	0	0	0	0	0	0	0		2	10	0	0	2	10	4		25	125+	25	125+	50		20	100	7	35	27	
17:03	0	0	0	0	0	0	0		2	10	0	0	1	5	3		25	125+	25	125+	50		12	60	8	40	20	
17:04	0	0	0	0	0	0	0		2	10	1	5	0	0	3		25	125+	25	125+	50		7	35	5	25	12	
17:05	0	0	3	15	0	0	3		3	15	2	10	1	5	6		25	125+	25	125+	50		6	30	4	20	10	
17:06	0	0	0	0	0	0	0		1	5	1	5	0	0	2		25	125+	25	125+	50		9	45	7	35	16	
17:07	10	50	8	40	7	35	25		0	0	0	0	0	0	0		25	125+	25	125+	50		5	25	7	35	12	
17:08	2	10	0	0	0	0	2		0	0	0	0	0	0	0		25	125+	25	125+	50		12	60	9	45	21	
17:09	8	40	0	0	0	0	8		0	0	0	0	0	0	0		25	125+	25	125+	50		14	70	11	55	25	
17:10	0	0	0	0	0	0	0		0	0	0	0	0	0	0		25	125+	25	125+	50		16	80	9	45	25	
17:11	0	0	0	0	0	0	0		0	0	0	0	1	5	1		25	125+	25	125+	50		19	95	12	60	31	
17:12	3	15	7	35	11	55	21		0	0	0	0	0	0	0		25	125+	25	125+	50		17	85	13	65	30	
17:13	0	0	0	0	0	0	0		2	10	1	5	1	5	4		25	125+	25	125+	50		12	60	12	60	24	
17:14	7	35	8	40	10	50	25		0	0	0	0	0	0	0		25	125+	25	125+	50		13	65	13	65	26	

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.4.487 [15039,24/03/2014]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: GC1970 Tref LDO Import of Nantgarw Roundabout.arc8
Path: P:\GC001900 - 001999\GC001970 - BID Treforest Local Development Order TA\5 - Team Applications\Transportation\ARCADY\A470 Nantgarw
Report generation date: 27/03/2015 12:40:58

» Existing Layout - 2015 Base, AM 0800-0900
» Existing Layout - 2015 Base, PM 1615-1715
» Existing Layout - 2018 Base, AM 0800-0900
» Existing Layout - 2018 Base, PM 1615-1715
» Existing Layout - 2018 Base + DEV, AM 0800-0900
» Existing Layout - 2018 Base + DEV, PM 1615-1715
» Existing Layout - 2028 Base, AM 0800-0900
» Existing Layout - 2028 Base, PM 1615-1715
» Existing Layout - 2028 Base + DEV, AM 0800-0900
» Existing Layout - 2028 Base + DEV, PM 1615-1715

Summary of junction performance

	AM 0800-0900			PM 1615-1715		
	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)	RFC
	Existing Layout - 2015 Base					
A468, Nantgarw Hill	45.26	73.19	1.02	94.02	136.48	1.08
A470, South	113.78	374.97	1.24	21.34	69.54	0.99
A4054, Link to Nantgarw Rbt	0.73	4.69	0.42	2.38	8.13	0.71
A470, North	3.57	12.83	0.79	3.83	18.87	0.80
	Existing Layout - 2018 Base					
A468, Nantgarw Hill	90.36	130.72	1.08	149.15	219.51	1.14
A470, South	158.26	568.89	1.31	36.25	105.85	1.04
A4054, Link to Nantgarw Rbt	0.77	4.80	0.44	2.63	8.59	0.73
A470, North	4.66	16.18	0.83	6.16	29.70	0.88
	Existing Layout - 2018 Base + DEV					
A468, Nantgarw Hill	154.87	235.01	1.15	218.35	389.54	1.22
A470, South	248.38	937.51	1.44	33.40	99.12	1.03
A4054, Link to Nantgarw Rbt	0.83	4.65	0.46	7.33	20.62	0.89
A470, North	5.76	19.43	0.86	59.16	223.86	1.16
	Existing Layout - 2028 Base					
A468, Nantgarw Hill	267.17	468.57	1.25	369.15	632.74	1.32
A470, South	314.66	1256.46	1.49	104.41	330.39	1.16
A4054, Link to Nantgarw Rbt	0.97	5.28	0.49	4.64	13.62	0.83
A470, North	21.60	64.88	0.99	57.44	206.07	1.13
	Existing Layout - 2028 Base + DEV					
A468, Nantgarw Hill	374.96	648.93	1.32	488.28	835.14	1.39
A470, South	436.43	1750.93	1.62	180.81	582.32	1.25
A4054, Link to Nantgarw Rbt	1.03	5.15	0.51	4.72	13.13	0.83
A470, North	36.77	98.52	1.03	79.07	271.13	1.19

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2015 Base, AM 0800-0900 " model duration: 07:30 - 09:00
"D2 - 2015 Base, PM 1615-1715" model duration: 07:30 - 09:00
"D3 - 2018 Base, AM 0800-0900" model duration: 07:30 - 09:00
"D4 - 2018 Base, PM 1615-1715" model duration: 07:30 - 09:00
"D5 - 2018 Base + DEV, AM 0800-0900" model duration: 07:30 - 09:00
"D6 - 2018 Base + DEV, PM 1615-1715" model duration: 07:30 - 09:00
"D7 - 2028 Base, AM 0800-0900" model duration: 07:30 - 09:00
"D8 - 2028 Base, PM 1615-1715" model duration: 07:30 - 09:00
"D9 - 2028 Base + DEV, AM 0800-0900" model duration: 07:30 - 09:00
"D10 - 2028 Base + DEV, PM 1615-1715" model duration: 07:30 - 09:00

Run using Junctions 8.0.4.487 at 27/03/2015 12:40:54

File summary

Title	A470 Nantgarw Roundabout
Location	RCT
Site Number	
Date	20/03/2015
Version	
Status	
Identifier	
Client	RCTCBC
Jobnumber	GC1970
Enumerator	Dean Mears
Description	A470 Nantgarw Roundabout Assessment Treforest LDO

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75	✓		N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Existing Layout - 2015 Base, AM 0800-0900

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2015 Base, AM 0800-0900	2015 Base	AM 0800-0900		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			122.78	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	227.58	0.00
A470, South	1374.82	0.00
A4054, Link to Nantgarw Rbt	1377.16	0.00
A470, North	1260.45	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.154	3119.365
A470, South		(calculated)	(calculated)	1.048	2974.330
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.051	2687.136
A470, North		(calculated)	(calculated)	0.969	2460.855

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	1906.00	100.000
A470, South	ONE HOUR	✓	1020.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	510.00	100.000
A470, North	ONE HOUR	✓	932.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	12.000	824.000	552.000	518.000
	A470, South	640.000	10.000	370.000	0.000
	A4054, Link to Nantgarw Rbt	330.000	88.000	0.000	92.000
	A470, North	732.000	2.000	192.000	6.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	0.01	0.43	0.29	0.27
	A470, South	0.63	0.01	0.36	0.00
	A4054, Link to Nantgarw Rbt	0.65	0.17	0.00	0.18
	A470, North	0.79	0.00	0.21	0.01

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.060	1.060	1.060	1.060
	A470, South	1.060	1.060	1.060	1.060
	A4054, Link to Nantgarw Rbt	1.060	1.060	1.060	1.060
	A470, North	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	6.0	6.0	6.0	6.0
	A470, South	6.0	6.0	6.0	6.0
	A4054, Link to Nantgarw Rbt	6.0	6.0	6.0	6.0
	A470, North	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.02	73.19	45.26	129.00	F	1748.98	2623.47	1174.92	26.87	13.05	1174.98	26.87
A470, South	1.24	374.97	113.78	168.00	F	935.97	1403.95	4167.53	178.11	46.31	4167.67	178.11
A4054, Link to Nantgarw Rbt	0.42	4.69	0.73	1.00	A	467.98	701.98	47.31	4.04	0.53	47.31	4.04
A470, North	0.79	12.83	3.57	10.00	B	855.22	1282.83	179.88	8.41	2.00	179.91	8.41

Existing Layout - 2015 Base, PM 1615-1715

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2015 Base, PM 1615-1715	2015 Base	PM 1615-1715		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			77.65	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	449.33	0.00
A470, South	1343.13	0.00
A4054, Link to Nantgarw Rbt	1186.90	0.00
A470, North	1714.95	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.106	3067.920
A470, South		(calculated)	(calculated)	1.055	2981.682
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.099	2731.276
A470, North		(calculated)	(calculated)	0.867	2355.410

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	1984.00	100.000
A470, South	ONE HOUR	✓	1014.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	974.00	100.000
A470, North	ONE HOUR	✓	694.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	34.000	912.000	748.000	290.000
	A470, South	606.000	14.000	394.000	0.000
	A4054, Link to Nantgarw Rbt	442.000	320.000	0.000	212.000
	A470, North	656.000	0.000	2.000	36.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	0.02	0.46	0.38	0.15
	A470, South	0.60	0.01	0.39	0.00
	A4054, Link to Nantgarw Rbt	0.45	0.33	0.00	0.22
	A470, North	0.95	0.00	0.00	0.05

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.030	1.030	1.030	1.030
	A470, South	1.030	1.030	1.030	1.030
	A4054, Link to Nantgarw Rbt	1.030	1.030	1.030	1.030
	A470, North	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	3.0	3.0	3.0	3.0
	A470, South	3.0	3.0	3.0	3.0
	A4054, Link to Nantgarw Rbt	3.0	3.0	3.0	3.0
	A470, North	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.08	136.48	94.02	175.00	F	1820.55	2730.83	2606.93	57.28	28.97	2607.02	57.28
A470, South	0.99	69.54	21.34	78.00	F	930.46	1395.70	646.91	27.81	7.19	646.96	27.81
A4054, Link to Nantgarw Rbt	0.71	8.13	2.38	3.00	A	893.76	1340.64	122.05	5.46	1.36	122.06	5.46
A470, North	0.80	18.87	3.83	12.00	C	636.83	955.24	156.02	9.80	1.73	156.03	9.80

Existing Layout - 2018 Base, AM 0800-0900

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, AM 0800-0900	2018 Base	AM 0800-0900		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			193.83	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	227.58	0.00
A470, South	1374.82	0.00
A4054, Link to Nantgarw Rbt	1377.16	0.00
A470, North	1260.45	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.154	3119.365
A470, South		(calculated)	(calculated)	1.048	2974.330
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.051	2687.136
A470, North		(calculated)	(calculated)	0.969	2460.855

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	1994.00	100.000
A470, South	ONE HOUR	✓	1064.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	530.00	100.000
A470, North	ONE HOUR	✓	974.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	12.000	860.000	580.000	542.000
	A470, South	668.000	12.000	384.000	0.000
	A4054, Link to Nantgarw Rbt	344.000	90.000	0.000	96.000
	A470, North	764.000	4.000	200.000	6.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	0.01	0.43	0.29	0.27
	A470, South	0.63	0.01	0.36	0.00
	A4054, Link to Nantgarw Rbt	0.65	0.17	0.00	0.18
	A470, North	0.78	0.00	0.21	0.01

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.060	1.060	1.060	1.060
	A470, South	1.060	1.060	1.060	1.060
	A4054, Link to Nantgarw Rbt	1.060	1.060	1.060	1.060
	A470, North	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	6.0	6.0	6.0	6.0
	A470, South	6.0	6.0	6.0	6.0
	A4054, Link to Nantgarw Rbt	6.0	6.0	6.0	6.0
	A470, North	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.08	130.72	90.36	172.00	F	1829.73	2744.59	2495.98	54.57	27.73	2496.06	54.57
A470, South	1.31	568.89	158.26	200.00	F	976.34	1464.52	6511.83	266.78	72.35	6678.27	273.60
A4054, Link to Nantgarw Rbt	0.44	4.80	0.77	1.00	A	486.34	729.51	50.96	4.19	0.57	50.96	4.19
A470, North	0.83	16.18	4.66	16.00	C	893.76	1340.64	216.94	9.71	2.41	216.98	9.71

Existing Layout - 2018 Base, PM 1615-1715

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, PM 1615-1715	2018 Base	PM 1615-1715		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			122.53	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	449.33	0.00
A470, South	1343.13	0.00
A4054, Link to Nantgarw Rbt	1186.90	0.00
A470, North	1714.95	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.106	3067.920
A470, South		(calculated)	(calculated)	1.055	2981.682
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.099	2731.276
A470, North		(calculated)	(calculated)	0.867	2355.410

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	2072.00	100.000
A470, South	ONE HOUR	✓	1062.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	1020.00	100.000
A470, North	ONE HOUR	✓	722.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	34.000	952.000	782.000	304.000
	A470, South	632.000	16.000	410.000	4.000
	A4054, Link to Nantgarw Rbt	464.000	334.000	0.000	222.000
	A470, North	682.000	2.000	38.000	0.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	0.02	0.46	0.38	0.15
	A470, South	0.60	0.02	0.39	0.00
	A4054, Link to Nantgarw Rbt	0.45	0.33	0.00	0.22
	A470, North	0.94	0.00	0.05	0.00

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.030	1.030	1.030	1.030
	A470, South	1.030	1.030	1.030	1.030
	A4054, Link to Nantgarw Rbt	1.030	1.030	1.030	1.030
	A470, North	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	3.0	3.0	3.0	3.0
	A470, South	3.0	3.0	3.0	3.0
	A4054, Link to Nantgarw Rbt	3.0	3.0	3.0	3.0
	A470, North	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.14	219.51	149.15	200.00	F	1901.30	2851.96	4972.62	104.62	55.25	4972.75	104.62
A470, South	1.04	105.85	36.25	96.00	F	974.51	1461.76	1082.69	44.44	12.03	1082.83	44.45
A4054, Link to Nantgarw Rbt	0.73	8.59	2.63	3.00	A	935.97	1403.95	136.38	5.83	1.52	136.39	5.83
A470, North	0.88	29.70	6.16	23.00	D	662.52	993.78	220.08	13.29	2.45	220.09	13.29

Existing Layout - 2018 Base + DEV, AM 0800-0900

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base + DEV, AM 0800-0900	2018 Base + DEV	AM 0800-0900		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			326.96	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	227.58	0.00
A470, South	1374.82	0.00
A4054, Link to Nantgarw Rbt	1377.16	0.00
A470, North	1260.45	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.154	3119.365
A470, South		(calculated)	(calculated)	1.048	2974.330
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.051	2687.136
A470, North		(calculated)	(calculated)	0.969	2460.855

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	2064.00	100.000
A470, South	ONE HOUR	✓	1132.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	588.00	100.000
A470, North	ONE HOUR	✓	1014.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	14.000	860.000	648.000	542.000
	A470, South	668.000	10.000	454.000	0.000
	A4054, Link to Nantgarw Rbt	366.000	110.000	0.000	112.000
	A470, North	766.000	4.000	238.000	6.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	0.01	0.42	0.31	0.26
	A470, South	0.59	0.01	0.40	0.00
	A4054, Link to Nantgarw Rbt	0.62	0.19	0.00	0.19
	A470, North	0.76	0.00	0.23	0.01

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.060	1.060	1.060	1.060
	A470, South	1.060	1.060	1.060	1.060
	A4054, Link to Nantgarw Rbt	1.060	1.060	1.060	1.060
	A470, North	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	6.0	6.0	6.0	6.0
	A470, South	6.0	6.0	6.0	6.0
	A4054, Link to Nantgarw Rbt	6.0	6.0	6.0	6.0
	A470, North	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.15	235.01	154.87	200.00	F	1893.96	2840.94	5306.54	112.07	58.96	5306.68	112.08
A470, South	1.44	937.51	248.38	200.00	F	1038.74	1558.11	10890.96	419.39	121.01	12625.09	486.17
A4054, Link to Nantgarw Rbt	0.46	4.65	0.83	~1	A	539.56	809.34	55.54	4.12	0.62	55.54	4.12
A470, North	0.86	19.43	5.76	20.00	C	930.46	1395.70	249.66	10.73	2.77	249.69	10.73

Existing Layout - 2018 Base + DEV, PM 1615-1715

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base + DEV, PM 1615-1715	2018 Base + DEV	PM 1615-1715		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			216.97	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	449.33	0.00
A470, South	1343.13	0.00
A4054, Link to Nantgarw Rbt	1186.90	0.00
A470, North	1714.95	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.106	3067.920
A470, South		(calculated)	(calculated)	1.055	2981.682
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.099	2731.276
A470, North		(calculated)	(calculated)	0.867	2355.410

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	2094.00	100.000
A470, South	ONE HOUR	✓	1062.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	1230.00	100.000
A470, North	ONE HOUR	✓	766.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	34.000	954.000	802.000	304.000
	A470, South	632.000	16.000	410.000	4.000
	A4054, Link to Nantgarw Rbt	570.000	414.000	0.000	246.000
	A470, North	682.000	2.000	44.000	38.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	0.02	0.46	0.38	0.15
	A470, South	0.60	0.02	0.39	0.00
	A4054, Link to Nantgarw Rbt	0.46	0.34	0.00	0.20
	A470, North	0.89	0.00	0.06	0.05

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.030	1.030	1.030	1.030
	A470, South	1.030	1.030	1.030	1.030
	A4054, Link to Nantgarw Rbt	1.030	1.030	1.030	1.030
	A470, North	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	3.0	3.0	3.0	3.0
	A470, South	3.0	3.0	3.0	3.0
	A4054, Link to Nantgarw Rbt	3.0	3.0	3.0	3.0
	A470, North	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.22	389.54	218.35	200.00	F	1921.49	2882.24	9065.45	188.72	100.73	9190.23	191.31
A470, South	1.03	99.12	33.40	94.00	F	974.51	1461.76	1038.91	42.64	11.54	1039.13	42.65
A4054, Link to Nantgarw Rbt	0.89	20.62	7.33	25.00	C	1128.67	1693.00	292.57	10.37	3.25	292.60	10.37
A470, North	1.16	223.86	59.16	106.00	F	702.89	1054.34	1466.81	83.47	16.30	1466.84	83.47

Existing Layout - 2028 Base, AM 0800-0900

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base, AM 0800-0900	2028 Base	AM 0800-0900		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			511.78	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	227.58	0.00
A470, South	1374.82	0.00
A4054, Link to Nantgarw Rbt	1377.16	0.00
A470, North	1260.45	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.154	3119.365
A470, South		(calculated)	(calculated)	1.048	2974.330
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.051	2687.136
A470, North		(calculated)	(calculated)	0.969	2460.855

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	2268.00	100.000
A470, South	ONE HOUR	✓	1206.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	602.00	100.000
A470, North	ONE HOUR	✓	1108.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	14.000	978.000	660.000	616.000
	A470, South	758.000	12.000	436.000	0.000
	A4054, Link to Nantgarw Rbt	390.000	104.000	0.000	108.000
	A470, North	868.000	4.000	228.000	8.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	0.01	0.43	0.29	0.27
	A470, South	0.63	0.01	0.36	0.00
	A4054, Link to Nantgarw Rbt	0.65	0.17	0.00	0.18
	A470, North	0.78	0.00	0.21	0.01

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.060	1.060	1.060	1.060
	A470, South	1.060	1.060	1.060	1.060
	A4054, Link to Nantgarw Rbt	1.060	1.060	1.060	1.060
	A470, North	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	6.0	6.0	6.0	6.0
	A470, South	6.0	6.0	6.0	6.0
	A4054, Link to Nantgarw Rbt	6.0	6.0	6.0	6.0
	A470, North	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.25	468.57	267.17	200.00	F	2081.16	3121.73	11849.40	227.75	131.66	12259.43	235.63
A470, South	1.49	1256.46	314.66	?	F	1106.65	1659.97	14181.43	512.59	157.57	17470.17	631.46
A4054, Link to Nantgarw Rbt	0.49	5.28	0.97	?	A	552.41	828.61	63.88	4.63	0.71	63.89	4.63
A470, North	0.99	64.88	21.60	80.00	F	1016.72	1525.08	624.20	24.56	6.94	624.25	24.56

Existing Layout - 2028 Base, PM 1615-1715

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base, PM 1615-1715	2028 Base	PM 1615-1715		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			374.59	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	449.33	0.00
A470, South	1343.13	0.00
A4054, Link to Nantgarw Rbt	1186.90	0.00
A470, North	1714.95	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.106	3067.920
A470, South		(calculated)	(calculated)	1.055	2981.682
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.099	2731.276
A470, North		(calculated)	(calculated)	0.867	2355.410

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	2350.00	100.000
A470, South	ONE HOUR	✓	1206.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	1152.00	100.000
A470, North	ONE HOUR	✓	816.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	38.000	1082.000	886.000	344.000
	A470, South	718.000	18.000	466.000	4.000
	A4054, Link to Nantgarw Rbt	522.000	378.000	0.000	252.000
	A470, North	774.000	2.000	40.000	0.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	0.02	0.46	0.38	0.15
	A470, South	0.60	0.01	0.39	0.00
	A4054, Link to Nantgarw Rbt	0.45	0.33	0.00	0.22
	A470, North	0.95	0.00	0.05	0.00

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.030	1.030	1.030	1.030
	A470, South	1.030	1.030	1.030	1.030
	A4054, Link to Nantgarw Rbt	1.030	1.030	1.030	1.030
	A470, North	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	3.0	3.0	3.0	3.0
	A470, South	3.0	3.0	3.0	3.0
	A4054, Link to Nantgarw Rbt	3.0	3.0	3.0	3.0
	A470, North	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.32	632.74	369.15	200.00	F	2156.40	3234.60	16427.64	304.72	182.53	17645.67	327.32
A470, South	1.16	330.39	104.41	171.00	F	1106.65	1659.97	4556.19	164.68	50.62	4628.16	167.29
A4054, Link to Nantgarw Rbt	0.83	13.62	4.64	14.00	B	1057.10	1585.64	222.14	8.41	2.47	222.17	8.41
A470, North	1.13	206.07	57.44	106.00	F	748.78	1123.16	1463.17	78.16	16.26	1463.21	78.17

Existing Layout - 2028 Base + DEV, AM 0800-0900

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base + DEV, AM 0800-0900	2028 Base + DEV	AM 0800-0900		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			712.78	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	227.58	0.00
A470, South	1374.82	0.00
A4054, Link to Nantgarw Rbt	1377.16	0.00
A470, North	1260.45	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.154	3119.365
A470, South		(calculated)	(calculated)	1.048	2974.330
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.051	2687.136
A470, North		(calculated)	(calculated)	0.969	2460.855

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	2330.00	100.000
A470, South	ONE HOUR	✓	1276.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	660.00	100.000
A470, North	ONE HOUR	✓	1154.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	14.000	976.000	726.000	614.000
	A470, South	758.000	12.000	506.000	0.000
	A4054, Link to Nantgarw Rbt	412.000	124.000	0.000	124.000
	A470, North	870.000	4.000	272.000	8.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	**A470, South**	**A4054, Link to Nantgarw Rbt**	**A470, North**
From	**A468, Nantgarw Hill**	0.01	0.42	0.31	0.26
	A470, South	0.59	0.01	0.40	0.00
	A4054, Link to Nantgarw Rbt	0.62	0.19	0.00	0.19
	A470, North	0.75	0.00	0.24	0.01

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.060	1.060	1.060	1.060
	A470, South	1.060	1.060	1.060	1.060
	A4054, Link to Nantgarw Rbt	1.060	1.060	1.060	1.060
	A470, North	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	6.0	6.0	6.0	6.0
	A470, South	6.0	6.0	6.0	6.0
	A4054, Link to Nantgarw Rbt	6.0	6.0	6.0	6.0
	A470, North	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.32	648.93	374.96	200.00	F	2138.05	3207.07	16594.89	310.47	184.39	17901.41	334.91
A470, South	1.62	1750.93	436.43	?	F	1170.88	1756.32	19155.11	654.38	212.83	25656.80	876.50
A4054, Link to Nantgarw Rbt	0.51	5.15	1.03	?	A	605.63	908.44	68.37	4.52	0.76	68.38	4.52
A470, North	1.03	98.52	36.77	99.00	F	1058.93	1588.40	956.66	36.14	10.63	956.72	36.14

Existing Layout - 2028 Base + DEV, PM 1615-1715

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Geometry	A470, South - Roundabout Geometry	Effective flare length is over 30m, which is outside the normal range. Treat capacities with increasing caution.

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set(s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Layout	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base + DEV, PM 1615-1715	2028 Base + DEV	PM 1615-1715		ONE HOUR	07:30	09:00	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	untitled	Roundabout	A,B,C,D	✓			522.11	F

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A468, Nantgarw Hill	A	A468, Nantgarw Hill	
A470, South	B	A470, South	
A4054, Link to Nantgarw Rbt	C	A4054, Link to Nantgarw Rbt	
A470, North	D	A470, North	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A468, Nantgarw Hill	0.00	99999.00		0.00
A470, South	0.00	99999.00		0.00
A4054, Link to Nantgarw Rbt	0.00	99999.00		0.00
A470, North	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A468, Nantgarw Hill	6.50	8.50	3.00	28.53	73.65	34.00	
A470, South	6.20	9.22	43.50	30.00	73.65	27.00	
A4054, Link to Nantgarw Rbt	6.50	11.30	15.50	27.13	73.65	30.00	
A470, North	6.00	7.48	20.50	42.28	73.65	27.00	

Large Roundabout Data

Name	Circulating flow (PCU/hr)	Entry-to-exit separation (m)
A468, Nantgarw Hill	449.33	0.00
A470, South	1343.13	0.00
A4054, Link to Nantgarw Rbt	1186.90	0.00
A470, North	1714.95	0.00

Slope / Intercept / Capacity

Arm Intercept Adjustments

Name	Type	Reason	Direct Intercept Adjustment (PCU/hr)	Percentage Intercept Adjustment (%)
A468, Nantgarw Hill	Direct	(ARCADY 6 CT10 Import)	138.00	
A470, South	Direct	(ARCADY 6 CT10 Import)	-276.00	
A4054, Link to Nantgarw Rbt	Direct	(ARCADY 6 CT10 Import)	-600.00	
A470, North	Direct	(ARCADY 6 CT10 Import)	-378.00	

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A468, Nantgarw Hill		(calculated)	(calculated)	1.106	3067.920
A470, South		(calculated)	(calculated)	1.055	2981.682
A4054, Link to Nantgarw Rbt		(calculated)	(calculated)	1.099	2731.276
A470, North		(calculated)	(calculated)	0.867	2355.410

The slope and intercept shown above include any corrections and adjustments.

Arm Capacity Adjustments

Name	Type	Reason	Direct Capacity Adjustment (PCU/hr)	Percentage Capacity Adjustment (%)
A468, Nantgarw Hill	Percentage	To match observed queue lenghts and local To match obserbed queues and local knowledge		80.00
A470, South	Percentage	Observed queues and local knowledge		66.00
A4054, Link to Nantgarw Rbt	None			
A470, North	None			

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
			✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (Veh/hr)	Flow Scaling Factor (%)
A468, Nantgarw Hill	ONE HOUR	✓	2420.00	100.000
A470, South	ONE HOUR	✓	1274.00	100.000
A4054, Link to Nantgarw Rbt	ONE HOUR	✓	1214.00	100.000
A470, North	ONE HOUR	✓	862.00	100.000

Turning Proportions

Turning Counts / Proportions (Veh/hr) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	38.000	1080.000	958.000	344.000
	A470, South	718.000	16.000	536.000	4.000
	A4054, Link to Nantgarw Rbt	544.000	400.000	0.000	270.000
	A470, North	776.000	2.000	84.000	0.000

Turning Proportions (Veh) - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	0.02	0.45	0.40	0.14
	A470, South	0.56	0.01	0.42	0.00
	A4054, Link to Nantgarw Rbt	0.45	0.33	0.00	0.22
	A470, North	0.90	0.00	0.10	0.00

Vehicle Mix

Average PCU Per Vehicle - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	1.030	1.030	1.030	1.030
	A470, South	1.030	1.030	1.030	1.030
	A4054, Link to Nantgarw Rbt	1.030	1.030	1.030	1.030
	A470, North	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - untitled (for whole period)

		To			
		A468, Nantgarw Hill	A470, South	A4054, Link to Nantgarw Rbt	A470, North
From	A468, Nantgarw Hill	3.0	3.0	3.0	3.0
	A470, South	3.0	3.0	3.0	3.0
	A4054, Link to Nantgarw Rbt	3.0	3.0	3.0	3.0
	A470, North	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)	Total Queueing Delay (Veh-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (Veh-min/min)	Inclusive Total Queueing Delay (Veh-min)	Inclusive Average Queueing Delay (s)
A468, Nantgarw Hill	1.39	835.14	488.28	200.00	F	2220.63	3330.95	21877.11	394.07	243.08	24678.37	444.53
A470, South	1.25	582.32	180.81	200.00	F	1169.04	1753.57	8246.87	282.17	91.63	8903.89	304.66
A4054, Link to Nantgarw Rbt	0.83	13.13	4.72	15.00	B	1113.99	1670.98	229.16	8.23	2.55	229.19	8.23
A470, North	1.19	271.13	79.07	129.00	F	790.99	1186.48	2242.09	113.38	24.91	2242.14	113.38

Appendix F
ARCADY Output - Coleg Morganwg Roundabout

Junctions 8

ARCADY 8 - Roundabout Module

Version: 8.0.4.487 [15039,24/03/2014]

For sales and distribution information, program advice and maintenance, contact TRL:
Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk

Filename: GC1970 Colleg Morgannwg Rbt.arc8
Path: P:\GC001900 - 001999\GC001970 - BID Treforest Local Development Order TA\5 - Team Applications\Transportation\ARCADY\Colleg Morgannwg Rbt
Report generation date: 27/03/2015 12:29:39

» Existing Junction - 2015 Base, AM 0800-0900
» Existing Junction - 2015 Base, PM 1615-1715
» Existing Junction - 2018 Base, AM 0800-0900
» Existing Junction - 2018 Base, PM 1615-1715
» Existing Junction - 2018 Base + DEV, AM 0800-0900
» Existing Junction - 2018 Base + DEV, PM 1615-1715
» Existing Junction - 2028 Base, AM 0800-0900
» Existing Junction - 2028 Base, PM 1615-1715
» Existing Junction - 2028 Base + DEV, AM 0800-0900
» Existing Junction - 2028 Base + DEV, PM 1615-1715

Summary of junction performance

	AM 0800-0900			PM 1615-1715		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Existing Junction - 2015 Base					
A Caerphilly Road (A470)	1.18	3.50	0.53	1.47	4.13	0.59
B Cardiff Road (s)	1.18	7.41	0.53	1.47	9.28	0.59
C Cardiff Road (Ind Est)	0.42	4.13	0.29	0.58	3.38	0.36
D Heol Crochendy (College/Ind Est)	0.28	3.90	0.22	1.07	5.92	0.51
C Cefn Coed	0.03	2.92	0.03	0.25	4.59	0.20
	Existing Junction - 2018 Base					
A Caerphilly Road (A470)	1.31	3.71	0.55	1.68	4.50	0.62
B Cardiff Road (s)	1.34	8.11	0.56	1.77	10.77	0.64
C Cardiff Road (Ind Est)	0.47	4.44	0.31	0.64	3.57	0.39
D Heol Crochendy (College/Ind Est)	0.31	4.19	0.23	1.21	6.40	0.54
C Cefn Coed	0.03	3.04	0.03	0.28	4.84	0.21
	Existing Junction - 2018 Base + DEV					
A Caerphilly Road (A470)	1.88	4.65	0.64	1.88	4.90	0.65
B Cardiff Road (s)	2.17	12.24	0.68	1.95	11.83	0.66
C Cardiff Road (Ind Est)	0.59	4.86	0.36	1.11	4.60	0.52
D Heol Crochendy (College/Ind Est)	0.38	4.50	0.27	1.84	9.07	0.65
C Cefn Coed	0.03	3.16	0.03	0.35	6.04	0.25
	Existing Junction - 2028 Base					
A Caerphilly Road (A470)	1.84	4.60	0.64	2.58	6.14	0.72
B Cardiff Road (s)	2.33	12.55	0.69	3.98	21.94	0.80
C Cardiff Road (Ind Est)	0.66	5.51	0.39	0.84	4.13	0.45
D Heol Crochendy (College/Ind Est)	0.40	4.70	0.27	1.79	8.40	0.64
C Cefn Coed	0.04	3.21	0.03	0.38	5.82	0.27
	Existing Junction - 2028 Base + DEV					
A Caerphilly Road (A470)	2.79	6.16	0.73	4.45	9.49	0.82
B Cardiff Road (s)	5.07	26.21	0.84	14.04	73.34	0.97
C Cardiff Road (Ind Est)	0.83	6.22	0.44	0.98	4.50	0.49
D Heol Crochendy (College/Ind Est)	0.49	5.12	0.32	2.22	9.89	0.69
C Cefn Coed	0.04	3.34	0.04	0.42	6.32	0.29

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2015 Base, AM 0800-0900 " model duration: 08:00 - 09:30
"D2 - 2015 Base, PM 1615-1715" model duration: 08:00 - 09:30
"D3 - 2018 Base, AM 0800-0900" model duration: 08:00 - 09:30
"D4 - 2018 Base, PM 1615-1715" model duration: 08:00 - 09:30
"D5 - 2018 Base + DEV, AM 0800-0900" model duration: 08:00 - 09:30
"D6 - 2018 Base + DEV, PM 1615-1715" model duration: 08:00 - 09:30
"D7 - 2028 Base, AM 0800-0900" model duration: 08:00 - 09:30
"D8 - 2028 Base, PM 1615-1715" model duration: 08:00 - 09:30
"D9 - 2028 Base + DEV, AM 0800-0900" model duration: 08:00 - 09:30
"D10 - 2028 Base + DEV, PM 1615-1715" model duration: 08:00 - 09:30

Run using Junctions 8.0.4.487 at 27/03/2015 12:29:34

File summary

Title	Treforest LDO Study
Location	
Site Number	
Date	20/03/2015
Version	
Status	(new file)
Identifier	
Client	RCTCBC
Jobnumber	GC1970
Enumerator	mearsd
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Existing Junction - 2015 Base, AM 0800-0900

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2015 Base, AM 0800-0900	2015 Base	AM 0800-0900		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				4.55	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1108.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	526.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	336.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	234.00	100.000
C Cefn Coed	ONE HOUR	✓	32.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	170.000	172.000	600.000	166.000
	B Cardiff Road (s)	228.000	0.000	114.000	112.000	72.000
	C Cardiff Road (Ind Est)	106.000	164.000	0.000	40.000	26.000
	D Heol Crochendy (College/Ind Est)	164.000	42.000	6.000	0.000	22.000
	C Cefn Coed	14.000	8.000	2.000	8.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.15	0.16	0.54	0.15
	B Cardiff Road (s)	0.43	0.00	0.22	0.21	0.14
	C Cardiff Road (Ind Est)	0.32	0.49	0.00	0.12	0.08
	D Heol Crochendy (College/Ind Est)	0.70	0.18	0.03	0.00	0.09
	C Cefn Coed	0.44	0.25	0.06	0.25	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.060	1.060	1.060	1.060	1.060
	B Cardiff Road (s)	1.060	1.060	1.060	1.060	1.060
	C Cardiff Road (Ind Est)	1.000	1.060	1.060	1.060	1.060
	D Heol Crochendy (College/Ind Est)	1.000	1.060	1.060	1.060	1.060
	C Cefn Coed	1.000	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	6.0	6.0	6.0	6.0	6.0
	B Cardiff Road (s)	6.0	6.0	6.0	6.0	6.0
	C Cardiff Road (Ind Est)	0.0	6.0	6.0	6.0	6.0
	D Heol Crochendy (College/Ind Est)	0.0	6.0	6.0	6.0	6.0
	C Cefn Coed	0.0	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.53	3.50	1.18	A	1016.72	1525.08	75.89	2.99	0.84	75.90	2.99
B Cardiff Road (s)	0.53	7.41	1.18	A	482.67	724.00	69.55	5.76	0.77	69.55	5.76
C Cardiff Road (Ind Est)	0.29	4.13	0.42	A	308.32	462.48	27.05	3.51	0.30	27.05	3.51
D Heol Crochendy (College/Ind Est)	0.22	3.90	0.28	A	214.72	322.08	18.87	3.52	0.21	18.87	3.52
C Cefn Coed	0.03	2.92	0.03	A	29.36	44.05	2.03	2.76	0.02	2.03	2.76

Existing Junction - 2015 Base, PM 1615-1715

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2015 Base, PM 1615-1715	2015 Base	PM 1615-1715		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				5.26	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1170.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	523.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	566.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	596.00	100.000
C Cefn Coed	ONE HOUR	✓	182.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	34.000	1004.000	128.000	4.000
	B Cardiff Road (s)	234.000	0.000	109.000	178.000	2.000
	C Cardiff Road (Ind Est)	28.000	342.000	0.000	188.000	8.000
	D Heol Crochendy (College/Ind Est)	568.000	18.000	0.000	0.000	10.000
	C Cefn Coed	150.000	16.000	16.000	0.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.03	0.86	0.11	0.00
	B Cardiff Road (s)	0.45	0.00	0.21	0.34	0.00
	C Cardiff Road (Ind Est)	0.05	0.60	0.00	0.33	0.01
	D Heol Crochendy (College/Ind Est)	0.95	0.03	0.00	0.00	0.02
	C Cefn Coed	0.82	0.09	0.09	0.00	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.030	1.030	1.030	1.030	1.030
	B Cardiff Road (s)	1.030	1.030	1.030	1.030	1.030
	C Cardiff Road (Ind Est)	1.030	1.030	1.030	1.030	1.030
	D Heol Crochendy (College/Ind Est)	1.030	1.030	1.030	1.030	1.030
	C Cefn Coed	1.030	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	3.0	3.0	3.0	3.0	3.0
	B Cardiff Road (s)	3.0	3.0	3.0	3.0	3.0
	C Cardiff Road (Ind Est)	3.0	3.0	3.0	3.0	3.0
	D Heol Crochendy (College/Ind Est)	3.0	3.0	3.0	3.0	3.0
	C Cefn Coed	3.0	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.59	4.13	1.47	A	1073.61	1610.42	90.12	3.36	1.00	90.13	3.36
B Cardiff Road (s)	0.59	9.28	1.47	A	479.91	719.87	80.71	6.73	0.90	80.71	6.73
C Cardiff Road (Ind Est)	0.36	3.38	0.58	A	519.37	779.06	38.95	3.00	0.43	38.95	3.00
D Heol Crochendy (College/Ind Est)	0.51	5.92	1.07	A	546.90	820.35	66.40	4.86	0.74	66.41	4.86
C Cefn Coed	0.20	4.59	0.25	A	167.01	250.51	16.51	3.95	0.18	16.51	3.95

Existing Junction - 2018 Base, AM 0800-0900

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, AM 0800-0900	2018 Base	AM 0800-0900		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				4.89	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1156.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	544.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	350.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	242.00	100.000
C Cefn Coed	ONE HOUR	✓	32.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	176.000	180.000	626.000	174.000
	B Cardiff Road (s)	236.000	0.000	118.000	116.000	74.000
	C Cardiff Road (Ind Est)	112.000	172.000	0.000	40.000	26.000
	D Heol Crochendy (College/Ind Est)	170.000	44.000	6.000	0.000	22.000
	C Cefn Coed	14.000	8.000	2.000	8.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.15	0.16	0.54	0.15
	B Cardiff Road (s)	0.43	0.00	0.22	0.21	0.14
	C Cardiff Road (Ind Est)	0.32	0.49	0.00	0.11	0.07
	D Heol Crochendy (College/Ind Est)	0.70	0.18	0.02	0.00	0.09
	C Cefn Coed	0.44	0.25	0.06	0.25	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.060	1.060	1.060	1.060	1.060
	B Cardiff Road (s)	1.060	1.060	1.060	1.060	1.060
	C Cardiff Road (Ind Est)	1.060	1.060	1.060	1.060	1.060
	D Heol Crochendy (College/Ind Est)	1.060	1.060	1.060	1.060	1.060
	C Cefn Coed	1.060	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	6.0	6.0	6.0	6.0	6.0
	B Cardiff Road (s)	6.0	6.0	6.0	6.0	6.0
	C Cardiff Road (Ind Est)	6.0	6.0	6.0	6.0	6.0
	D Heol Crochendy (College/Ind Est)	6.0	6.0	6.0	6.0	6.0
	C Cefn Coed	6.0	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.55	3.71	1.31	A	1060.77	1591.15	82.70	3.12	0.92	82.71	3.12
B Cardiff Road (s)	0.56	8.11	1.34	A	499.18	748.78	76.85	6.16	0.85	76.85	6.16
C Cardiff Road (Ind Est)	0.31	4.44	0.47	A	321.17	481.75	29.93	3.73	0.33	29.93	3.73
D Heol Crochendy (College/Ind Est)	0.23	4.19	0.31	A	222.06	333.10	20.82	3.75	0.23	20.82	3.75
C Cefn Coed	0.03	3.04	0.03	A	29.36	44.05	2.10	2.87	0.02	2.10	2.87

Existing Junction - 2018 Base, PM 1615-1715

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base, PM 1615-1715	2018 Base	PM 1615-1715		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				5.80	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1224.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	546.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	592.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	624.00	100.000
C Cefn Coed	ONE HOUR	✓	188.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	38.000	1048.000	134.000	4.000
	B Cardiff Road (s)	244.000	0.000	114.000	186.000	2.000
	C Cardiff Road (Ind Est)	28.000	360.000	0.000	196.000	8.000
	D Heol Crochendy (College/Ind Est)	596.000	18.000	0.000	0.000	10.000
	C Cefn Coed	154.000	18.000	0.000	16.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.03	0.86	0.11	0.00
	B Cardiff Road (s)	0.45	0.00	0.21	0.34	0.00
	C Cardiff Road (Ind Est)	0.05	0.61	0.00	0.33	0.01
	D Heol Crochendy (College/Ind Est)	0.96	0.03	0.00	0.00	0.02
	C Cefn Coed	0.82	0.10	0.00	0.09	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.030	1.030	1.030	1.030	1.030
	B Cardiff Road (s)	1.030	1.030	1.030	1.030	1.030
	C Cardiff Road (Ind Est)	1.030	1.030	1.030	1.030	1.030
	D Heol Crochendy (College/Ind Est)	1.030	1.030	1.030	1.030	1.030
	C Cefn Coed	1.030	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	3.0	3.0	3.0	3.0	3.0
	B Cardiff Road (s)	3.0	3.0	3.0	3.0	3.0
	C Cardiff Road (Ind Est)	3.0	3.0	3.0	3.0	3.0
	D Heol Crochendy (College/Ind Est)	3.0	3.0	3.0	3.0	3.0
	C Cefn Coed	3.0	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.62	4.50	1.68	A	1123.16	1684.75	100.54	3.58	1.12	100.54	3.58
B Cardiff Road (s)	0.64	10.77	1.77	B	501.02	751.53	93.47	7.46	1.04	93.48	7.46
C Cardiff Road (Ind Est)	0.39	3.57	0.64	A	543.23	814.84	42.44	3.13	0.47	42.44	3.13
D Heol Crochendy (College/Ind Est)	0.54	6.40	1.21	A	572.59	858.89	73.71	5.15	0.82	73.71	5.15
C Cefn Coed	0.21	4.84	0.28	A	172.51	258.77	17.76	4.12	0.20	17.76	4.12

Existing Junction - 2018 Base + DEV, AM 0800-0900

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base + DEV, AM 0800-0900	2018 Base + DEV	AM 0800-0900		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				6.35	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1334.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	590.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	396.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	280.00	100.000
C Cefn Coed	ONE HOUR	✓	36.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	176.000	328.000	656.000	174.000
	B Cardiff Road (s)	236.000	0.000	160.000	120.000	74.000
	C Cardiff Road (Ind Est)	140.000	180.000	0.000	48.000	28.000
	D Heol Crochendy (College/Ind Est)	202.000	48.000	6.000	0.000	24.000
	C Cefn Coed	14.000	10.000	4.000	8.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.13	0.25	0.49	0.13
	B Cardiff Road (s)	0.40	0.00	0.27	0.20	0.13
	C Cardiff Road (Ind Est)	0.35	0.45	0.00	0.12	0.07
	D Heol Crochendy (College/Ind Est)	0.72	0.17	0.02	0.00	0.09
	C Cefn Coed	0.39	0.28	0.11	0.22	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.060	1.060	1.060	1.060	1.060
	B Cardiff Road (s)	1.060	1.060	1.060	1.060	1.060
	C Cardiff Road (Ind Est)	1.060	1.060	1.060	1.060	1.060
	D Heol Crochendy (College/Ind Est)	1.060	1.060	1.060	1.060	1.060
	C Cefn Coed	1.060	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	6.0	6.0	6.0	6.0	6.0
	B Cardiff Road (s)	6.0	6.0	6.0	6.0	6.0
	C Cardiff Road (Ind Est)	6.0	6.0	6.0	6.0	6.0
	D Heol Crochendy (College/Ind Est)	6.0	6.0	6.0	6.0	6.0
	C Cefn Coed	6.0	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.64	4.65	1.88	A	1224.10	1836.15	112.97	3.69	1.26	112.97	3.69
B Cardiff Road (s)	0.68	12.24	2.17	B	541.39	812.09	111.13	8.21	1.23	111.14	8.21
C Cardiff Road (Ind Est)	0.36	4.86	0.59	A	363.38	545.06	36.24	3.99	0.40	36.24	3.99
D Heol Crochendy (College/Ind Est)	0.27	4.50	0.38	A	256.93	385.40	25.52	3.97	0.28	25.52	3.97
C Cefn Coed	0.03	3.16	0.03	A	33.03	49.55	2.45	2.96	0.03	2.45	2.96

Existing Junction - 2018 Base + DEV, PM 1615-1715

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2018 Base + DEV, PM 1615-1715	2018 Base + DEV	PM 1615-1715		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				6.80	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1264.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	550.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	792.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	674.00	100.000
C Cefn Coed	ONE HOUR	✓	190.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	38.000	1070.000	152.000	4.000
	B Cardiff Road (s)	242.000	0.000	118.000	188.000	2.000
	C Cardiff Road (Ind Est)	198.000	382.000	0.000	200.000	12.000
	D Heol Crochendy (College/Ind Est)	640.000	22.000	2.000	0.000	10.000
	C Cefn Coed	154.000	18.000	0.000	18.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.03	0.85	0.12	0.00
	B Cardiff Road (s)	0.44	0.00	0.21	0.34	0.00
	C Cardiff Road (Ind Est)	0.25	0.48	0.00	0.25	0.02
	D Heol Crochendy (College/Ind Est)	0.95	0.03	0.00	0.00	0.01
	C Cefn Coed	0.81	0.09	0.00	0.09	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.030	1.030	1.030	1.030	1.030
	B Cardiff Road (s)	1.030	1.030	1.030	1.030	1.030
	C Cardiff Road (Ind Est)	1.030	1.030	1.030	1.030	1.030
	D Heol Crochendy (College/Ind Est)	1.030	1.030	1.030	1.030	1.030
	C Cefn Coed	1.030	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	3.0	3.0	3.0	3.0	3.0
	B Cardiff Road (s)	3.0	3.0	3.0	3.0	3.0
	C Cardiff Road (Ind Est)	3.0	3.0	3.0	3.0	3.0
	D Heol Crochendy (College/Ind Est)	3.0	3.0	3.0	3.0	3.0
	C Cefn Coed	3.0	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.65	4.90	1.88	A	1159.87	1739.80	110.45	3.81	1.23	110.45	3.81
B Cardiff Road (s)	0.66	11.83	1.95	B	504.69	757.03	100.42	7.96	1.12	100.43	7.96
C Cardiff Road (Ind Est)	0.52	4.60	1.11	A	726.75	1090.13	68.98	3.80	0.77	68.99	3.80
D Heol Crochendy (College/Ind Est)	0.65	9.07	1.84	A	618.47	927.71	102.35	6.62	1.14	102.36	6.62
C Cefn Coed	0.25	6.04	0.35	A	174.35	261.52	21.24	4.87	0.24	21.24	4.87

Existing Junction - 2028 Base, AM 0800-0900

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base, AM 0800-0900	2028 Base	AM 0800-0900		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				6.59	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1316.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	620.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	394.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	276.00	100.000
C Cefn Coed	ONE HOUR	✓	38.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	198.000	206.000	716.000	196.000
	B Cardiff Road (s)	268.000	0.000	134.000	132.000	86.000
	C Cardiff Road (Ind Est)	126.000	192.000	0.000	46.000	30.000
	D Heol Crochendy (College/Ind Est)	196.000	50.000	6.000	0.000	24.000
	C Cefn Coed	16.000	12.000	2.000	8.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.15	0.16	0.54	0.15
	B Cardiff Road (s)	0.43	0.00	0.22	0.21	0.14
	C Cardiff Road (Ind Est)	0.32	0.49	0.00	0.12	0.08
	D Heol Crochendy (College/Ind Est)	0.71	0.18	0.02	0.00	0.09
	C Cefn Coed	0.42	0.32	0.05	0.21	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.060	1.060	1.060	1.060	1.060
	B Cardiff Road (s)	1.060	1.060	1.060	1.060	1.060
	C Cardiff Road (Ind Est)	1.060	1.060	1.060	1.060	1.060
	D Heol Crochendy (College/Ind Est)	1.060	1.060	1.060	1.060	1.060
	C Cefn Coed	1.060	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	6.0	6.0	6.0	6.0	6.0
	B Cardiff Road (s)	6.0	6.0	6.0	6.0	6.0
	C Cardiff Road (Ind Est)	6.0	6.0	6.0	6.0	6.0
	D Heol Crochendy (College/Ind Est)	6.0	6.0	6.0	6.0	6.0
	C Cefn Coed	6.0	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.64	4.60	1.84	A	1207.58	1811.38	110.53	3.66	1.23	110.54	3.66
B Cardiff Road (s)	0.69	12.55	2.33	B	568.92	853.38	118.69	8.35	1.32	118.71	8.35
C Cardiff Road (Ind Est)	0.39	5.51	0.66	A	361.54	542.31	39.62	4.38	0.44	39.62	4.38
D Heol Crochendy (College/Ind Est)	0.27	4.70	0.40	A	253.26	379.89	25.99	4.11	0.29	25.99	4.11
C Cefn Coed	0.03	3.21	0.04	A	34.87	52.30	2.61	3.00	0.03	2.61	3.00

Existing Junction - 2028 Base, PM 1615-1715

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base, PM 1615-1715	2028 Base	PM 1615-1715		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				8.91	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1388.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	619.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	672.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	706.00	100.000
C Cefn Coed	ONE HOUR	✓	214.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	42.000	1190.000	152.000	4.000
	B Cardiff Road (s)	276.000	0.000	129.000	212.000	2.000
	C Cardiff Road (Ind Est)	30.000	406.000	0.000	228.000	8.000
	D Heol Crochendy (College/Ind Est)	674.000	20.000	0.000	0.000	12.000
	C Cefn Coed	176.000	20.000	0.000	18.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.03	0.86	0.11	0.00
	B Cardiff Road (s)	0.45	0.00	0.21	0.34	0.00
	C Cardiff Road (Ind Est)	0.04	0.60	0.00	0.34	0.01
	D Heol Crochendy (College/Ind Est)	0.95	0.03	0.00	0.00	0.02
	C Cefn Coed	0.82	0.09	0.00	0.08	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.030	1.030	1.030	1.030	1.030
	B Cardiff Road (s)	1.030	1.030	1.030	1.030	1.030
	C Cardiff Road (Ind Est)	1.030	1.030	1.030	1.030	1.030
	D Heol Crochendy (College/Ind Est)	1.030	1.030	1.030	1.030	1.030
	C Cefn Coed	1.030	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	3.0	3.0	3.0	3.0	3.0
	B Cardiff Road (s)	3.0	3.0	3.0	3.0	3.0
	C Cardiff Road (Ind Est)	3.0	3.0	3.0	3.0	3.0
	D Heol Crochendy (College/Ind Est)	3.0	3.0	3.0	3.0	3.0
	C Cefn Coed	3.0	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.72	6.14	2.58	A	1273.65	1910.48	142.58	4.48	1.58	142.59	4.48
B Cardiff Road (s)	0.80	21.94	3.98	C	568.01	852.01	169.70	11.95	1.89	169.71	11.95
C Cardiff Road (Ind Est)	0.45	4.13	0.84	A	616.64	924.96	53.90	3.50	0.60	53.91	3.50
D Heol Crochendy (College/Ind Est)	0.64	8.40	1.79	A	647.84	971.76	101.41	6.26	1.13	101.42	6.26
C Cefn Coed	0.27	5.82	0.38	A	196.37	294.56	23.24	4.73	0.26	23.24	4.73

Existing Junction - 2028 Base + DEV, AM 0800-0900

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base + DEV, AM 0800-0900	2028 Base + DEV	AM 0800-0900		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				10.53	B

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1496.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	666.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	442.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	316.00	100.000
C Cefn Coed	ONE HOUR	✓	40.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	198.000	352.000	748.000	198.000
	B Cardiff Road (s)	268.000	0.000	178.000	136.000	84.000
	C Cardiff Road (Ind Est)	152.000	200.000	0.000	56.000	34.000
	D Heol Crochendy (College/Ind Est)	226.000	54.000	8.000	0.000	28.000
	C Cefn Coed	16.000	10.000	4.000	10.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.13	0.24	0.50	0.13
	B Cardiff Road (s)	0.40	0.00	0.27	0.20	0.13
	C Cardiff Road (Ind Est)	0.34	0.45	0.00	0.13	0.08
	D Heol Crochendy (College/Ind Est)	0.72	0.17	0.03	0.00	0.09
	C Cefn Coed	0.40	0.25	0.10	0.25	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.060	1.060	1.060	1.060	1.060
	B Cardiff Road (s)	1.060	1.060	1.060	1.060	1.060
	C Cardiff Road (Ind Est)	1.060	1.060	1.060	1.060	1.060
	D Heol Crochendy (College/Ind Est)	1.060	1.060	1.060	1.060	1.060
	C Cefn Coed	1.060	1.060	1.060	1.060	1.060

Heavy Vehicle Percentages - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	6.0	6.0	6.0	6.0	6.0
	B Cardiff Road (s)	6.0	6.0	6.0	6.0	6.0
	C Cardiff Road (Ind Est)	6.0	6.0	6.0	6.0	6.0
	D Heol Crochendy (College/Ind Est)	6.0	6.0	6.0	6.0	6.0
	C Cefn Coed	6.0	6.0	6.0	6.0	6.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.73	6.16	2.79	A	1372.76	2059.13	155.04	4.52	1.72	155.06	4.52
B Cardiff Road (s)	0.84	26.21	5.07	D	611.13	916.70	205.95	13.48	2.29	205.97	13.48
C Cardiff Road (Ind Est)	0.44	6.22	0.83	A	405.59	608.38	48.50	4.78	0.54	48.50	4.78
D Heol Crochendy (College/Ind Est)	0.32	5.12	0.49	A	289.97	434.95	31.77	4.38	0.35	31.77	4.38
C Cefn Coed	0.04	3.34	0.04	A	36.70	55.06	2.84	3.10	0.03	2.84	3.10

Existing Junction - 2028 Base + DEV, PM 1615-1715

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Include In Report	Use Specific Demand Set(s)	Specific Demand Set (s)	Locked	Network Flow Scaling Factor (%)	Network Capacity Scaling Factor (%)	Reason For Scaling Factors
Existing Junction	ARCADY		✓				100.000	100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Results For Central Hour Only	Single Time Segment Only	Locked	Run Automatically	Use Relationship	Relationship
2028 Base + DEV, PM 1615-1715	2028 Base + DEV	PM 1615-1715		ONE HOUR	08:00	09:30	90	15				✓		

Junction Network

Junctions

Junction	Name	Junction Type	Arm Order	Grade Separated	Large Roundabout	Do Geometric Delay	Junction Delay (s)	Junction LOS
1	(untitled)	Roundabout	1,2,3,4,5				19.08	C

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Name	Arm	Name	Description
A Caerphilly Road (A470)	1	A Caerphilly Road (A470)	
B Cardiff Road (s)	2	B Cardiff Road (s)	
C Cardiff Road (Ind Est)	3	C Cardiff Road (Ind Est)	
D Heol Crochendy (College/Ind Est)	4	D Heol Crochendy (College/Ind Est)	
C Cefn Coed	5	C Cefn Coed	

Capacity Options

Name	Minimum Capacity (PCU/hr)	Maximum Capacity (PCU/hr)	Assume Flat Start Profile	Initial Queue (PCU)
A Caerphilly Road (A470)	0.00	99999.00		0.00
B Cardiff Road (s)	0.00	99999.00		0.00
C Cardiff Road (Ind Est)	0.00	99999.00		0.00
D Heol Crochendy (College/Ind Est)	0.00	99999.00		0.00
C Cefn Coed	0.00	99999.00		0.00

Roundabout Geometry

Name	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit Only
A Caerphilly Road (A470)	7.00	10.30	4.00	16.00	62.00	16.00	
B Cardiff Road (s)	3.75	6.20	15.50	21.50	62.00	24.00	
C Cardiff Road (Ind Est)	4.00	8.40	20.00	17.00	62.00	13.00	
D Heol Crochendy (College/Ind Est)	4.20	9.00	5.00	16.20	62.00	23.00	
C Cefn Coed	3.40	6.80	17.00	31.00	62.00	18.00	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Name	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final Slope	Final Intercept (PCU/hr)
A Caerphilly Road (A470)		(calculated)	(calculated)	0.688	2482.793
B Cardiff Road (s)		(calculated)	(calculated)	0.547	1668.721
C Cardiff Road (Ind Est)		(calculated)	(calculated)	0.626	2094.833
D Heol Crochendy (College/Ind Est)		(calculated)	(calculated)	0.541	1650.664
C Cefn Coed		(calculated)	(calculated)	0.571	1756.201

The slope and intercept shown above include any corrections and adjustments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Name	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A Caerphilly Road (A470)	ONE HOUR	✓	1570.00	100.000
B Cardiff Road (s)	ONE HOUR	✓	648.00	100.000
C Cardiff Road (Ind Est)	ONE HOUR	✓	716.00	100.000
D Heol Crochendy (College/Ind Est)	ONE HOUR	✓	746.00	100.000
C Cefn Coed	ONE HOUR	✓	220.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.000	42.000	1336.000	188.000	4.000
	B Cardiff Road (s)	278.000	0.000	150.000	216.000	4.000
	C Cardiff Road (Ind Est)	58.000	414.000	0.000	232.000	12.000
	D Heol Crochendy (College/Ind Est)	706.000	24.000	2.000	0.000	14.000
	C Cefn Coed	178.000	20.000	2.000	20.000	0.000

Turning Proportions (PCU) - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	0.00	0.03	0.85	0.12	0.00
	B Cardiff Road (s)	0.43	0.00	0.23	0.33	0.01
	C Cardiff Road (Ind Est)	0.08	0.58	0.00	0.32	0.02
	D Heol Crochendy (College/Ind Est)	0.95	0.03	0.00	0.00	0.02
	C Cefn Coed	0.81	0.09	0.01	0.09	0.00

Vehicle Mix

Average PCU Per Vehicle - (untitled) (for whole period)

		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	1.030	1.030	1.030	1.030	1.030
	B Cardiff Road (s)	1.030	1.030	1.030	1.030	1.030
	C Cardiff Road (Ind Est)	1.030	1.030	1.030	1.030	1.030
	D Heol Crochendy (College/Ind Est)	1.030	1.030	1.030	1.030	1.030
	C Cefn Coed	1.030	1.030	1.030	1.030	1.030

Heavy Vehicle Percentages - (untitled) (for whole period)

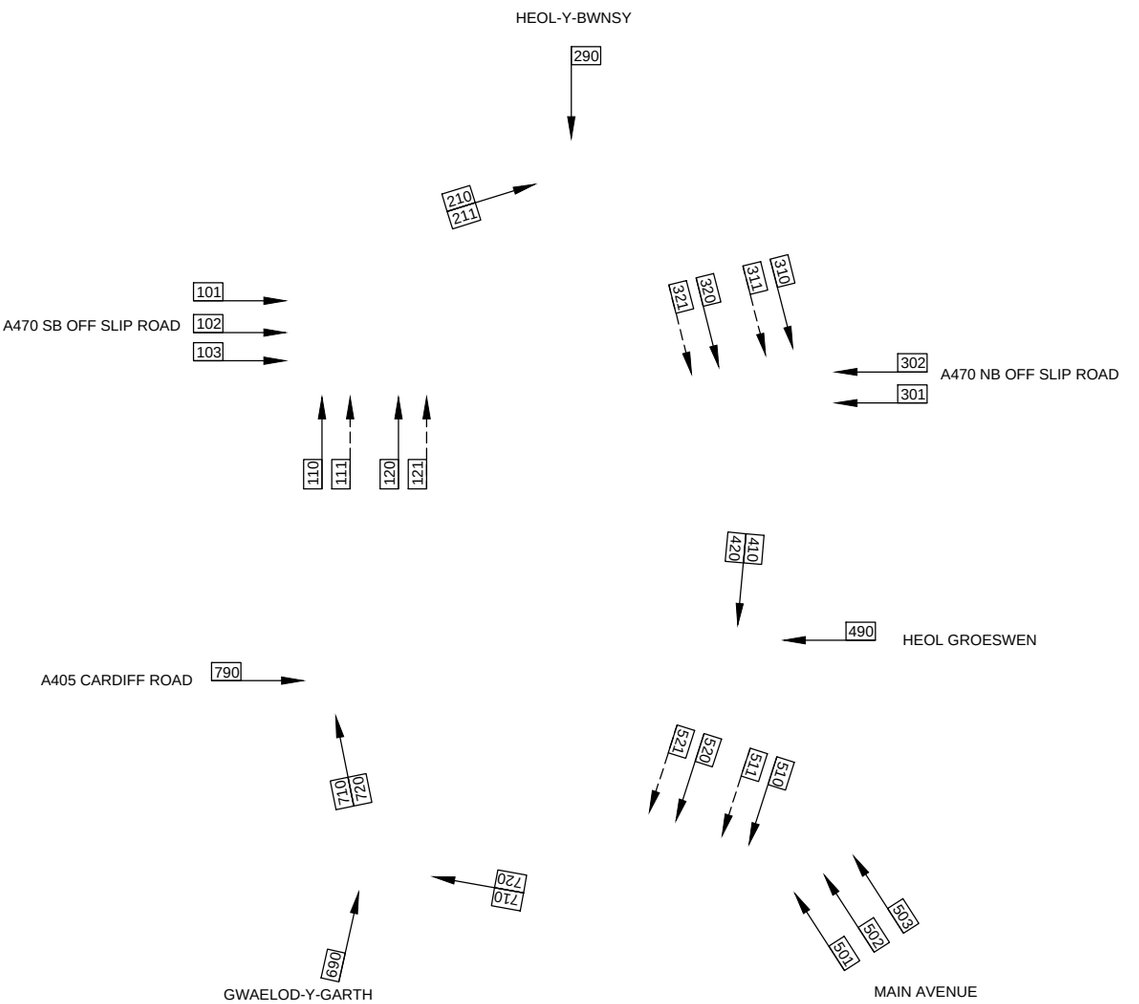
		To				
		A Caerphilly Road (A470)	B Cardiff Road (s)	C Cardiff Road (Ind Est)	D Heol Crochendy (College/Ind Est)	C Cefn Coed
From	A Caerphilly Road (A470)	3.0	3.0	3.0	3.0	3.0
	B Cardiff Road (s)	3.0	3.0	3.0	3.0	3.0
	C Cardiff Road (Ind Est)	3.0	3.0	3.0	3.0	3.0
	D Heol Crochendy (College/Ind Est)	3.0	3.0	3.0	3.0	3.0
	C Cefn Coed	3.0	3.0	3.0	3.0	3.0

Results

Results Summary for whole modelled period

Name	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)	Total Queueing Delay (PCU-min)	Average Queueing Delay (s)	Rate Of Queueing Delay (PCU-min/min)	Inclusive Total Queueing Delay (PCU-min)	Inclusive Average Queueing Delay (s)
A Caerphilly Road (A470)	0.82	9.49	4.45	A	1440.66	2160.99	217.18	6.03	2.41	217.20	6.03
B Cardiff Road (s)	0.97	73.34	14.04	F	594.62	891.92	398.18	26.79	4.42	398.21	26.79
C Cardiff Road (Ind Est)	0.49	4.50	0.98	A	657.01	985.52	61.48	3.74	0.68	61.48	3.74
D Heol Crochendy (College/Ind Est)	0.69	9.89	2.22	A	684.54	1026.81	120.41	7.04	1.34	120.42	7.04
C Cefn Coed	0.29	6.32	0.42	A	201.88	302.81	25.47	5.05	0.28	25.47	5.05

Appendix G
TRANSYT Output - A470 Upper Boat Roundabout



TRANSYT LINK/NODE DIAGRAM: UPPER BOAT

T R A N S Y T 12

Traffic Network Study Tool

Analysis Program Release 6 (February 2007)

For sales and distribution information,
program advice and maintenance, contact:

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RG40 3GA,UK

Run with file:- "UPPER BOAT PROPOSED 2018 AM NO DEV.DAT" at 08:32 on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2018AM No Dev

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	3
NUMBER OF LINKS	=	34
NUMBER OF OPTIMISED NODES	=	3
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	8
NUMBER OF STEPS IN CYCLE	=	60
MAXIMUM NUMBER OF SHARED STOPLINES	=	2
MAXIMUM NUMBER OF TIMING POINTS	=	2
MAXIMUM LINKS AT ANY NODE	=	7

CORE REQUESTED = 9079 WORDS
CORE AVAILABLE = 72000 WORDS

DATA INPUT :-

CARD NO. / CARD TYPE

(1)= **TITLE:- Upper Boat Proposed Layout 2018AM No Dev**

CARD NO.	CARD TYPE	CYCLE TIME (SEC)	NO. OF STEPS PER CYCLE	TIME PERIOD 1-1200 MINS.	EFFECTIVE-GREEN DISPLACEMENTS START (SEC)	EFFECTIVE-GREEN DISPLACEMENTS END (SEC)	EQUISAT SETTINGS 0=NO 1=YES	0=UNEQUAL CYCLE 1=EQUAL CYCLE	FLOW SCALE 10-200 %	CRUISE-SPEEDS SCALE 50-200 %	CARD32 0=TIMES 1=SPEEDS	OPTIMISE 0=NONE 1=O/SET 2=FULL	EXTRA COPIES FINAL OUTPUT	HILL-CLIMB OUTPUT 1=FULL	DELAY VALUE P PER PCU-H	STOP VALUE P PER 100
2)=	1	60	60	60	2	3	1	0	0	0	1	2	0	1	1420	260

LIST OF NODES TO BE OPTIMISED

CARD NO.	CARD TYPE															
3)=	2	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0

LINKS HAVING SHARED STOPLINES

CARD NO.	CARD TYPE	FIRST SET					SECOND SET					THIRD SET				
4)=	7	110	111	0	0	0	120	121	0	0	0	210	220	0	0	0
5)=	7	310	311	0	0	0	320	321	0	0	0	410	420	0	0	0
6)=	7	510	511	0	0	0	520	521	0	0	0	610	620	0	0	0
7)=	7	710	720	0	0	0	0	0	0	0	0	0	0	0	0	0

NODE CARDS: MINIMUM STAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
8)=	10	1	7	7								
9)=	10	3	7	7								
10)=	10	5	7	7								

NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
11)=	11	1	7	5								
12)=	11	3	7	5								
13)=	11	5	7	5								

NODE CARDS: STAGE CHANGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	Sgl/Dbl Cycled	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
14)=	12	1	1	0	44								
15)=	12	3	1	0	43								
16)=	12	5	1	0	47								

LINK CARDS: GIVEWAY DATA

CARD NO.	CARD TYPE	LINK NO.	PRIORITY LINKS LINK1 NO.	LINK2 NO.	LINK1 ONLY % FLOW	GIVEWAY COEFFS. A1 X100	A2 X100					LINK LENGTH	STOP WT.X100	MAX FLOW	DELAY WT.X100	DISPSN X100
17)=	30	290	210	220	0	48	48	0	0	0	0	200	0	1874	0	0
18)=	30	490	410	420	0	49	49	0	0	0	0	200	0	1281	0	0
19)=	30	690	610	620	0	52	52	0	0	0	0	200	0	2278	0	0
20)=	30	790	710	720	0	47	47	0	0	0	0	200	0	2300	0	0

LINK CARDS: FIXED DATA

CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	FIRST GREEN START STAGE	LAG	FIRST GREEN END STAGE	LAG	SECOND GREEN START STAGE	LAG	SECOND GREEN END STAGE	LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
21)=	31	101	1	2	5	1	0	0	0	0	0	102	0	1900	0	0
22)=	31	102	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
23)=	31	103	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
24)=	31	110	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
25)=	31	111	1	1	0	1	0	0	0	0	0	120	0	0	0	0
26)=	31	120	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
27)=	31	121	1	1	0	1	0	0	0	0	0	120	0	0	0	0
28)=	31	199	1	1	5	2	0	0	0	0	0	10	0	10000	0	0
29)=	31	210	0	0	0	0	0	0	0	0	0	63	0	6000	0	0
30)=	31	220	0	0	0	0	0	0	0	0	0	63	0	0	0	0
31)=	31	290	0	0	0	0	0	0	0	0	0	200	0	1874	0	0
32)=	31	301	3	2	5	1	0	0	0	0	0	200	0	1950	0	0
33)=	31	302	3	2	5	1	0	0	0	0	0	200	0	1900	0	0
34)=	31	310	3	1	7	2	0	0	0	0	0	88	0	1950	0	0
35)=	31	311	3	1	0	1	0	0	0	0	0	88	0	0	0	0
36)=	31	320	3	1	7	2	0	0	0	0	0	88	0	1900	0	0
37)=	31	321	3	1	0	1	0	0	0	0	0	88	0	0	0	0
38)=	31	399	3	1	5	2	0	0	0	0	0	10	0	10000	0	0
39)=	31	410	0	0	0	0	0	0	0	0	0	65	0	6000	0	0

```
 40)=  31     420       0       0       0       0       0       0       0       0       0      65       0       0       0       0
 41)=  31     490       0       0       0       0       0       0       0       0       0     200       0    1281       0       0
 42)=  31     501       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 43)=  31     502       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 44)=  31     503       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 45)=  31     510       5       1       7       2       0       0       0       0       0      75       0    1900       0       0
 46)=  31     511       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 47)=  31     520       5       1       7       2       0       0       0       0       0      75       0    1900       0       0
 48)=  31     521       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 49)=  31     610       0       0       0       0       0       0       0       0       0      56       0    4000       0       0
 50)=  31     620       0       0       0       0       0       0       0       0       0      56       0       0       0       0
 51)=  31     690       0       0       0       0       0       0       0       0       0     200       0    2278       0       0
 52)=  31     710       0       0       0       0       0       0       0       0       0      82       0    6000       0       0
 53)=  31     720       0       0       0       0       0       0       0       0       0      82       0       0       0       0
 54)=  31     790       0       0       0       0       0       0       0       0       0     200       0    2300       0       0
```

LINK CARDS: FLOW DATA

```
                                          ENTRY 1 ............    ENTRY 2 ............    ENTRY 3 ............    ENTRY 4 ............
CARD   CARD   LINK   TOTAL  UNIFORM  LINK          CRUISE   LINK          CRUISE   LINK          CRUISE   LINK          CRUISE
 NO.   TYPE    NO.   FLOW    FLOW     NO.   FLOW   SPEED    NO.   FLOW   SPEED    NO.   FLOW   SPEED    NO.   FLOW   SPEED
 55)=  32     101    174       0       0      0      48       0      0       0       0      0       0       0      0       0
 56)=  32     102    316       0       0      0      48       0      0       0       0      0       0       0      0       0
 57)=  32     103    316       0       0      0      43       0      0       0       0      0       0       0      0       0
 58)=  32     110    196       0     790    196      48       0      0       0       0      0       0       0      0       0
 59)=  32     111    271       0     720     60      48     710    211      48       0      0       0       0      0       0
 60)=  32     120    368       0     790    368      48       0      0       0       0      0       0       0      0       0
 61)=  32     121    661       0     710    651      48     720     10      48       0      0       0       0      0       0
 62)=  32     199     10       0       0      0       5       0      0       0       0      0       0       0      0       0
 63)=  32     210    642       0     102    316      48     101     10      48     103    316      48       0      0       0
 64)=  32     220   1344       0     111    151      48     121    651      48     110    174      48     120    368      48
 65)=  32     290    192       0       0      0      48       0      0       0       0      0       0       0      0       0
 66)=  32     301    279       0       0      0      48       0      0       0       0      0       0       0      0       0
 67)=  32     302    253       0       0      0      48       0      0       0       0      0       0       0      0       0
 68)=  32     310    316       0     210    316      48       0      0       0       0      0       0       0      0       0
 69)=  32     311    496       0     290     36      48     220    460      48       0      0       0       0      0       0
 70)=  32     320    316       0     210    316      48       0      0       0       0      0       0       0      0       0
 71)=  32     321    266       0     290     70      48     220    196      48       0      0       0       0      0       0
 72)=  32     399     10       0       0      0       5       0      0       0       0      0       0       0      0       0
 73)=  32     410    532       0     301    279      48     302    253      48       0      0       0       0      0       0
 74)=  32     420   1394       0     310    316      48     320    316      48     311    496      48     321    266      48
 75)=  32     490     10       0       0      0      48       0      0       0       0      0       0       0      0       0
 76)=  32     501    173       0       0      0      48       0      0       0       0      0       0       0      0       0
 77)=  32     502    173       0       0      0      48       0      0       0       0      0       0       0      0       0
 78)=  32     503     90       0       0      0      48       0      0       0       0      0       0       0      0       0
 79)=  32     510    253       0     410    253      48       0      0       0       0      0       0       0      0       0
 80)=  32     511    120       0     420    110      48     490     10      48       0      0       0       0      0       0
 81)=  32     520    253       0     410    253      48       0      0       0       0      0       0       0      0       0
 82)=  32     521    592       0     420    582      48     490     10      48       0      0       0       0      0       0

 83)=  32     610    180       0     502     90      48     503     90      48       0      0       0       0      0       0
 84)=  32     620    284       0     521     86      48     520    198      48       0      0       0       0      0       0
 85)=  32     690   1302       0       0      0      48       0      0       0       0      0       0       0      0       0
 86)=  32     710   1170       0     690   1170      48       0      0       0       0      0       0       0      0       0
 87)=  32     720    174       0     620     84      48     610     90      48       0      0       0       0      0       0
 88)=  32     790    660       0       0      0      48       0      0       0       0      0       0       0      0       0
```

GRAPH PLOT CARDS

```
CARD   CARD   LINK    LINK    LINK    LINK    LINK    LINK    LINK    LINK
 NO.   TYPE    NO.     NO.     NO.     NO.     NO.     NO.     NO.     NO.
 89)=  35     302     520     102     320       0       0       0       0       0       0       0       0       0       0
```

LINK DATA: QUEUE CONSTRAINTS

```
CARD   CARD   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE
 NO.   TYPE    NO.    QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT
 90)=  38     110      13    9999     111      13    9999     120      13    9999     121      13    9999     310       9    9999
 91)=  38     311       9    9999     320       9    9999     321       9    9999       0       0       0       0       0       0
```

```
*****END OF SUBROUTINE TINPUT*****
.

     60 SECOND CYCLE  60 STEPS
```

INITIAL SETTINGS
- (SECONDS)

```
  NODE   NUMBER   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE
   NO   OF STAGES   1       2       3       4       5       6       7       8       9      10

    1       2       0      44
    3       2       0      43
    5       2       0      47
```

```
 LINK    FLOW    SAT   DEGREE  MEAN TIMES  -------DELAY--------   ----STOPS----   ----QUEUE----  PERFORMANCE   EXIT   GREEN TIMES
NUMBER   INTO    FLOW    OF      PER PCU     UNIFORM RANDOM+ COST    MEAN   COST    MEAN             INDEX.       NODE   START  START
         LINK            SAT     CRUISE              OVERSAT  OF    STOPS   OF     MAX.  AVERAGE  WEIGHTED SUM          END    END
                                         DELAY  (U+R+O=MEAN Q) DELAY   /PCU  STOPS             EXCESS  OF ( ) VALUES         1ST    2ND
        (PCU/H) (PCU/H)  (%)   (SEC)  (SEC)    (PCU-H/H)     ($/H)    (%)   ($/H)   (PCU)   (PCU)     ($/H)                (SECONDS)

  101     174    1900     46    7.6   29.8    1.0 +  0.4  ( 20.5)     96  (  5.4)      3                25.8      1     49    0
  102     316    1900     83   15.0   49.3    2.0 +  2.3  ( 61.4)    129  ( 13.1)      7                74.5      1     49    0
  103     316    1900     83   16.7   49.3    2.0 +  2.3  ( 61.4)    129  ( 10.5)      7                71.9      1     49    0
  110     195   1900S     39    9.0    7.7    0.3 +  0.1  (  5.9)     44  (  2.8)      4  ( 0.0)*        8.7      1      7   44
  111     270    110L     39    9.0    6.9    0.3 +  0.2  (  7.4)     39  (  3.4)      4  ( 0.0)*       10.8      1      7   44
  120     368   1900S     85    9.0   18.6    0.9 +  1.0  ( 27.1)     83  (  9.8)     16  ( 0.3)*       69.4      1      7   44
  121     660    120L     85    9.0   18.5    1.6 +  1.8  ( 48.1)     82  ( 17.4)     16  ( 0.3)*       98.1      1      7   44
  199      10   10000      0    7.2    3.8    0.0 +  0.0  (  0.1)     33  (  0.0)      0                 0.1      1      5   44
  210     642   6000S     33    4.7    0.4    0.0 +  0.1  (  1.1)      1  (  0.2)      0                 1.3
  220    1342    210L     33    4.7    0.4    0.0 +  0.2  (  2.4)      1  (  0.3)      0                 2.7
  290     192    1874     53   15.0   20.2    0.5 +  0.6  ( 15.3)    104  (  6.4)      3                21.7
  301     279    1950     66   15.0   33.9    1.7 +  1.0  ( 37.3)    105  (  9.4)      5                46.6      3     48    0
  302     253    1900     61   15.0   32.5    1.5 +  0.8  ( 32.4)    102  (  8.3)      5                40.7      3     48    0
  310     316   1950S     67    6.6   13.6    0.8 +  0.4  ( 16.9)     97  (  9.8)     10  ( 0.0)*       30.4      3      7   43
  311     495    310L     67    6.6   10.3    0.8 +  0.6  ( 20.1)     45  (  7.1)     10  ( 0.0)*       30.8      3      7   43
  320     316   1900S     50    6.6   10.8    0.7 +  0.3  ( 13.4)     91  (  9.2)      8  ( 0.0)*       22.6      3      7   43
  321     266    320L     50    6.6    9.7    0.5 +  0.2  ( 10.2)     50  (  4.3)      8  ( 0.0)*       14.5      3      7   43
  399      10   10000      0    7.2    4.1    0.0 +  0.0  (  0.2)     35  (  0.0)      0                 0.2      3      5   43
  410     532   6000S     32    4.9    0.4    0.0 +  0.1  (  0.9)      1  (  0.1)      0                 1.1
  420    1393    410L     32    4.9    0.4    0.0 +  0.2  (  2.4)      1  (  0.3)      0                 2.8
  490      10   1281      4   15.0   13.2    0.0 +  0.0  (  0.5)     72  (  0.2)      0                 0.8
  501     173    1900     61   15.0   39.7    1.1 +  0.8  ( 27.1)    112  (  6.2)      3                33.3      5     52    0
  502     173    1900     61   15.0   39.7    1.1 +  0.8  ( 27.1)    112  (  6.2)      3                33.3      5     52    0
  503      90    1900     32   15.0   32.0    0.6 +  0.2  ( 11.4)     98  (  2.8)      2                14.2      5     52    0
  510     253   1900S     29    5.6    8.9    0.5 +  0.1  (  8.9)     86  (  7.0)      5                15.8      5      7   47
  511     119    510L     29    5.6    3.7    0.1 +  0.1  (  1.7)     16  (  0.6)      5                 2.3      5      7   47
  520     253   1900S     65    5.6   12.4    0.6 +  0.3  ( 12.4)     94  (  7.6)      6                20.0      5      7   47
  521     592    520L     65    5.6    5.6    0.3 +  0.7  ( 13.2)     18  (  3.3)      6                16.5      5      7   47
  610     180   4000S     12    4.2    0.5    0.0 +  0.0  (  0.4)      1  (  0.0)      0                 0.4
  620     284    610L     12    4.2    0.5    0.0 +  0.0  (  0.6)      1  (  0.1)      0                 0.6
  690    1302    2278     73   15.0    4.2    0.2 +  1.3  ( 21.8)     28  ( 11.9)      6                33.6
  710    1169   6000S     22    6.1    0.4    0.0 +  0.1  (  1.8)      1  (  0.2)      0                 2.0
  720     174    710L     22    6.1    0.4    0.0 +  0.0  (  0.3)      1  (  0.0)      0                 0.3
  790     660    2300     64   15.0    4.8    0.0 +  0.9  ( 12.4)      9  (  1.9)      2                14.3
```

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1550.8	69.4	22.3	19.1	17.8	(524.0) +	(166.0) +	(72.4) =	762.4	TOTALS

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7	+	42.4	+	75.7	=	200.8

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 75

.

60 SECOND CYCLE 60 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 9
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	0	43								
5	2	0	47								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT ($/H)	COST OF DELAY ($/H)	STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END (SECONDS)
101	174	1900	46	7.6	29.8	1.0 +	0.4	(20.5)	96	(5.4)	3		25.8	1	7	18
102	316	1900	83	15.0	49.3	2.0 +	2.3	(61.4)	129	(13.1)	7		74.5	1	7	18
103	316	1900	83	16.7	49.3	2.0 +	2.3	(61.4)	129	(10.5)	7		71.9	1	7	18
110	195	1900S	39	9.0	7.8	0.3 +	0.1	(6.0)	46	(2.9)	4	(0.0)*	8.9	1	25	2
111	270	110L	39	9.0	8.1	0.4 +	0.2	(8.6)	49	(4.2)	4	(0.0)*	12.9	1	25	2
120	368	1900S	85	9.0	18.6	0.9 +	1.0	(27.0)	84	(9.9)	16	(0.3)*	70.4	1	25	2
121	660	120L	85	9.0	18.4	1.5 +	1.8	(47.8)	83	(17.7)	16	(0.3)*	99.0	1	25	2
199	10	10000	0	7.2	3.8	0.0 +	0.0	(0.1)	33	(0.0)	0		0.1	1	23	2
210	642	6000S	33	4.7	0.4	0.0 +	0.1	(1.1)	1	(0.2)	0		1.3			
220	1342	210L	33	4.7	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.7			
290	192	1874	51	15.0	19.6	0.5 +	0.5	(14.8)	101	(6.2)	2		21.0			
301	279	1950	66	15.0	33.9	1.7 +	1.0	(37.3)	105	(9.4)	5		46.6	3	48	0
302	253	1900	61	15.0	32.5	1.5 +	0.8	(32.4)	102	(8.3)	5		40.7	3	48	0
310	316	1950S	67	6.6	4.6	0.0 +	0.4	(5.7)	8	(0.8)	8	(0.0)*	6.6	3	7	43
311	495	310L	67	6.6	15.2	1.5 +	0.6	(29.8)	78	(12.4)	8	(0.0)*	42.2	3	7	43
320	316	1900S	50	6.6	3.1	0.0 +	0.3	(3.8)	5	(0.5)	3	(0.0)*	4.3	3	7	43
321	266	320L	50	6.6	10.0	0.5 +	0.2	(10.5)	58	(4.9)	3	(0.0)*	15.5	3	7	43
399	10	10000	0	7.2	4.1	0.0 +	0.0	(0.2)	35	(0.0)	0		0.2	3	5	43
410	532	6000S	32	4.9	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.1			
420	1393	410L	32	4.9	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.8			
490	10	1281	4	15.0	15.1	0.0 +	0.0	(0.6)	67	(0.2)	0		0.8			
501	173	1900	61	15.0	39.7	1.1 +	0.8	(27.1)	112	(6.2)	3		33.3	5	52	0
502	173	1900	61	15.0	39.7	1.1 +	0.8	(27.1)	112	(6.2)	3		33.3	5	52	0
503	90	1900	32	15.0	32.0	0.6 +	0.2	(11.4)	98	(2.8)	2		14.2	5	52	0
510	253	1900S	29	5.6	8.9	0.5 +	0.1	(8.9)	86	(7.0)	5		15.9	5	7	47
511	119	510L	29	5.6	3.9	0.1 +	0.1	(1.8)	17	(0.6)	5		2.5	5	7	47
520	253	1900S	65	5.6	12.6	0.6 +	0.3	(12.6)	95	(7.7)	6		20.3	5	7	47
521	592	520L	65	5.6	5.8	0.3 +	0.7	(13.5)	19	(3.6)	6		17.1	5	7	47
610	180	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.4			
620	284	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6			
690	1302	2278	73	15.0	4.2	0.2 +	1.3	(21.8)	28	(11.9)	6		33.7			
710	1169	6000S	22	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0			
720	174	710L	22	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3			
790	660	2300	64	15.0	4.8	0.0 +	0.9	(12.4)	9	(1.9)	2		14.3			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1550.8	68.7	22.6	18.5	17.8	(514.5) +	(155.8) +	(67.0) =	737.3	TOTALS

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7	+	41.7	+	71.0	=	195.4

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 242

.

60 SECOND CYCLE 60 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 9 24
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	0	43								
5	2	24	11								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT ($/H)	COST OF DELAY ($/H)	STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END (SECONDS)
101	174	1900	46	7.6	29.8	1.0 +	0.4	(20.5)	96	(5.4)	3		25.8	1	7	18
102	316	1900	83	15.0	49.3	2.0 +	2.3	(61.4)	129	(13.1)	7		74.5	1	7	18
103	316	1900	83	16.7	49.3	2.0 +	2.3	(61.4)	129	(10.5)	7		71.9	1	7	18
110	195	1900S	39	9.0	7.7	0.3 +	0.1	(5.9)	45	(2.8)	4	(0.0)*	8.7	1	25	2
111	270	110L	39	9.0	7.1	0.4 +	0.2	(7.6)	42	(3.6)	4	(0.0)*	11.2	1	25	2
120	368	1900S	85	9.0	18.6	0.9 +	1.0	(27.0)	83	(9.8)	16	(0.3)*	67.3	1	25	2
121	660	120L	85	9.0	18.4	1.6 +	1.8	(48.0)	82	(17.4)	16	(0.3)*	95.9	1	25	2
199	10	10000	0	7.2	3.8	0.0 +	0.0	(0.1)	33	(0.0)	0		0.1	1	23	2
210	642	6000S	33	4.7	0.4	0.0 +	0.1	(1.1)	1	(0.2)	0		1.3			
220	1342	210L	33	4.7	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.7			

290	192	1874	51	15.0	19.8	0.5 +	0.5	(15.0)	102	(6.3)	3		21.3						
301	279	1950	66	15.0	33.9	1.7 +	1.0	(37.3)	105	(9.4)	5		46.6	3	48	0			
302	253	1900	61	15.0	32.5	1.5 +	0.8	(32.4)	102	(8.3)	5		40.7	3	48	0			
310	316	1950S	67	6.6	4.6	0.0 +	0.4	(5.7)	8	(0.9)	8	(0.0)*	6.6	3	7	43			
311	495	310L	67	6.6	15.2	1.5 +	0.6	(29.7)	78	(12.4)	8	(0.0)*	42.1	3	7	43			
320	316	1900S	50	6.6	3.1	0.0 +	0.3	(3.8)	5	(0.5)	3	(0.0)*	4.3	3	7	43			
321	266	320L	50	6.6	10.0	0.5 +	0.2	(10.5)	58	(4.9)	3	(0.0)*	15.4	3	7	43			
399	10	10000	0	7.2	4.1	0.0 +	0.0	(0.2)	35	(0.0)	0		0.2	3	5	43			
410	532	6000S	32	4.9	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.1						
420	1393	410L	32	4.9	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.8						
490	10	1281	4	15.0	15.0	0.0 +	0.0	(0.6)	66	(0.2)	0		0.8						
501	173	1900	61	15.0	39.7	1.1 +	0.8	(27.1)	112	(6.2)	3		33.3	5	16	24			
502	173	1900	61	15.0	39.7	1.1 +	0.8	(27.1)	112	(6.2)	3		33.3	5	16	24			
503	90	1900	32	15.0	32.0	0.6 +	0.2	(11.4)	98	(2.8)	2		14.2	5	16	24			
510	253	1900S	29	5.6	2.8	0.1 +	0.1	(2.7)	8	(0.6)	1		3.4	5	31	11			
511	119	510L	29	5.6	5.3	0.1 +	0.1	(2.5)	39	(1.5)	1		4.0	5	31	11			
520	253	1900S	65	5.6	4.8	0.1 +	0.3	(4.8)	11	(0.9)	10		5.7	5	31	11			
521	592	520L	65	5.6	11.2	1.2 +	0.7	(26.1)	81	(15.3)	10		41.5	5	31	11			
610	180	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.4						
620	284	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6						
690	1302	2278	73	15.0	4.0	0.1 +	1.3	(20.7)	23	(9.5)	5		30.2						
710	1169	6000S	22	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0						
720	174	710L	22	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3						
790	660	2300	64	15.0	4.8	0.0 +	0.9	(12.4)	9	(1.9)	2		14.3						

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1550.8	68.5	22.6	18.3	17.8	(511.8) +	(151.9) +	(60.9) =	724.6	TOTALS

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR	DELAY LITRES PER HOUR	STOPS LITRES PER HOUR	TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7 +	41.4 +	69.2 =	193.4

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 210

.

60 SECOND CYCLE 60 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 9 24 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	1	43								
5	2	26	11								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT ($/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START END 2ND (SECONDS)
101	174	1900	46	7.6	29.8	1.0 +	0.4	(20.5)	96	(5.4)	3		25.8	1	7	18
102	316	1900	83	15.0	49.3	2.0 +	2.3	(61.4)	129	(13.1)	7		74.5	1	7	18
103	316	1900	83	16.7	49.3	2.0 +	2.3	(61.4)	129	(10.5)	7		71.9	1	7	18
110	195	1900S	39	9.0	7.7	0.3 +	0.1	(5.9)	45	(2.8)	4	(0.0)*	8.7	1	25	2
111	270	110L	39	9.0	7.2	0.4 +	0.2	(7.7)	42	(3.7)	4	(0.0)*	11.3	1	25	2
120	368	1900S	85	9.0	18.6	0.9 +	1.0	(27.0)	83	(9.8)	16	(0.3)*	67.7	1	25	2
121	660	120L	85	9.0	18.5	1.6 +	1.8	(48.1)	82	(17.5)	16	(0.3)*	96.4	1	25	2
199	10	10000	0	7.2	3.8	0.0 +	0.0	(0.1)	33	(0.0)	0		0.1	1	23	2
210	642	6000S	33	4.7	0.4	0.0 +	0.1	(1.1)	1	(0.2)	0		1.3			
220	1342	210L	33	4.7	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.7			
290	192	1874	51	15.0	19.8	0.5 +	0.5	(15.0)	102	(6.3)	3		21.3			
301	279	1950	61	15.0	30.7	1.6 +	0.8	(33.8)	99	(8.9)	5		42.7	3	48	1
302	253	1900	57	15.0	29.7	1.4 +	0.7	(29.7)	97	(7.9)	4		37.6	3	48	1
310	316	1950S	69	6.6	5.1	0.0 +	0.4	(6.4)	13	(1.3)	8	(0.0)*	7.7	3	8	43
311	495	310L	69	6.6	16.4	1.6 +	0.7	(32.0)	80	(12.8)	8	(0.0)*	44.8	3	8	43
320	316	1900S	51	6.6	3.2	0.0 +	0.3	(4.0)	5	(0.5)	3	(0.0)*	4.6	3	8	43
321	266	320L	51	6.6	10.8	0.6 +	0.2	(11.3)	61	(5.2)	3	(0.0)*	16.6	3	8	43
399	10	10000	0	7.2	4.5	0.0 +	0.0	(0.2)	37	(0.0)	0		0.2	3	6	43
410	532	6000S	32	4.9	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.1			
420	1393	410L	32	4.9	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.8			
490	10	1281	4	15.0	14.1	0.0 +	0.0	(0.6)	63	(0.2)	0		0.8			
501	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	16	26
502	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	16	26
503	90	1900	26	15.0	28.0	0.5 +	0.2	(9.9)	91	(2.6)	1		12.6	5	16	26
510	253	1900S	30	5.6	3.2	0.1 +	0.1	(3.2)	9	(0.7)	1		3.9	5	33	11
511	119	510L	30	5.6	6.1	0.1 +	0.1	(2.9)	45	(1.7)	1		4.6	5	33	11
520	253	1900S	68	5.6	5.7	0.1 +	0.3	(5.7)	13	(1.1)	10		6.8	5	33	11
521	592	520L	68	5.6	13.3	1.4 +	0.8	(31.0)	88	(16.7)	10		47.7	5	33	11
610	180	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.4			
620	284	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6			
690	1302	2278	73	15.0	4.0	0.1 +	1.3	(20.5)	22	(9.2)	5		29.7			
710	1169	6000S	22	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0			
720	174	710L	22	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3			
790	660	2300	64	15.0	4.8	0.0 +	0.9	(12.4)	9	(1.8)	2		14.3			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1550.8	68.0	22.8	18.4	17.2	(504.6) +	(152.2) +	(61.7) =	718.5	TOTALS

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR	DELAY LITRES PER HOUR	STOPS LITRES PER HOUR	TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7 +	40.9 +	69.4 =	192.9

NO. OF ENTRIES TO SUBPT = 16
NO. OF LINKS RECALCULATED= 376

.

60 SECOND CYCLE 60 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 9 24 -1 9

- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	1	43								
5	2	26	11								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	OVERSAT	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	START END 2ND
101	174	1900	46	7.6	29.8	1.0 +	0.4	(20.5)	96	(5.4)	3		25.8	1	7	18
102	316	1900	83	15.0	49.3	2.0 +	2.3	(61.4)	129	(13.1)	7		74.5	1	7	18
103	316	1900	83	16.7	49.3	2.0 +	2.3	(61.4)	129	(10.5)	7		71.9	1	7	18
110	195	1900S	39	9.0	7.7	0.3 +	0.1	(5.9)	45	(2.8)	4	(0.0)*	8.7	1	25	2
111	270	110L	39	9.0	7.2	0.4 +	0.2	(7.7)	42	(3.7)	4	(0.0)*	11.3	1	25	2
120	368	1900S	85	9.0	18.6	0.9 +	1.0	(27.0)	83	(9.8)	16	(0.3)*	67.7	1	25	2
121	660	120L	85	9.0	18.5	1.6 +	1.8	(48.1)	82	(17.5)	16	(0.3)*	96.4	1	25	2
199	10	10000	0	7.2	3.8	0.0 +	0.0	(0.1)	33	(0.0)	0		0.1	1	23	2
210	642	6000S	33	4.7	0.4	0.0 +	0.1	(1.1)	1	(0.2)	0		1.3			
220	1342	210L	33	4.7	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.7			
290	192	1874	51	15.0	19.8	0.5 +	0.5	(15.0)	102	(6.3)	3		21.3			
301	279	1950	61	15.0	30.7	1.6 +	0.8	(33.8)	99	(8.9)	5		42.7	3	48	1
302	253	1900	57	15.0	29.7	1.4 +	0.7	(29.7)	97	(7.9)	4		37.6	3	48	1
310	316	1950S	69	6.6	5.1	0.0 +	0.4	(6.4)	13	(1.3)	8	(0.0)*	7.7	3	8	43
311	495	310L	69	6.6	16.4	1.6 +	0.7	(32.0)	80	(12.8)	8	(0.0)*	44.8	3	8	43
320	316	1900S	51	6.6	3.2	0.0 +	0.3	(4.0)	5	(0.5)	3	(0.0)*	4.6	3	8	43
321	266	320L	51	6.6	10.8	0.6 +	0.2	(11.3)	61	(5.2)	3	(0.0)*	16.6	3	8	43
399	10	10000	0	7.2	4.5	0.0 +	0.0	(0.2)	37	(0.0)	0		0.2	3	6	43
410	532	6000S	32	4.9	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.1			
420	1393	410L	32	4.9	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.8			
490	10	1281	4	15.0	14.1	0.0 +	0.0	(0.6)	63	(0.2)	0		0.8			
501	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	16	26
502	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	16	26
503	90	1900	26	15.0	28.0	0.5 +	0.2	(9.9)	91	(2.6)	1		12.6	5	16	26
510	253	1900S	30	5.6	3.2	0.1 +	0.1	(3.2)	9	(0.7)	1		3.9	5	33	11
511	119	510L	30	5.6	6.1	0.1 +	0.1	(2.9)	45	(1.7)	1		4.6	5	33	11
520	253	1900S	68	5.6	5.7	0.1 +	0.3	(5.7)	13	(1.1)	10		6.8	5	33	11
521	592	520L	68	5.6	13.3	1.4 +	0.8	(31.0)	88	(16.7)	10		47.7	5	33	11
610	180	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.4			
620	284	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6			
690	1302	2278	73	15.0	4.0	0.1 +	1.3	(20.5)	22	(9.2)	5		29.7			
710	1169	6000S	22	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0			
720	174	710L	22	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3			
790	660	2300	64	15.0	4.8	0.0 +	0.9	(12.4)	9	(1.8)	2		14.3			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1550.8	68.0	22.8	18.4	17.2	(504.6) +	(152.2) +	(61.7) =	718.5	TOTALS

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60 SECOND CYCLE 60 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7	+	40.9	+	69.4	=	192.9

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 237

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60 SECOND CYCLE 60 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 9 24 -1 9 24
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	1	43								
5	2	26	11								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	OVERSAT	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	START END 2ND
101	174	1900	46	7.6	29.8	1.0 +	0.4	(20.5)	96	(5.4)	3		25.8	1	7	18
102	316	1900	83	15.0	49.3	2.0 +	2.3	(61.4)	129	(13.1)	7		74.5	1	7	18
103	316	1900	83	16.7	49.3	2.0 +	2.3	(61.4)	129	(10.5)	7		71.9	1	7	18
110	195	1900S	39	9.0	7.7	0.3 +	0.1	(5.9)	45	(2.8)	4	(0.0)*	8.7	1	25	2
111	270	110L	39	9.0	7.2	0.4 +	0.2	(7.7)	42	(3.7)	4	(0.0)*	11.3	1	25	2
120	368	1900S	85	9.0	18.6	0.9 +	1.0	(27.0)	83	(9.8)	16	(0.3)*	67.7	1	25	2
121	660	120L	85	9.0	18.5	1.6 +	1.8	(48.1)	82	(17.5)	16	(0.3)*	96.4	1	25	2
199	10	10000	0	7.2	3.8	0.0 +	0.0	(0.1)	33	(0.0)	0		0.1	1	23	2
210	642	6000S	33	4.7	0.4	0.0 +	0.1	(1.1)	1	(0.2)	0		1.3			
220	1342	210L	33	4.7	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.7			
290	192	1874	51	15.0	19.8	0.5 +	0.5	(15.0)	102	(6.3)	3		21.3			
301	279	1950	61	15.0	30.7	1.6 +	0.8	(33.8)	99	(8.9)	5		42.7	3	48	1
302	253	1900	57	15.0	29.7	1.4 +	0.7	(29.7)	97	(7.9)	4		37.6	3	48	1
310	316	1950S	69	6.6	5.1	0.0 +	0.4	(6.4)	13	(1.3)	8	(0.0)*	7.7	3	8	43
311	495	310L	69	6.6	16.4	1.6 +	0.7	(32.0)	80	(12.8)	8	(0.0)*	44.8	3	8	43
320	316	1900S	51	6.6	3.2	0.0 +	0.3	(4.0)	5	(0.5)	3	(0.0)*	4.6	3	8	43
321	266	320L	51	6.6	10.8	0.6 +	0.2	(11.3)	61	(5.2)	3	(0.0)*	16.6	3	8	43
399	10	10000	0	7.2	4.5	0.0 +	0.0	(0.2)	37	(0.0)	0		0.2	3	6	43
410	532	6000S	32	4.9	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.1			
420	1393	410L	32	4.9	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.8			
490	10	1281	4	15.0	14.1	0.0 +	0.0	(0.6)	63	(0.2)	0		0.8			
501	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	16	26
502	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	16	26
503	90	1900	26	15.0	28.0	0.5 +	0.2	(9.9)	91	(2.6)	1		12.6	5	16	26
510	253	1900S	30	5.6	3.2	0.1 +	0.1	(3.2)	9	(0.7)	1		3.9	5	33	11
511	119	510L	30	5.6	6.1	0.1 +	0.1	(2.9)	45	(1.7)	1		4.6	5	33	11
520	253	1900S	68	5.6	5.7	0.1 +	0.3	(5.7)	13	(1.1)	10		6.8	5	33	11
521	592	520L	68	5.6	13.3	1.4 +	0.8	(31.0)	88	(16.7)	10		47.7	5	33	11
610	180	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.4			
620	284	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6			
690	1302	2278	73	15.0	4.0	0.1 +	1.3	(20.5)	22	(9.2)	5		29.7			
710	1169	6000S	22	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0			
720	174	710L	22	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3			
790	660	2300	64	15.0	4.8	0.0 +	0.9	(12.4)	9	(1.8)	2		14.3			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1550.8	68.0	22.8	18.4	17.2	(504.6) +	(152.2) +	(61.7) =	718.5	TOTALS

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7	+	40.9	+	69.4	=	192.9

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 319

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60 SECOND CYCLE 60 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 9 24 -1 9 24 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	1	43								
5	2	25	10								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT ($/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	174	1900	46	7.6	29.8	1.0 +	0.4	(20.5)	96	(5.4)	3		25.8	1	7	18		
102	316	1900	83	15.0	49.3	2.0 +	2.3	(61.4)	129	(13.1)	7		74.5	1	7	18		
103	316	1900	83	16.7	49.3	2.0 +	2.3	(61.4)	129	(10.5)	7		71.9	1	7	18		
110	195	1900S	39	9.0	7.7	0.3 +	0.1	(5.9)	45	(2.8)	4	(0.0)*	8.7	1	25	2		
111	270	110L	39	9.0	7.2	0.4 +	0.2	(7.7)	42	(3.7)	4	(0.0)*	11.3	1	25	2		
120	368	1900S	85	9.0	18.6	0.9 +	1.0	(27.0)	83	(9.8)	16	(0.3)*	68.3	1	25	2		
121	660	120L	85	9.0	18.5	1.6 +	1.8	(48.1)	82	(17.5)	16	(0.3)*	96.9	1	25	2		
199	10	10000	0	7.2	3.8	0.0 +	0.0	(0.1)	33	(0.0)	0		0.1	1	23	2		
210	642	6000S	33	4.7	0.4	0.0 +	0.1	(1.1)	1	(0.2)	0		1.3					
220	1342	210L	33	4.7	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.7					
290	192	1874	51	15.0	19.7	0.5 +	0.5	(15.0)	102	(6.3)	3		21.2					
301	279	1950	61	15.0	30.7	1.6 +	0.8	(33.8)	99	(8.9)	5		42.7	3	48	1		
302	253	1900	57	15.0	29.7	1.4 +	0.7	(29.7)	97	(7.9)	4		37.6	3	48	1		
310	316	1950S	69	6.6	5.1	0.0 +	0.4	(6.4)	13	(1.3)	8	(0.0)*	7.7	3	8	43		
311	495	310L	69	6.6	16.4	1.6 +	0.7	(32.0)	80	(12.8)	8	(0.0)*	44.8	3	8	43		
320	316	1900S	51	6.6	3.2	0.0 +	0.3	(4.0)	5	(0.5)	3	(0.0)*	4.6	3	8	43		
321	266	320L	51	6.6	10.8	0.6 +	0.2	(11.3)	61	(5.2)	3	(0.0)*	16.6	3	8	43		
399	10	10000	0	7.2	4.5	0.0 +	0.0	(0.2)	37	(0.0)	0		0.2	3	6	43		
410	532	6000S	32	4.9	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.1					
420	1393	410L	32	4.9	0.4	0.0 +	0.2	(2.4)	1	(0.3)	0		2.8					
490	10	1281	4	15.0	14.1	0.0 +	0.0	(0.6)	63	(0.2)	0		0.8					
501	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	15	25		
502	173	1900	50	15.0	32.2	1.1 +	0.5	(22.0)	100	(5.5)	3		27.5	5	15	25		
503	90	1900	26	15.0	28.0	0.5 +	0.2	(9.9)	91	(2.6)	1		12.6	5	15	25		
510	253	1900S	30	5.6	3.6	0.1 +	0.1	(3.6)	12	(0.9)	2		4.5	5	32	10		
511	119	510L	30	5.6	5.7	0.1 +	0.1	(2.7)	42	(1.6)	2		4.3	5	32	10		
520	253	1900S	68	5.6	6.1	0.1 +	0.3	(6.1)	16	(1.3)	10		7.4	5	32	10		
521	592	520L	68	5.6	12.6	1.3 +	0.8	(29.3)	85	(16.2)	10		45.6	5	32	10		
610	180	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.4					
620	284	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6					
690	1302	2278	73	15.0	4.0	0.1 +	1.3	(20.5)	22	(9.2)	5		29.7					
710	1169	6000S	22	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0					
720	174	710L	22	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3					
790	660	2300	64	15.0	4.8	0.0 +	0.9	(12.4)	9	(1.8)	2		14.3					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1550.8	68.0	22.8	18.3	17.2	(503.6) +	(152.0) +	(62.8) =	718.4	TOTALS

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7	+	40.8	+	69.3	=	192.8

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 258

.

60 SECOND CYCLE 60 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 9 24 -1 9 24 1 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	1	43								
5	2	25	10								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT ($/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	174	1900	46	7.6	29.8	1.0 +	0.4	(20.5)	96	(5.4)	3		25.8	1	7	18		
102	316	1900	83	15.0	49.3	2.0 +	2.3	(61.4)	129	(13.1)	7		74.5	1	7	18		
103	316	1900	83	16.7	49.3	2.0 +	2.3	(61.4)	129	(10.5)	7		71.9	1	7	18		
110	195	1900S	39	9.0	7.7	0.3 +	0.1	(5.9)	45	(2.8)	4	(0.0)*	8.7	1	25	2		
111	270	110L	39	9.0	7.2	0.4 +	0.2	(7.7)	42	(3.7)	4	(0.0)*	11.3	1	25	2		
120	368	1900S	85	9.0	18.6	0.9 +	1.0	(27.0)	83	(9.8)	16	(0.3)*	68.3	1	25	2		
121	660	120L	85	9.0	18.5	1.6 +	1.8	(48.1)	82	(17.5)	16	(0.3)*	96.9	1	25	2		
199	10	10000	0	7.2	3.8	0.0 +	0.0	(0.1)	33	(0.0)	0		0.1	1	23	2		
210	642	6000S	33	4.7	0.4	0.0 +	0.1	(1.1)	1	(0.2)	0		1.3					

220	1342	210L	33	4.7	0.4	0.0	+	0.2	(2.4)	1	(0.3)	0		2.7							
290	192	1874	51	15.0	19.7	0.5	+	0.5	(15.0)	102	(6.3)	3		21.2							
301	279	1950	61	15.0	30.7	1.6	+	0.8	(33.8)	99	(8.9)	5		42.7	3	48	1				
302	253	1900	57	15.0	29.7	1.4	+	0.7	(29.7)	97	(7.9)	4		37.6	3	48	1				
310	316	1950S	69	6.6	5.1	0.0	+	0.4	(6.4)	13	(1.3)	8	(0.0)*	7.7	3	8	43				
311	495	310L	69	6.6	16.4	1.6	+	0.7	(32.0)	80	(12.8)	8	(0.0)*	44.8	3	8	43				
320	316	1900S	51	6.6	3.2	0.0	+	0.3	(4.0)	5	(0.5)	3	(0.0)*	4.6	3	8	43				
321	266	320L	51	6.6	10.8	0.6	+	0.2	(11.3)	61	(5.2)	3	(0.0)*	16.6	3	8	43				
399	10	10000	0	7.2	4.5	0.0	+	0.0	(0.2)	37	(0.0)	0		0.2	3	6	43				
410	532	6000S	32	4.9	0.4	0.0	+	0.1	(0.9)	1	(0.1)	0		1.1							
420	1393	410L	32	4.9	0.4	0.0	+	0.2	(2.4)	1	(0.3)	0		2.8							
490	10	1281	4	15.0	14.1	0.0	+	0.0	(0.6)	63	(0.2)	0		0.8							
501	173	1900	50	15.0	32.2	1.1	+	0.5	(22.0)	100	(5.5)	3		27.5	5	15	25				
502	173	1900	50	15.0	32.2	1.1	+	0.5	(22.0)	100	(5.5)	3		27.5	5	15	25				
503	90	1900	26	15.0	28.0	0.5	+	0.2	(9.9)	91	(2.6)	1		12.6	5	15	25				
510	253	1900S	30	5.6	3.6	0.1	+	0.1	(3.6)	12	(0.9)	2		4.5	5	32	10				
511	119	510L	30	5.6	5.7	0.1	+	0.1	(2.7)	42	(1.6)	2		4.3	5	32	10				
520	253	1900S	68	5.6	6.1	0.1	+	0.3	(6.1)	16	(1.3)	10		7.4	5	32	10				
521	592	520L	68	5.6	12.6	1.3	+	0.8	(29.3)	85	(16.2)	10		45.6	5	32	10				
610	180	4000S	12	4.2	0.5	0.0	+	0.0	(0.4)	1	(0.0)	0		0.4							
620	284	610L	12	4.2	0.5	0.0	+	0.0	(0.6)	1	(0.1)	0		0.6							
690	1302	2278	73	15.0	4.0	0.1	+	1.3	(20.5)	22	(9.2)	5		29.7							
710	1169	6000S	22	6.1	0.4	0.0	+	0.1	(1.8)	1	(0.2)	0		2.0							
720	174	710L	22	6.1	0.4	0.0	+	0.0	(0.3)	1	(0.0)	0		0.3							
790	660	2300	64	15.0	4.8	0.0	+	0.9	(12.4)	9	(1.8)	2		14.3							

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1550.8	68.0	22.8	18.3	17.2	(503.6)	+ (152.0)	+ (62.8)	= 718.4	TOTALS

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7	+	40.8	+	69.3	=	192.8

NO. OF ENTRIES TO SUBPT = 13
NO. OF LINKS RECALCULATED= 454

.

60 SECOND CYCLE 60 STEPS

FINAL SETTINGS OBTAINED WITH INCREMENTS :- 9 24 -1 9 24 1 -1 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	18	2								
3	2	1	43								
5	2	25	10								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE		DELAY	-------DELAY-------- UNIFORM RANDOM+ OVERSAT (U+R+O=MEAN Q)	COST OF DELAY	----STOPS---- MEAN STOPS /PCU	COST OF STOPS	----QUEUE---- MEAN MAX.	AVERAGE EXCESS	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START 1ST	START 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)		(PCU-H/H)	($/H)	(%)	($/H)	(PCU)	(PCU)	($/H)		END (SECONDS)	END
101	174	1900	46	7.6	29.8	1.0	+ 0.4	(20.5)	96	(5.4)	3		25.8	1	7	18
102	316	1900	83	15.0	49.3	2.0	+ 2.3	(61.4)	129	(13.1)	7		74.5	1	7	18
103	316	1900	83	16.7	49.3	2.0	+ 2.3	(61.4)	129	(10.5)	7		71.9	1	7	18
110	195	1900S	39	9.0	7.7	0.3	+ 0.1	(5.9)	45	(2.8)	4	(0.0)*	8.7	1	25	2
111	270	110L	39	9.0	7.2	0.4	+ 0.2	(7.7)	42	(3.7)	4	(0.0)*	11.3	1	25	2
120	368	1900S	85	9.0	18.6	0.9	+ 1.0	(27.0)	83	(9.8)	16	(0.3)*	68.3	1	25	2
121	660	120L	85	9.0	18.5	1.6	+ 1.8	(48.1)	82	(17.5)	16	(0.3)*	96.9	1	25	2
199	10	10000	0	7.2	3.8	0.0	+ 0.0	(0.1)	33	(0.0)	0		0.1	1	23	2
210	642	6000S	33	4.7	0.4	0.0	+ 0.1	(1.1)	1	(0.2)	0		1.3			
220	1342	210L	33	4.7	0.4	0.0	+ 0.2	(2.4)	1	(0.3)	0		2.7			
290	192	1874	51	15.0	19.7	0.5	+ 0.5	(15.0)	102	(6.3)	3		21.2			
301	279	1950	61	15.0	30.7	1.6	+ 0.8	(33.8)	99	(8.9)	5		42.7	3	48	1
302	253	1900	57	15.0	29.7	1.4	+ 0.7	(29.7)	97	(7.9)	4		37.6	3	48	1
310	316	1950S	69	6.6	5.1	0.0	+ 0.4	(6.4)	13	(1.3)	8	(0.0)*	7.7	3	8	43
311	495	310L	69	6.6	16.4	1.6	+ 0.7	(32.0)	80	(12.8)	8	(0.0)*	44.8	3	8	43
320	316	1900S	51	6.6	3.2	0.0	+ 0.3	(4.0)	5	(0.5)	3	(0.0)*	4.6	3	8	43
321	266	320L	51	6.6	10.8	0.6	+ 0.2	(11.3)	61	(5.2)	3	(0.0)*	16.6	3	8	43
399	10	10000	0	7.2	4.5	0.0	+ 0.0	(0.2)	37	(0.0)	0		0.2	3	6	43
410	532	6000S	32	4.9	0.4	0.0	+ 0.1	(0.9)	1	(0.1)	0		1.1			
420	1393	410L	32	4.9	0.4	0.0	+ 0.2	(2.4)	1	(0.3)	0		2.8			
490	10	1281	4	15.0	14.1	0.0	+ 0.0	(0.6)	63	(0.2)	0		0.8			
501	173	1900	50	15.0	32.2	1.1	+ 0.5	(22.0)	100	(5.5)	3		27.5	5	15	25
502	173	1900	50	15.0	32.2	1.1	+ 0.5	(22.0)	100	(5.5)	3		27.5	5	15	25
503	90	1900	26	15.0	28.0	0.5	+ 0.2	(9.9)	91	(2.6)	1		12.6	5	15	25
510	253	1900S	30	5.6	3.6	0.1	+ 0.1	(3.6)	12	(0.9)	2		4.5	5	32	10
511	119	510L	30	5.6	5.7	0.1	+ 0.1	(2.7)	42	(1.6)	2		4.3	5	32	10
520	253	1900S	68	5.6	6.1	0.1	+ 0.3	(6.1)	16	(1.3)	10		7.4	5	32	10
521	592	520L	68	5.6	12.6	1.3	+ 0.8	(29.3)	85	(16.2)	10		45.6	5	32	10
610	180	4000S	12	4.2	0.5	0.0	+ 0.0	(0.4)	1	(0.0)	0		0.4			
620	284	610L	12	4.2	0.5	0.0	+ 0.0	(0.6)	1	(0.1)	0		0.6			
690	1302	2278	73	15.0	4.0	0.1	+ 1.3	(20.5)	22	(9.2)	5		29.7			
710	1169	6000S	22	6.1	0.4	0.0	+ 0.1	(1.8)	1	(0.2)	0		2.0			
720	174	710L	22	6.1	0.4	0.0	+ 0.0	(0.3)	1	(0.0)	0		0.3			
790	660	2300	64	15.0	4.8	0.0	+ 0.9	(12.4)	9	(1.8)	2		14.3			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1550.8	68.0	22.8	18.3	17.2	(503.6)	+ (152.0)	+ (62.8)	= 718.4	TOTALS

ROUTE

.

60 SECOND CYCLE 60 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	82.7	+	40.8	+	69.3	=	192.8

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 260

_________________ T R A N S Y T 12 _________________

Traffic Network Study Tool

Analysis Program Release 6 (February 2007)

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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "UPPER BOAT PROPOSED 2018 AM + DEV.DAT" at 08:35 on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2018AM + Dev

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	3
NUMBER OF LINKS	=	34
NUMBER OF OPTIMISED NODES	=	3
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	8
NUMBER OF STEPS IN CYCLE	=	70
MAXIMUM NUMBER OF SHARED STOPLINES	=	2
MAXIMUM NUMBER OF TIMING POINTS	=	2
MAXIMUM LINKS AT ANY NODE	=	7

CORE REQUESTED = 9519 WORDS
CORE AVAILABLE = 72000 WORDS

.

DATA INPUT :-

CARD NO.	CARD TYPE
(1)=	**TITLE:- Upper Boat Proposed Layout 2018AM + Dev**

CARD NO.	CARD TYPE	CYCLE TIME (SEC)	NO. OF STEPS PER CYCLE	TIME PERIOD 1-1200 MINS.	EFFECTIVE-GREEN DISPLACEMENTS START (SEC)	EFFECTIVE-GREEN DISPLACEMENTS END (SEC)	EQUISAT SETTINGS 0=NO 1=YES	0=UNEQUAL CYCLE 1=EQUAL CYCLE	FLOW SCALE 10-200 %	CRUISE-SPEEDS SCALE 50-200 %	CRUISE-SPEEDS CARD32 0=TIMES 1=SPEEDS	OPTIMISE 0=NONE 1=O/SET 2=FULL	EXTRA COPIES FINAL OUTPUT	HILL-CLIMB OUTPUT 1=FULL	DELAY VALUE P PER PCU-H	STOP VALUE P PER 100
2)=	1	70	70	60	2	3	1	0	0	0	1	2	0	1	1420	260

LIST OF NODES TO BE OPTIMISED

CARD NO.	CARD TYPE															
3)=	2	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0

LINKS HAVING SHARED STOPLINES

CARD NO.	CARD TYPE	FIRST SET........................					SECOND SET.......................					THIRD SET........................				
4)=	7	110	111	0	0	0	120	121	0	0	0	210	220	0	0	0
5)=	7	310	311	0	0	0	320	321	0	0	0	410	420	0	0	0
6)=	7	510	511	0	0	0	520	521	0	0	0	610	620	0	0	0
7)=	7	710	720	0	0	0	0	0	0	0	0	0	0	0	0	0

NODE CARDS: MINIMUM STAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
8)=	10	1		7	7								
9)=	10	3		7	7								
10)=	10	5		7	7								

NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
11)=	11	1		7	5								
12)=	11	3		7	5								
13)=	11	5		7	5								

NODE CARDS: STAGE CHANGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	Sgl/Dbl Cycled	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
14)=	12	1	1	0	51								
15)=	12	3	1	0	49								
16)=	12	5	1	0	55								

LINK CARDS: GIVEWAY DATA

CARD NO.	CARD TYPE	LINK NO.	PRIORITY LINKS LINK1 NO.	PRIORITY LINKS LINK2 NO.	LINK1 ONLY % FLOW	GIVEWAY COEFFS. A1 X100	GIVEWAY COEFFS. A2 X100					LINK LENGTH	STOP WT.X100	MAX FLOW	DELAY WT.X100	DISPSN X100
17)=	30	290	210	220	0	48	48	0	0	0	0	200	0	1874	0	0
18)=	30	490	410	420	0	49	49	0	0	0	0	200	0	1281	0	0
19)=	30	690	610	620	0	52	52	0	0	0	0	200	0	2278	0	0
20)=	30	790	710	720	0	47	47	0	0	0	0	200	0	2300	0	0

LINK CARDS: FIXED DATA

CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	FIRST GREEN START STAGE	FIRST GREEN START LAG	FIRST GREEN END STAGE	FIRST GREEN END LAG	SECOND GREEN START STAGE	SECOND GREEN START LAG	SECOND GREEN END STAGE	SECOND GREEN END LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
21)=	31	101	1	2	5	1	0	0	0	0	0	102	0	1900	0	0
22)=	31	102	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
23)=	31	103	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
24)=	31	110	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
25)=	31	111	1	1	0	1	0	0	0	0	0	120	0	0	0	0
26)=	31	120	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
27)=	31	121	1	1	0	1	0	0	0	0	0	120	0	0	0	0
28)=	31	199	1	1	5	2	0	0	0	0	0	10	0	10000	0	0
29)=	31	210	0	0	0	0	0	0	0	0	0	63	0	6000	0	0
30)=	31	220	0	0	0	0	0	0	0	0	0	63	0	0	0	0
31)=	31	290	0	0	0	0	0	0	0	0	0	200	0	1874	0	0
32)=	31	301	3	2	5	1	0	0	0	0	0	200	0	1950	0	0
33)=	31	302	3	2	5	1	0	0	0	0	0	200	0	1900	0	0
34)=	31	310	3	1	7	2	0	0	0	0	0	88	500	1950	0	0
35)=	31	311	3	1	0	1	0	0	0	0	0	88	0	0	0	0
36)=	31	320	3	1	7	2	0	0	0	0	0	88	500	1900	0	0
37)=	31	321	3	1	0	1	0	0	0	0	0	88	0	0	0	0
38)=	31	399	3	1	5	2	0	0	0	0	0	10	0	10000	0	0
39)=	31	410	0	0	0	0	0	0	0	0	0	65	0	6000	0	0

40)=	31	420	0	0	0	0	0	0	0	0	0	65	0	0	0	0
41)=	31	490	0	0	0	0	0	0	0	0	0	200	0	1281	0	0
42)=	31	501	5	2	5	1	0	0	0	0	0	200	0	1900	0	0
43)=	31	502	5	2	5	1	0	0	0	0	0	200	0	1900	0	0
44)=	31	503	5	2	5	1	0	0	0	0	0	200	0	1900	0	0
45)=	31	510	5	1	7	2	0	0	0	0	0	75	500	1900	0	0
46)=	31	511	5	1	0	1	0	0	0	0	0	75	0	0	0	0
47)=	31	520	5	1	7	2	0	0	0	0	0	75	500	1900	0	0
48)=	31	521	5	1	0	1	0	0	0	0	0	75	0	0	0	0
49)=	31	610	0	0	0	0	0	0	0	0	0	56	0	4000	0	0
50)=	31	620	0	0	0	0	0	0	0	0	0	56	0	0	0	0
51)=	31	690	0	0	0	0	0	0	0	0	0	200	0	2278	0	0
52)=	31	710	0	0	0	0	0	0	0	0	0	82	0	6000	0	0
53)=	31	720	0	0	0	0	0	0	0	0	0	82	0	0	0	0
54)=	31	790	0	0	0	0	0	0	0	0	0	200	0	2300	0	0

LINK CARDS: FLOW DATA

CARD NO.	CARD TYPE	LINK NO.	TOTAL FLOW	UNIFORM FLOW	ENTRY 1 ... LINK NO.	FLOW	CRUISE SPEED	ENTRY 2 ... LINK NO.	FLOW	CRUISE SPEED	ENTRY 3 ... LINK NO.	FLOW	CRUISE SPEED	ENTRY 4 ... LINK NO.	FLOW	CRUISE SPEED
55)=	32	101	172	0	0	0	48	0	0	0	0	0	0	0	0	0
56)=	32	102	350	0	0	0	48	0	0	0	0	0	0	0	0	0
57)=	32	103	350	0	0	0	43	0	0	0	0	0	0	0	0	0
58)=	32	110	194	0	790	194	48	0	0	0	0	0	0	0	0	0
59)=	32	111	301	0	720	64	48	710	237	48	0	0	0	0	0	0
60)=	32	120	392	0	790	392	48	0	0	0	0	0	0	0	0	0
61)=	32	121	687	0	710	677	48	720	10	48	0	0	0	0	0	0
62)=	32	199	10	0	0	0	5	0	0	0	0	0	0	0	0	0
63)=	32	210	710	0	102	350	48	101	10	48	103	350	48	0	0	0
64)=	32	220	1418	0	111	177	48	121	677	48	110	172	48	120	392	48
65)=	32	290	194	0	0	0	48	0	0	0	0	0	0	0	0	0
66)=	32	301	362	0	0	0	48	0	0	0	0	0	0	0	0	0
67)=	32	302	254	0	0	0	48	0	0	0	0	0	0	0	0	0
68)=	32	310	350	0	210	350	48	0	0	0	0	0	0	0	0	0
69)=	32	311	582	0	290	40	48	220	542	48	0	0	0	0	0	0
70)=	32	320	350	0	210	350	48	0	0	0	0	0	0	0	0	0
71)=	32	321	262	0	290	68	48	220	194	48	0	0	0	0	0	0
72)=	32	399	10	0	0	0	5	0	0	0	0	0	0	0	0	0
73)=	32	410	610	0	301	356	48	302	254	48	0	0	0	0	0	0
74)=	32	420	1540	0	310	348	48	320	350	48	311	580	48	321	262	48
75)=	32	490	10	0	0	0	48	0	0	0	0	0	0	0	0	0
76)=	32	501	182	0	0	0	48	0	0	0	0	0	0	0	0	0
77)=	32	502	182	0	0	0	48	0	0	0	0	0	0	0	0	0
78)=	32	503	108	0	0	0	48	0	0	0	0	0	0	0	0	0
79)=	32	510	254	0	410	254	48	0	0	0	0	0	0	0	0	0
80)=	32	511	86	0	420	76	48	490	10	48	0	0	0	0	0	0
81)=	32	520	254	0	410	254	48	0	0	0	0	0	0	0	0	0
82)=	32	521	622	0	420	612	48	490	10	48	0	0	0	0	0	0
83)=	32	610	204	0	502	96	48	503	108	48	0	0	0	0	0	0
84)=	32	620	286	0	521	86	48	520	200	48	0	0	0	0	0	0
85)=	32	690	1354	0	0	0	48	0	0	0	0	0	0	0	0	0
86)=	32	710	1222	0	690	1222	48	0	0	0	0	0	0	0	0	0
87)=	32	720	192	0	620	84	48	610	108	48	0	0	0	0	0	0
88)=	32	790	682	0	0	0	48	0	0	0	0	0	0	0	0	0

GRAPH PLOT CARDS

CARD NO.	CARD TYPE	LINK NO.	LINK NO.	LINK NO.	LINK NO.	LINK NO.	LINK NO.	LINK NO.	LINK NO.							
89)=	35	102	320	302	520	0	0	0	0	0	0	0	0	0	0	0

LINK DATA: QUEUE CONSTRAINTS

CARD NO.	CARD TYPE	LINK NO.	LIMIT QUEUE	QUEUE WEIGHT	LINK NO.	LIMIT QUEUE	QUEUE WEIGHT	LINK NO.	LIMIT QUEUE	QUEUE WEIGHT	LINK NO.	LIMIT QUEUE	QUEUE WEIGHT	LINK NO.	LIMIT QUEUE	QUEUE WEIGHT
90)=	38	110	13	9999	111	13	9999	120	13	9999	121	13	9999	0	0	0

*****END OF SUBROUTINE TINPUT*****

.

70 SECOND CYCLE 70 STEPS

INITIAL SETTINGS
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	0	51								
3	2	0	49								
5	2	0	55								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	-------DELAY-------- UNIFORM	RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	----STOPS---- MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	----QUEUE---- MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST (SECONDS)	START END 2ND
101	172	1900	42	7.6	31.4	1.1 +	0.4	(21.3)	92	(5.1)	3		26.4	1	56	0
102	350	1900	86	15.0	55.2	2.6 +	2.8	(76.2)	128	(14.4)	9		90.6	1	56	0
103	350	1900	86	16.7	55.2	2.6 +	2.8	(76.2)	128	(11.5)	9		87.7	1	56	0
110	194	1900S	41	9.0	8.3	0.3 +	0.1	(6.4)	44	(2.8)	5	(0.0)*	9.1	1	7	51
111	301	110L	41	9.0	7.5	0.4 +	0.2	(8.9)	40	(3.9)	5	(0.0)*	12.7	1	7	51
120	391	1900S	88	9.0	21.9	1.1 +	1.3	(33.8)	86	(10.8)	20	(1.1)*	156.1	1	7	51
121	687	120L	88	9.0	21.6	1.8 +	2.3	(58.5)	83	(18.4)	20	(1.1)*	188.3	1	7	51
199	10	10000	0	7.2	4.2	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	1	5	51
210	710	6000S	35	4.7	0.5	0.0 +	0.1	(1.3)	1	(0.2)	0		1.5			
220	1417	210L	35	4.7	0.5	0.0 +	0.2	(2.6)	1	(0.3)	0		2.9			
290	194	1874	65	15.0	31.0	0.8 +	0.9	(23.7)	123	(7.7)	3		31.4			
301	362	1950	76	15.0	40.3	2.5 +	1.6	(57.6)	108	(12.6)	8		70.2	3	54	0
302	254	1900	55	15.0	31.8	1.6 +	0.6	(31.9)	94	(7.7)	5		39.5	3	54	0
310	349	1950S	78	6.6	19.9	1.3 +	0.6	(27.4)	106	(11.9)	16		86.9	3	7	49
311	581	310L	78	6.6	14.1	1.2 +	1.1	(32.4)	60	(11.2)	16		43.6	3	7	49
320	349	1900S	52	6.6	14.3	1.1 +	0.3	(19.6)	98	(11.0)	10		74.8	3	7	49
321	261	320L	52	6.6	11.1	0.6 +	0.2	(11.4)	54	(4.5)	10		16.0	3	7	49
399	10	10000	0	7.2	4.9	0.0 +	0.0	(0.2)	36	(0.0)	0		0.2	3	5	49
410	610	6000S	36	4.9	0.5	0.0 +	0.1	(1.1)	1	(0.1)	0		1.3			
420	1536	410L	36	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.2			
490	10	1281	5	15.0	18.6	0.0 +	0.0	(0.7)	85	(0.3)	0		1.0			
501	182	1900	61	15.0	42.8	1.4 +	0.8	(30.7)	109	(6.4)	4		37.1	5	60	0
502	182	1900	61	15.0	42.8	1.4 +	0.8	(30.7)	109	(6.4)	4		37.1	5	60	0
503	108	1900	36	15.0	35.8	0.8 +	0.3	(15.3)	98	(3.4)	2		18.6	5	60	0
510	254	1900S	26	5.6	11.6	0.7 +	0.1	(11.6)	93	(7.6)	5		49.5	5	7	55
511	87	510L	26	5.6	3.3	0.0 +	0.0	(1.1)	13	(0.4)	5		1.5	5	7	55
520	254	1900S	66	5.6	14.9	0.8 +	0.3	(15.0)	99	(8.0)	7		55.1	5	7	55
521	621	520L	66	5.6	5.2	0.2 +	0.7	(12.8)	13	(2.7)	7		15.4	5	7	55
610	204	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.5			
620	286	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6			
690	1354	2278	76	15.0	5.2	0.4 +	1.6	(27.8)	34	(14.8)	7		42.6			
710	1221	6000S	24	6.2	0.4	0.0 +	0.1	(1.9)	1	(0.2)	0		2.1			
720	192	710L	24	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3			
790	682	2300	70	15.0	6.4	0.0 +	1.2	(17.1)	24	(5.2)	3		22.3			

TOTAL TOTAL MEAN TOTAL TOTAL TOTAL TOTAL PENALTY TOTAL

DISTANCE TRAVELLED (PCU-KM/H)	TIME SPENT (PCU-H/H)	JOURNEY SPEED (KM/H)	UNIFORM DELAY (PCU-H/H)	RANDOM+ OVERSAT DELAY (PCU-H/H)	COST OF DELAY ($/H)	COST OF STOPS ($/H)	FOR EXCESS QUEUES ($/H)	PERFORMANCE INDEX ($/H)	
1656.5	81.1	20.4	24.7	21.7	(659.3) +	(343.9) +	(223.1) =	1226.2	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	53.4	+	86.4	=	228.1

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 75

.

70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	0	51								
3	2	0	49								
5	2	0	55								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	172	1900	42	7.6	31.4	1.1 + 0.4	(21.3)	92	(5.1)	3		26.4	1	56	0		
102	350	1900	86	15.0	55.2	2.6 + 2.8	(76.2)	128	(14.4)	9		90.6	1	56	0		
103	350	1900	86	16.7	55.2	2.6 + 2.8	(76.2)	128	(11.5)	9		87.7	1	56	0		
110	194	1900S	41	9.0	8.3	0.3 + 0.1	(6.4)	44	(2.8)	5	(0.0)*	9.1	1	7	51		
111	301	110L	41	9.0	7.5	0.4 + 0.2	(8.9)	40	(3.9)	5	(0.0)*	12.7	1	7	51		
120	391	1900S	88	9.0	21.9	1.1 + 1.3	(33.8)	86	(10.8)	20	(1.1)*	156.1	1	7	51		
121	687	120L	88	9.0	21.6	1.8 + 2.3	(58.5)	83	(18.4)	20	(1.1)*	188.3	1	7	51		
199	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	1	5	51		
210	710	6000S	35	4.7	0.5	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5					
220	1417	210L	35	4.7	0.5	0.0 + 0.2	(2.6)	1	(0.3)	0		2.9					
290	194	1874	65	15.0	31.0	0.8 + 0.9	(23.7)	123	(7.7)	3		31.4					
301	362	1950	76	15.0	40.3	2.5 + 1.6	(57.6)	108	(12.6)	8		70.2	3	54	0		
302	254	1900	55	15.0	31.8	1.6 + 0.6	(31.9)	94	(7.7)	5		39.5	3	54	0		
310	349	1950S	78	6.6	19.9	1.3 + 0.6	(27.4)	106	(11.9)	16		86.9	3	7	49		
311	581	310L	78	6.6	14.1	1.2 + 1.1	(32.4)	60	(11.2)	16		43.6	3	7	49		
320	349	1900S	52	6.6	14.3	1.1 + 0.3	(19.6)	98	(11.0)	10		74.8	3	7	49		
321	261	320L	52	6.6	11.1	0.6 + 0.2	(11.4)	54	(4.5)	10		16.0	3	7	49		
399	10	10000	0	7.2	4.9	0.0 + 0.0	(0.2)	36	(0.0)	0		0.2	3	5	49		
410	610	6000S	36	4.9	0.5	0.0 + 0.1	(1.1)	1	(0.1)	0		1.3					
420	1536	410L	36	4.9	0.5	0.0 + 0.2	(2.8)	1	(0.3)	0		3.2					
490	10	1281	5	15.0	18.6	0.0 + 0.0	(0.7)	85	(0.3)	0		1.0					
501	182	1900	61	15.0	42.8	1.4 + 0.8	(30.7)	109	(6.4)	4		37.1	5	60	0		
502	182	1900	61	15.0	42.8	1.4 + 0.8	(30.7)	109	(6.4)	4		37.1	5	60	0		
503	108	1900	36	15.0	35.8	0.8 + 0.3	(15.3)	98	(3.4)	2		18.6	5	60	0		
510	254	1900S	26	5.6	11.6	0.7 + 0.1	(11.6)	93	(7.6)	5		49.5	5	7	55		
511	87	510L	26	5.6	3.3	0.0 + 0.0	(1.1)	13	(0.4)	5		1.5	5	7	55		
520	254	1900S	66	5.6	14.9	0.8 + 0.3	(15.0)	99	(8.0)	7		55.1	5	7	55		
521	621	520L	66	5.6	5.2	0.2 + 0.7	(12.8)	13	(2.7)	7		15.4	5	7	55		
610	204	4000S	12	4.2	0.5	0.0 + 0.0	(0.4)	1	(0.0)	0		0.5					
620	286	610L	12	4.2	0.5	0.0 + 0.0	(0.6)	1	(0.1)	0		0.6					
690	1354	2278	76	15.0	5.2	0.4 + 1.6	(27.8)	34	(14.8)	7		42.6					
710	1221	6000S	24	6.2	0.4	0.0 + 0.1	(1.9)	1	(0.2)	0		2.1					
720	192	710L	24	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.3					
790	682	2300	70	15.0	6.4	0.0 + 1.2	(17.1)	24	(5.2)	3		22.3					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1656.5	81.1	20.4	24.7	21.7	(659.3) +	(343.9) +	(223.1) =	1226.2	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	53.4	+	86.4	=	228.1

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 259

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	0	51								
3	2	28	7								
5	2	0	55								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	172	1900	42	7.6	31.4	1.1 + 0.4	(21.3)	92	(5.1)	3		26.4	1	56	0		
102	350	1900	86	15.0	55.2	2.6 + 2.8	(76.2)	128	(14.4)	9		90.6	1	56	0		
103	350	1900	86	16.7	55.2	2.6 + 2.8	(76.2)	128	(11.5)	9		87.7	1	56	0		
110	194	1900S	41	9.0	8.4	0.3 + 0.1	(6.4)	45	(2.8)	5	(0.0)*	9.2	1	7	51		
111	301	110L	41	9.0	8.0	0.5 + 0.2	(9.5)	43	(4.1)	5	(0.0)*	13.7	1	7	51		
120	391	1900S	88	9.0	22.1	1.1 + 1.3	(34.1)	88	(11.1)	21	(1.5)*	196.5	1	7	51		
121	687	120L	88	9.0	22.1	1.9 + 2.3	(59.8)	88	(19.5)	21	(1.5)*	230.5	1	7	51		
199	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	1	5	51		
210	710	6000S	35	4.7	0.5	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5					
220	1417	210L	35	4.7	0.5	0.0 + 0.2	(2.6)	1	(0.3)	0		2.9					
290	194	1874	63	15.0	29.5	0.7 + 0.8	(22.6)	119	(7.4)	3		30.0					

301	362	1950	76	15.0	40.3	2.5 +	1.6	(57.6)	108	(12.6)	8		70.2	3	12	28		
302	254	1900	55	15.0	31.8	1.6 +	0.6	(31.9)	94	(7.7)	5		39.5	3	12	28		
310	349	1950S	78	6.6	15.3	0.8 +	0.6	(21.0)	43	(4.8)	13		45.0	3	35	7		
311	581	310L	78	6.6	16.5	1.6 +	1.1	(37.9)	83	(15.6)	13		53.5	3	35	7		
320	349	1900S	52	6.6	11.9	0.8 +	0.3	(16.4)	38	(4.3)	6		37.7	3	35	7		
321	261	320L	52	6.6	10.2	0.5 +	0.2	(10.5)	52	(4.4)	6		14.9	3	35	7		
399	10	10000	0	7.2	4.9	0.0 +	0.0	(0.2)	36	(0.0)	0		0.2	3	33	7		
410	610	6000S	36	4.9	0.5	0.0 +	0.1	(1.1)	1	(0.1)	0		1.3					
420	1536	410L	36	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.2					
490	10	1281	6	15.0	18.5	0.0 +	0.0	(0.7)	105	(0.3)	0		1.1					
501	182	1900	61	15.0	42.8	1.4 +	0.8	(30.7)	109	(6.4)	4		37.1	5	60	0		
502	182	1900	61	15.0	42.8	1.4 +	0.8	(30.7)	109	(6.4)	4		37.1	5	60	0		
503	108	1900	36	15.0	35.8	0.8 +	0.3	(15.3)	98	(3.4)	2		18.6	5	60	0		
510	254	1900S	26	5.6	1.8	0.0 +	0.1	(1.8)	3	(0.2)	1		2.9	5	7	55		
511	87	510L	26	5.6	6.4	0.1 +	0.0	(2.2)	37	(1.0)	1		3.2	5	7	55		
520	254	1900S	66	5.6	4.0	0.0 +	0.3	(4.0)	6	(0.5)	9		6.5	5	7	55		
521	621	520L	66	5.6	11.4	1.3 +	0.7	(27.9)	64	(12.7)	9		40.6	5	7	55		
610	204	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.5					
620	286	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6					
690	1354	2278	76	15.0	4.9	0.2 +	1.6	(26.1)	27	(11.5)	7		37.6					
710	1221	6000S	24	6.2	0.4	0.0 +	0.1	(1.9)	1	(0.2)	0		2.1					
720	192	710L	24	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3					
790	682	2300	70	15.0	6.3	0.0 +	1.2	(17.0)	14	(3.1)	3		20.1					

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1656.5	80.4	20.6	24.0	21.7	(649.2) +	(211.0) +	(302.6)	= 1162.8	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	52.6	+	78.3	=	219.3

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 213

.

70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	69	51								
3	2	28	9								
5	2	2	56								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE		DELAY	-------DELAY-------- UNIFORM RANDOM+ OVERSAT (U+R+O=MEAN Q)	COST OF DELAY	----STOPS---- MEAN STOPS /PCU	COST OF STOPS	----QUEUE---- MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START 1ST	START END 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)		(PCU-H/H)	($/H)	(%)	($/H)	(PCU)	(PCU)	($/H)		(SECONDS)	
101	172	1900	45	7.6	33.3	1.2 +	0.4	(22.6)	95	(5.2)	3		27.8	1	56	69
102	350	1900	92	15.0	73.6	2.7 +	4.5	(101.7)	149	(16.7)	11		118.4	1	56	69
103	350	1900	92	16.7	73.6	2.7 +	4.5	(101.7)	149	(13.4)	11		115.1	1	56	69
110	194	1900S	40	9.0	7.9	0.3 +	0.1	(6.0)	43	(2.7)	5	(0.0)*	8.7	1	6	51
111	301	110L	40	9.0	7.6	0.4 +	0.2	(9.1)	41	(3.9)	5	(0.0)*	13.0	1	6	51
120	391	1900S	86	9.0	19.6	1.0 +	1.1	(30.2)	82	(10.3)	20	(1.0)*	142.1	1	6	51
121	687	120L	86	9.0	19.5	1.8 +	1.9	(52.8)	82	(18.2)	20	(1.0)*	172.6	1	6	51
199	10	10000	0	7.2	3.9	0.0 +	0.0	(0.2)	32	(0.0)	0		0.2	1	4	51
210	710	6000S	35	4.7	0.5	0.0 +	0.1	(1.3)	1	(0.2)	0		1.5			
220	1417	210L	35	4.7	0.5	0.0 +	0.2	(2.6)	1	(0.3)	0		2.9			
290	194	1874	63	15.0	29.0	0.7 +	0.8	(22.2)	119	(7.4)	3		29.6			
301	362	1950	87	15.0	55.7	2.7 +	2.9	(79.5)	128	(14.9)	10		94.5	3	14	28
302	254	1900	62	15.0	36.6	1.8 +	0.8	(36.7)	101	(8.3)	5		44.9	3	14	28
310	349	1950S	74	6.6	10.2	0.5 +	0.5	(14.0)	27	(3.1)	12		29.5	3	35	9
311	581	310L	74	6.6	14.7	1.5 +	0.9	(33.6)	79	(14.7)	12		48.3	3	35	9
320	349	1900S	50	6.6	7.6	0.5 +	0.3	(10.5)	24	(2.7)	4		23.9	3	35	9
321	261	320L	50	6.6	9.3	0.5 +	0.2	(9.6)	49	(4.2)	4		13.8	3	35	9
399	10	10000	0	7.2	4.2	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	3	33	9
410	610	6000S	36	4.9	0.5	0.0 +	0.1	(1.1)	1	(0.1)	0		1.3			
420	1536	410L	36	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.2			
490	10	1281	6	15.0	18.7	0.0 +	0.0	(0.7)	105	(0.3)	0		1.1			
501	182	1900	56	15.0	39.0	1.3 +	0.6	(28.0)	104	(6.1)	4		34.1	5	61	2
502	182	1900	56	15.0	39.0	1.3 +	0.6	(28.0)	104	(6.1)	4		34.1	5	61	2
503	108	1900	33	15.0	33.8	0.8 +	0.2	(14.4)	94	(3.3)	2		17.7	5	61	2
510	254	1900S	26	5.6	1.9	0.0 +	0.1	(1.9)	3	(0.2)	1		3.0	5	9	56
511	87	510L	26	5.6	6.3	0.1 +	0.0	(2.2)	35	(1.0)	1		3.1	5	9	56
520	254	1900S	67	5.6	4.2	0.0 +	0.3	(4.2)	6	(0.5)	9		6.8	5	9	56
521	621	520L	67	5.6	11.2	1.2 +	0.7	(27.4)	62	(12.5)	9		39.8	5	9	56
610	204	4000S	12	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.5			
620	286	610L	12	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.6			
690	1354	2278	76	15.0	4.9	0.2 +	1.6	(26.2)	27	(11.7)	7		37.9			
710	1221	6000S	24	6.2	0.4	0.0 +	0.1	(1.9)	1	(0.2)	0		2.1			
720	192	710L	24	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3			
790	682	2300	70	15.0	6.3	0.0 +	1.2	(17.0)	14	(3.0)	3		20.0			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1656.5	83.4	19.9	23.1	25.6	(691.4) +	(197.7) +	(203.2)	= 1092.3	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	56.0	+	78.2	=	222.5

NO. OF ENTRIES TO SUBPT = 18
NO. OF LINKS RECALCULATED= 441

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	49	31								
3	2	28	9								
5	2	2	56								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	172	1900	45	7.6	33.3	1.2 + 0.4	(22.6)	95	(5.2)	3		27.8	1	36	49		
102	350	1900	92	15.0	73.6	2.7 + 4.5	(101.7)	149	(16.7)	11		118.4	1	36	49		
103	350	1900	92	16.7	73.6	2.7 + 4.5	(101.7)	149	(13.4)	11		115.1	1	36	49		
110	194	1900S	40	9.0	7.9	0.3 + 0.1	(6.1)	43	(2.7)	5	(0.0)*	8.8	1	56	31		
111	301	110L	40	9.0	7.6	0.4 + 0.2	(9.0)	42	(4.0)	5	(0.0)*	13.0	1	56	31		
120	391	1900S	86	9.0	19.7	1.0 + 1.1	(30.3)	81	(10.2)	18	(0.8)*	117.3	1	56	31		
121	687	120L	86	9.0	19.5	1.8 + 1.9	(52.8)	78	(17.3)	18	(0.8)*	146.8	1	56	31		
199	10	10000	0	7.2	3.9	0.0 + 0.0	(0.2)	32	(0.0)	0		0.2	1	54	31		
210	710	6000S	35	4.7	0.5	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5					
220	1417	210L	35	4.7	0.5	0.0 + 0.2	(2.6)	1	(0.3)	0		2.9					
290	194	1874	67	15.0	32.0	0.7 + 1.0	(24.5)	127	(7.9)	4		32.4					
301	362	1950	87	15.0	55.7	2.7 + 2.9	(79.5)	128	(14.9)	10		94.5	3	14	28		
302	254	1900	62	15.0	36.6	1.8 + 0.8	(36.7)	101	(8.3)	5		44.9	3	14	28		
310	349	1950S	74	6.6	5.8	0.0 + 0.5	(7.9)	16	(1.8)	11		16.8	3	35	9		
311	581	310L	74	6.6	15.8	1.7 + 0.9	(36.2)	72	(13.4)	11		49.6	3	35	9		
320	349	1900S	50	6.6	2.9	0.0 + 0.3	(4.0)	4	(0.5)	3		6.4	3	35	9		
321	261	320L	50	6.6	9.3	0.5 + 0.2	(9.5)	48	(4.1)	3		13.6	3	35	9		
399	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	3	33	9		
410	610	6000S	36	4.9	0.5	0.0 + 0.1	(1.1)	1	(0.1)	0		1.3					
420	1536	410L	36	4.9	0.5	0.0 + 0.2	(2.8)	1	(0.3)	0		3.2					
490	10	1281	6	15.0	20.9	0.0 + 0.0	(0.8)	96	(0.3)	0		1.1					
501	182	1900	56	15.0	39.0	1.3 + 0.6	(28.0)	104	(6.1)	4		34.1	5	61	2		
502	182	1900	56	15.0	39.0	1.3 + 0.6	(28.0)	104	(6.1)	4		34.1	5	61	2		
503	108	1900	33	15.0	33.8	0.8 + 0.2	(14.4)	94	(3.3)	2		17.7	5	61	2		
510	254	1900S	26	5.6	1.9	0.0 + 0.1	(1.9)	3	(0.2)	1		3.0	5	9	56		
511	87	510L	26	5.6	8.5	0.2 + 0.0	(2.9)	53	(1.5)	1		4.4	5	9	56		
520	254	1900S	67	5.6	4.3	0.0 + 0.3	(4.3)	9	(0.7)	10		7.8	5	9	56		
521	621	520L	67	5.6	15.6	2.0 + 0.7	(38.3)	74	(14.9)	10		53.1	5	9	56		
610	204	4000S	12	4.2	0.5	0.0 + 0.0	(0.4)	1	(0.0)	0		0.5					
620	286	610L	12	4.2	0.5	0.0 + 0.0	(0.6)	1	(0.1)	0		0.6					
690	1354	2278	76	15.0	4.9	0.2 + 1.6	(26.2)	27	(11.9)	7		38.1					
710	1221	6000S	24	6.2	0.4	0.0 + 0.1	(1.9)	1	(0.2)	0		2.1					
720	192	710L	24	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.3					
790	682	2300	70	15.0	6.3	0.0 + 1.2	(17.0)	14	(3.0)	3		20.0					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1656.5	83.7	19.8	23.2	25.7	(695.5) +	(182.1) +	(153.6) =	1031.2	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	56.3	+	77.2	=	221.9

NO. OF ENTRIES TO SUBPT = 9
NO. OF LINKS RECALCULATED= 300

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10 28
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	49	31								
3	2	28	9								
5	2	2	56								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	172	1900	45	7.6	33.3	1.2 + 0.4	(22.6)	95	(5.2)	3		27.8	1	36	49		
102	350	1900	92	15.0	73.6	2.7 + 4.5	(101.7)	149	(16.7)	11		118.4	1	36	49		
103	350	1900	92	16.7	73.6	2.7 + 4.5	(101.7)	149	(13.4)	11		115.1	1	36	49		
110	194	1900S	40	9.0	7.9	0.3 + 0.1	(6.1)	43	(2.7)	5	(0.0)*	8.8	1	56	31		
111	301	110L	40	9.0	7.6	0.4 + 0.2	(9.0)	42	(4.0)	5	(0.0)*	13.0	1	56	31		
120	391	1900S	86	9.0	19.7	1.0 + 1.1	(30.3)	81	(10.2)	18	(0.8)*	117.3	1	56	31		
121	687	120L	86	9.0	19.5	1.8 + 1.9	(52.8)	78	(17.3)	18	(0.8)*	146.8	1	56	31		
199	10	10000	0	7.2	3.9	0.0 + 0.0	(0.2)	32	(0.0)	0		0.2	1	54	31		
210	710	6000S	35	4.7	0.5	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5					
220	1417	210L	35	4.7	0.5	0.0 + 0.2	(2.6)	1	(0.3)	0		2.9					
290	194	1874	67	15.0	32.0	0.7 + 1.0	(24.5)	127	(7.9)	4		32.4					
301	362	1950	87	15.0	55.7	2.7 + 2.9	(79.5)	128	(14.9)	10		94.5	3	14	28		
302	254	1900	62	15.0	36.6	1.8 + 0.8	(36.7)	101	(8.3)	5		44.9	3	14	28		
310	349	1950S	74	6.6	5.8	0.0 + 0.5	(7.9)	16	(1.8)	11		16.8	3	35	9		
311	581	310L	74	6.6	15.8	1.7 + 0.9	(36.2)	72	(13.4)	11		49.6	3	35	9		
320	349	1900S	50	6.6	2.9	0.0 + 0.3	(4.0)	4	(0.5)	3		6.4	3	35	9		
321	261	320L	50	6.6	9.3	0.5 + 0.2	(9.5)	48	(4.1)	3		13.6	3	35	9		
399	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	3	33	9		
410	610	6000S	36	4.9	0.5	0.0 + 0.1	(1.1)	1	(0.1)	0		1.3					
420	1536	410L	36	4.9	0.5	0.0 + 0.2	(2.8)	1	(0.3)	0		3.2					
490	10	1281	6	15.0	20.9	0.0 + 0.0	(0.8)	96	(0.3)	0		1.1					
501	182	1900	56	15.0	39.0	1.3 + 0.6	(28.0)	104	(6.1)	4		34.1	5	61	2		
502	182	1900	56	15.0	39.0	1.3 + 0.6	(28.0)	104	(6.1)	4		34.1	5	61	2		
503	108	1900	33	15.0	33.8	0.8 + 0.2	(14.4)	94	(3.3)	2		17.7	5	61	2		
510	254	1900S	26	5.6	1.9	0.0 + 0.1	(1.9)	3	(0.2)	1		3.0	5	9	56		
511	87	510L	26	5.6	8.5	0.2 + 0.0	(2.9)	53	(1.5)	1		4.4	5	9	56		
520	254	1900S	67	5.6	4.3	0.0 + 0.3	(4.3)	9	(0.7)	10		7.8	5	9	56		
521	621	520L	67	5.6	15.6	2.0 + 0.7	(38.3)	74	(14.9)	10		53.1	5	9	56		
610	204	4000S	12	4.2	0.5	0.0 + 0.0	(0.4)	1	(0.0)	0		0.5					
620	286	610L	12	4.2	0.5	0.0 + 0.0	(0.6)	1	(0.1)	0		0.6					
690	1354	2278	76	15.0	4.9	0.2 + 1.6	(26.2)	27	(11.9)	7		38.1					
710	1221	6000S	24	6.2	0.4	0.0 + 0.1	(1.9)	1	(0.2)	0		2.1					
720	192	710L	24	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.3					
790	682	2300	70	15.0	6.3	0.0 + 1.2	(17.0)	14	(3.0)	3		20.0					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1656.5	83.7	19.8	23.2	25.7	(695.5) +	(182.1) +	(153.6) =	1031.2	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	56.3	+	77.2	=	221.9

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 286

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10 28 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	54	36								
3	2	30	11								
5	2	2	56								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	UNIFORM RANDOM+ OVERSAT COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	172	1900	45	7.6	33.3	1.2 +	0.4 (22.6)	95	(5.2)	3		27.8	1	41	54		
102	350	1900	92	15.0	73.6	2.7 +	4.5 (101.7)	149	(16.7)	11		118.4	1	41	54		
103	350	1900	92	16.7	73.6	2.7 +	4.5 (101.7)	149	(13.4)	11		115.1	1	41	54		
110	194	1900S	40	9.0	7.9	0.3 +	0.1 (6.0)	43	(2.7)	5	(0.0)*	8.7	1	61	36		
111	301	110L	40	9.0	7.6	0.4 +	0.2 (9.1)	42	(4.0)	5	(0.0)*	13.1	1	61	36		
120	391	1900S	86	9.0	19.5	1.0 +	1.1 (30.1)	80	(10.0)	18	(0.7)*	112.2	1	61	36		
121	687	120L	86	9.0	19.3	1.7 +	1.9 (52.2)	77	(16.9)	18	(0.7)*	141.2	1	61	36		
199	10	10000	0	7.2	3.9	0.0 +	0.0 (0.2)	32	(0.0)	0		0.2	1	59	36		
210	710	6000S	35	4.7	0.5	0.0 +	0.1 (1.3)	1	(0.2)	0		1.5					
220	1417	210L	35	4.7	0.5	0.0 +	0.2 (2.6)	1	(0.3)	0		2.9					
290	194	1874	66	15.0	31.6	0.7 +	1.0 (24.2)	125	(7.8)	3		32.0					
301	362	1950	87	15.0	55.7	2.7 +	2.9 (79.5)	128	(14.9)	10		94.5	3	16	30		
302	254	1900	62	15.0	36.6	1.8 +	0.8 (36.7)	101	(8.3)	5		44.9	3	16	30		
310	349	1950S	74	6.6	5.6	0.0 +	0.5 (7.6)	8	(0.9)	10		12.3	3	37	11		
311	581	310L	74	6.6	16.5	1.8 +	0.9 (37.9)	77	(14.4)	10		52.3	3	37	11		
320	349	1900S	50	6.6	3.0	0.0 +	0.3 (4.1)	4	(0.5)	3		6.4	3	37	11		
321	261	320L	50	6.6	9.4	0.5 +	0.2 (9.6)	48	(4.1)	3		13.7	3	37	11		
399	10	10000	0	7.2	4.2	0.0 +	0.0 (0.2)	33	(0.0)	0		0.2	3	35	11		
410	610	6000S	36	4.9	0.5	0.0 +	0.1 (1.1)	1	(0.1)	0		1.3					
420	1536	410L	36	4.9	0.5	0.0 +	0.2 (2.8)	1	(0.3)	0		3.2					
490	10	1281	6	15.0	22.3	0.0 +	0.0 (0.9)	98	(0.3)	0		1.2					
501	182	1900	56	15.0	39.0	1.3 +	0.6 (28.0)	104	(6.1)	4		34.1	5	61	2		
502	182	1900	56	15.0	39.0	1.3 +	0.6 (28.0)	104	(6.1)	4		34.1	5	61	2		
503	108	1900	33	15.0	33.8	0.8 +	0.2 (14.4)	94	(3.3)	2		17.7	5	61	2		
510	254	1900S	26	5.6	1.9	0.0 +	0.1 (1.9)	3	(0.2)	1		3.0	5	9	56		
511	87	510L	26	5.6	7.6	0.1 +	0.0 (2.6)	49	(1.4)	1		4.0	5	9	56		
520	254	1900S	67	5.6	4.2	0.0 +	0.3 (4.2)	6	(0.5)	10		6.8	5	9	56		
521	621	520L	67	5.6	15.3	1.9 +	0.7 (37.4)	78	(15.6)	10		52.9	5	9	56		
610	204	4000S	12	4.2	0.5	0.0 +	0.0 (0.4)	1	(0.0)	0		0.5					
620	286	610L	12	4.2	0.5	0.0 +	0.0 (0.6)	1	(0.1)	0		0.6					
690	1354	2278	76	15.0	4.9	0.2 +	1.6 (26.1)	27	(11.7)	7		37.8					
710	1221	6000S	24	6.2	0.4	0.0 +	0.1 (1.9)	1	(0.2)	0		2.1					
720	192	710L	24	6.1	0.4	0.0 +	0.0 (0.3)	1	(0.0)	0		0.3					
790	682	2300	70	15.0	6.3	0.0 +	1.2 (17.0)	14	(3.0)	3		20.0					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1656.5	83.6	19.8	23.2	25.7	(694.8) +	(177.7) +	(144.2) =	1016.7	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	56.3	+	77.1	=	221.7

NO. OF ENTRIES TO SUBPT = 12
NO. OF LINKS RECALCULATED= 359

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10 28 1 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	54	36								
3	2	31	11								
5	2	2	56								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	UNIFORM RANDOM+ OVERSAT COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	172	1900	45	7.6	33.3	1.2 +	0.4 (22.6)	95	(5.2)	3		27.8	1	41	54		
102	350	1900	92	15.0	73.6	2.7 +	4.5 (101.7)	149	(16.7)	11		118.4	1	41	54		
103	350	1900	92	16.7	73.6	2.7 +	4.5 (101.7)	149	(13.4)	11		115.1	1	41	54		
110	194	1900S	40	9.0	7.9	0.3 +	0.1 (6.0)	43	(2.7)	5	(0.0)*	8.7	1	61	36		
111	301	110L	40	9.0	7.7	0.4 +	0.2 (9.1)	42	(4.0)	5	(0.0)*	13.1	1	61	36		
120	391	1900S	86	9.0	19.5	1.0 +	1.1 (30.1)	80	(10.0)	18	(0.7)*	112.2	1	61	36		
121	687	120L	86	9.0	19.3	1.7 +	1.9 (52.2)	77	(16.9)	18	(0.7)*	141.2	1	61	36		
199	10	10000	0	7.2	3.9	0.0 +	0.0 (0.2)	32	(0.0)	0		0.2	1	59	36		
210	710	6000S	35	4.7	0.5	0.0 +	0.1 (1.3)	1	(0.2)	0		1.5					
220	1417	210L	35	4.7	0.5	0.0 +	0.2 (2.6)	1	(0.3)	0		2.9					

290	194	1874	66	15.0	31.6	0.7	+	1.0	(24.2)	125	(7.8)	3		32.0					
301	362	1950	81	15.0	46.1	2.6	+	2.1	(65.8)	116	(13.5)	9		79.3	3	16	31		
302	254	1900	58	15.0	34.0	1.7	+	0.7	(34.0)	97	(8.0)	5		42.0	3	16	31		
310	349	1950S	76	6.6	6.2	0.0	+	0.6	(8.5)	12	(1.4)	11		15.3	3	38	11		
311	581	310L	76	6.6	17.8	1.9	+	1.0	(40.8)	79	(14.8)	11		55.6	3	38	11		
320	349	1900S	51	6.6	3.1	0.0	+	0.3	(4.3)	4	(0.5)	3		6.7	3	38	11		
321	261	320L	51	6.6	10.0	0.5	+	0.2	(10.3)	51	(4.3)	3		14.6	3	38	11		
399	10	10000	0	7.2	4.6	0.0	+	0.0	(0.2)	34	(0.0)	0		0.2	3	36	11		
410	610	6000S	36	4.9	0.5	0.0	+	0.1	(1.1)	1	(0.1)	0		1.3					
420	1536	410L	36	4.9	0.5	0.0	+	0.2	(2.8)	1	(0.3)	0		3.2					
490	10	1281	6	15.0	20.9	0.0	+	0.0	(0.8)	94	(0.3)	0		1.1					
501	182	1900	56	15.0	39.0	1.3	+	0.6	(28.0)	104	(6.1)	4		34.1	5	61	2		
502	182	1900	56	15.0	39.0	1.3	+	0.6	(28.0)	104	(6.1)	4		34.1	5	61	2		
503	108	1900	33	15.0	33.8	0.8	+	0.2	(14.4)	94	(3.3)	2		17.7	5	61	2		
510	254	1900S	26	5.6	1.9	0.0	+	0.1	(1.9)	3	(0.2)	1		3.0	5	9	56		
511	87	510L	26	5.6	7.9	0.1	+	0.0	(2.7)	51	(1.4)	1		4.1	5	9	56		
520	254	1900S	67	5.6	4.2	0.0	+	0.3	(4.2)	7	(0.6)	11		7.2	5	9	56		
521	621	520L	67	5.6	15.9	2.0	+	0.7	(38.9)	80	(16.0)	11		54.9	5	9	56		
610	204	4000S	12	4.2	0.5	0.0	+	0.0	(0.4)	1	(0.0)	0		0.5					
620	286	610L	12	4.2	0.5	0.0	+	0.0	(0.6)	1	(0.1)	0		0.6					
690	1354	2278	76	15.0	4.9	0.2	+	1.6	(26.1)	27	(11.6)	7		37.8					
710	1221	6000S	24	6.2	0.4	0.0	+	0.1	(1.9)	1	(0.2)	0		2.1					
720	192	710L	24	6.1	0.4	0.0	+	0.0	(0.3)	1	(0.0)	0		0.3					
790	682	2300	70	15.0	6.3	0.0	+	1.2	(17.0)	14	(3.0)	3		20.0					

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1656.5	82.9	20.0	23.4	24.8	(684.6) +	(179.7) +	(144.2) =	1008.6	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	55.4	+	77.0	=	220.8

NO. OF ENTRIES TO SUBPT = 14
NO. OF LINKS RECALCULATED= 449

.

70 SECOND CYCLE 70 STEPS

FINAL SETTINGS OBTAINED WITH INCREMENTS :- 10 28 -1 10 28 1 -1 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	54	36								
3	2	30	10								
5	2	2	56								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (PCU-H/H)	DELAY RANDOM+ OVERSAT (U+R+O=MEAN Q) ($/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END
101	172	1900	45	7.6	33.3	1.2	+ 0.4 (22.6)	95	(5.2)	3		27.8	1	41	54
102	350	1900	92	15.0	73.6	2.7	+ 4.5 (101.7)	149	(16.7)	11		118.4	1	41	54
103	350	1900	92	16.7	73.6	2.7	+ 4.5 (101.7)	149	(13.4)	11		115.1	1	41	54
110	194	1900S	40	9.0	7.9	0.3	+ 0.1 (6.0)	43	(2.7)	5	(0.0)*	8.7	1	61	36
111	301	110L	40	9.0	7.7	0.4	+ 0.2 (9.1)	42	(4.0)	5	(0.0)*	13.2	1	61	36
120	391	1900S	86	9.0	19.5	1.0	+ 1.1 (30.1)	80	(10.0)	18	(0.7)*	112.2	1	61	36
121	687	120L	86	9.0	19.3	1.7	+ 1.9 (52.2)	77	(16.9)	18	(0.7)*	141.2	1	61	36
199	10	10000	0	7.2	3.9	0.0	+ 0.0 (0.2)	32	(0.0)	0		0.2	1	59	36
210	710	6000S	35	4.7	0.5	0.0	+ 0.1 (1.3)	1	(0.2)	0		1.5			
220	1417	210L	35	4.7	0.5	0.0	+ 0.2 (2.6)	1	(0.3)	0		2.9			
290	194	1874	66	15.0	31.6	0.7	+ 1.0 (24.2)	125	(7.8)	3		32.0			
301	362	1950	81	15.0	46.1	2.6	+ 2.1 (65.8)	116	(13.5)	9		79.3	3	15	30
302	254	1900	58	15.0	34.0	1.7	+ 0.7 (34.0)	97	(8.0)	5		42.0	3	15	30
310	349	1950S	76	6.6	6.1	0.0	+ 0.6 (8.4)	10	(1.2)	11		14.2	3	37	10
311	581	310L	76	6.6	18.1	1.9	+ 1.0 (41.5)	81	(15.1)	11		56.6	3	37	10
320	349	1900S	51	6.6	3.1	0.0	+ 0.3 (4.3)	4	(0.5)	3		6.7	3	37	10
321	261	320L	51	6.6	10.1	0.5	+ 0.2 (10.4)	51	(4.3)	3		14.7	3	37	10
399	10	10000	0	7.2	4.6	0.0	+ 0.0 (0.2)	34	(0.0)	0		0.2	3	35	10
410	610	6000S	36	4.9	0.5	0.0	+ 0.1 (1.1)	1	(0.1)	0		1.3			
420	1536	410L	36	4.9	0.5	0.0	+ 0.2 (2.8)	1	(0.3)	0		3.2			
490	10	1281	6	15.0	21.4	0.0	+ 0.0 (0.8)	95	(0.3)	0		1.1			
501	182	1900	56	15.0	39.0	1.3	+ 0.6 (28.0)	104	(6.1)	4		34.1	5	61	2
502	182	1900	56	15.0	39.0	1.3	+ 0.6 (28.0)	104	(6.1)	4		34.1	5	61	2
503	108	1900	33	15.0	33.8	0.8	+ 0.2 (14.4)	94	(3.3)	2		17.7	5	61	2
510	254	1900S	26	5.6	1.9	0.0	+ 0.1 (1.9)	3	(0.2)	1		3.0	5	9	56
511	87	510L	26	5.6	7.8	0.1	+ 0.0 (2.7)	50	(1.4)	1		4.0	5	9	56
520	254	1900S	67	5.6	4.3	0.0	+ 0.3 (4.3)	9	(0.7)	11		7.7	5	9	56
521	621	520L	67	5.6	15.5	2.0	+ 0.7 (38.0)	78	(15.7)	11		53.7	5	9	56
610	204	4000S	12	4.2	0.5	0.0	+ 0.0 (0.4)	1	(0.0)	0		0.5			
620	286	610L	12	4.2	0.5	0.0	+ 0.0 (0.6)	1	(0.1)	0		0.6			
690	1354	2278	76	15.0	4.9	0.2	+ 1.6 (26.2)	27	(11.8)	7		38.0			
710	1221	6000S	24	6.2	0.4	0.0	+ 0.1 (1.9)	1	(0.2)	0		2.1			
720	192	710L	24	6.1	0.4	0.0	+ 0.0 (0.3)	1	(0.0)	0		0.3			
790	682	2300	70	15.0	6.3	0.0	+ 1.2 (17.0)	14	(3.0)	3		20.0			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1656.5	82.9	20.0	23.4	24.8	(684.6) +	(179.3) +	(144.2) =	1008.0	TOTALS

ROUTE

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	88.3	+	55.4	+	77.0	=	220.8

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 288

_________________ T R A N S Y T 12 _________________

Traffic Network Study Tool

Analysis Program Release 6 (February 2007)

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THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION

Run with file:- "UPPER BOAT PROPOSED 2018 PM NO DEV.DAT" at 08:36 on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2018PM No Dev

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	3
NUMBER OF LINKS	=	34
NUMBER OF OPTIMISED NODES	=	3
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	8
NUMBER OF STEPS IN CYCLE	=	70
MAXIMUM NUMBER OF SHARED STOPLINES	=	2
MAXIMUM NUMBER OF TIMING POINTS	=	2
MAXIMUM LINKS AT ANY NODE	=	7

CORE REQUESTED = 9519 WORDS
CORE AVAILABLE = 72000 WORDS

.

DATA INPUT :-

CARD NO.	CARD TYPE	
(1)=	**TITLE:- Upper Boat Proposed Layout 2018PM No Dev**	

CARD NO.	CARD TYPE	CYCLE TIME (SEC)	NO. OF STEPS PER CYCLE	TIME PERIOD 1-1200 MINS.	EFFECTIVE-GREEN DISPLACEMENTS START (SEC)	END (SEC)	EQUISAT SETTINGS 0=NO 1=YES	0=UNEQUAL CYCLE 1=EQUAL CYCLE	FLOW SCALE 10-200 %	CRUISE-SPEEDS SCALE 50-200 %	CARD32 0=TIMES 1=SPEEDS	OPTIMISE 0=NONE 1=O/SET 2=FULL	EXTRA COPIES FINAL OUTPUT	HILL-CLIMB OUTPUT 1=FULL	DELAY VALUE P PER PCU-H	STOP VALUE P PER 100
2)=	1	70	70	60	2	3	1	0	0	0	1	2	0	1	1420	260

LIST OF NODES TO BE OPTIMISED

CARD NO.	CARD TYPE															
3)=	2	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0

LINKS HAVING SHARED STOPLINES

CARD NO.	CARD TYPE	FIRST SET........................					SECOND SET.......................					THIRD SET........................				
4)=	7	110	111	0	0	0	120	121	0	0	0	210	220	0	0	0
5)=	7	310	311	0	0	0	320	321	0	0	0	410	420	0	0	0
6)=	7	510	511	0	0	0	520	521	0	0	0	610	620	0	0	0
7)=	7	710	720	0	0	0	0	0	0	0	0	0	0	0	0	0

NODE CARDS: MINIMUM STAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
8)=	10	1	7	7								
9)=	10	3	7	7								
10)=	10	5	7	7								

NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
11)=	11	1	7	5								
12)=	11	3	7	5								
13)=	11	5	7	5								

NODE CARDS: STAGE CHANGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	Sgl/Dbl Cycled	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
14)=	12	1	1	0	50								
15)=	12	3	1	0	40								
16)=	12	5	1	0	57								

LINK CARDS: GIVEWAY DATA

CARD NO.	CARD TYPE	LINK NO.	PRIORITY LINKS LINK1 NO.	LINK2 NO.	LINK1 ONLY % FLOW	GIVEWAY COEFFS. A1 X100	A2 X100					LINK LENGTH	STOP WT.X100	MAX FLOW	DELAY WT.X100	DISPSN X100
17)=	30	290	210	220	0	48	48	0	0	0	0	200	0	1874	0	0
18)=	30	490	410	420	0	49	49	0	0	0	0	200	0	1281	0	0
19)=	30	690	610	620	0	52	52	0	0	0	0	200	0	2278	0	0
20)=	30	790	710	720	0	47	47	0	0	0	0	200	0	2300	0	0

LINK CARDS: FIXED DATA

CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	FIRST GREEN START STAGE	LAG	END STAGE	LAG	SECOND GREEN START STAGE	LAG	END STAGE	LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
21)=	31	101	1	2	5	1	0	0	0	0	0	102	0	1900	0	0
22)=	31	102	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
23)=	31	103	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
24)=	31	110	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
25)=	31	111	1	1	0	1	0	0	0	0	0	120	0	0	0	0
26)=	31	120	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
27)=	31	121	1	1	0	1	0	0	0	0	0	120	0	0	0	0
28)=	31	199	1	1	5	2	0	0	0	0	0	10	0	10000	0	0
29)=	31	210	0	0	0	0	0	0	0	0	0	63	0	6000	0	0
30)=	31	220	0	0	0	0	0	0	0	0	0	63	0	0	0	0
31)=	31	290	0	0	0	0	0	0	0	0	0	200	0	1874	0	0
32)=	31	301	3	2	5	1	0	0	0	0	0	200	0	1950	0	0
33)=	31	302	3	2	5	1	0	0	0	0	0	200	0	1900	0	0
34)=	31	310	3	1	7	2	0	0	0	0	0	88	500	1950	0	0
35)=	31	311	3	1	0	1	0	0	0	0	0	88	0	0	0	0
36)=	31	320	3	1	7	2	0	0	0	0	0	88	500	1900	0	0
37)=	31	321	3	1	0	1	0	0	0	0	0	88	0	0	0	0
38)=	31	399	3	1	5	2	0	0	0	0	0	10	0	10000	0	0
39)=	31	410	0	0	0	0	0	0	0	0	0	65	0	6000	0	0

```
 40)=  31     420       0       0       0       0       0       0       0       0       0      65       0       0       0       0
 41)=  31     490       0       0       0       0       0       0       0       0       0     200       0    1281       0       0
 42)=  31     501       5       2       5       1       0       0       0       0       0     200   -9999    1900      20       0
 43)=  31     502       5       2       5       1       0       0       0       0       0     200   -9999    1900      20       0
 44)=  31     503       5       2       5       1       0       0       0       0       0     200   -9999    1900      20       0
 45)=  31     510       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 46)=  31     511       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 47)=  31     520       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 48)=  31     521       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 49)=  31     610       0       0       0       0       0       0       0       0       0      56       0    4000       0       0
 50)=  31     620       0       0       0       0       0       0       0       0       0      56       0       0       0       0
 51)=  31     690       0       0       0       0       0       0       0       0       0     200       0    2278       0       0
 52)=  31     710       0       0       0       0       0       0       0       0       0      82       0    6000       0       0
 53)=  31     720       0       0       0       0       0       0       0       0       0      82       0       0       0       0
 54)=  31     790       0       0       0       0       0       0       0       0       0     200       0    2300       0       0
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LINK CARDS: FLOW DATA

```
                                          ENTRY 1 ............    ENTRY 2 ............    ENTRY 3 ............    ENTRY 4 ............
CARD   CARD   LINK   TOTAL  UNIFORM  LINK          CRUISE   LINK          CRUISE   LINK          CRUISE   LINK          CRUISE
 NO.   TYPE    NO.   FLOW    FLOW     NO.   FLOW   SPEED    NO.   FLOW   SPEED    NO.   FLOW   SPEED    NO.   FLOW   SPEED
 55)=  32     101    234       0       0      0      48       0      0       0       0      0       0       0      0       0
 56)=  32     102    285       0       0      0      48       0      0       0       0      0       0       0      0       0
 57)=  32     103    286       0       0      0      43       0      0       0       0      0       0       0      0       0
 58)=  32     110    167       0     790    167      48       0      0       0       0      0       0       0      0       0
 59)=  32     111    286       0     720    208      48     710     78      48       0      0       0       0      0       0
 60)=  32     120    271       0     790    271      48       0      0       0       0      0       0       0      0       0
 61)=  32     121    505       0     710    494      48     720     11      48       0      0       0       0      0       0
 62)=  32     199     10       0       0      0       5       0      0       0       0      0       0       0      0       0
 63)=  32     210    571       0     102    285      48     103    286      48       0      0       0       0      0       0
 64)=  32     220    853       0     111     10      48     121    505      48     110     67      48     120    271      48
 65)=  32     290    583       0       0      0      48       0      0       0       0      0       0       0      0       0
 66)=  32     301    539       0       0      0      48       0      0       0       0      0       0       0      0       0
 67)=  32     302    489       0       0      0      48       0      0       0       0      0       0       0      0       0
 68)=  32     310    283       0     210    283      48       0      0       0       0      0       0       0      0       0
 69)=  32     311    256       0     290    110      48     220    146      48       0      0       0       0      0       0
 70)=  32     320    286       0     210    286      48       0      0       0       0      0       0       0      0       0
 71)=  32     321    399       0     290    247      48     220    119      48       0      0       0       0      0       0
 72)=  32     399     10       0       0      0       5       0      0       0       0      0       0       0      0       0
 73)=  32     410   1023       0     301    534      48     302    489      48       0      0       0       0      0       0
 74)=  32     420   1185       0     310    283      48     320    286      48     311    250      48     321    366      48
 75)=  32     490     10       0       0      0      48       0      0       0       0      0       0       0      0       0
 76)=  32     501    186       0       0      0      48       0      0       0       0      0       0       0      0       0
 77)=  32     502    163       0       0      0      48       0      0       0       0      0       0       0      0       0
 78)=  32     503    191       0       0      0      48       0      0       0       0      0       0       0      0       0
 79)=  32     510    488       0     410    488      48       0      0       0       0      0       0       0      0       0
 80)=  32     511    249       0     420    239      48     490     10      48       0      0       0       0      0       0
 81)=  32     520    489       0     410    489      48       0      0       0       0      0       0       0      0       0
 82)=  32     521    649       0     420    639      48     490     10      48       0      0       0       0      0       0

 83)=  32     610    354       0     502    163      48     503    191      48       0      0       0       0      0       0
 84)=  32     620    554       0     521    231      48     520    323      48       0      0       0       0      0       0
 85)=  32     690   1300       0       0      0      48       0      0       0       0      0       0       0      0       0
 86)=  32     710   1090       0     690   1090      48       0      0       0       0      0       0       0      0       0
 87)=  32     720    542       0     620    351      48     610    191      48       0      0       0       0      0       0
 88)=  32     790    543       0       0      0      48       0      0       0       0      0       0       0      0       0
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GRAPH PLOT CARDS

```
CARD   CARD   LINK    LINK    LINK    LINK    LINK    LINK    LINK    LINK
 NO.   TYPE    NO.     NO.     NO.     NO.     NO.     NO.     NO.     NO.
 89)=  35     302     520     102     320       0       0       0       0       0       0       0       0       0       0
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LINK DATA: QUEUE CONSTRAINTS

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CARD   CARD   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE
 NO.   TYPE    NO.    QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT
 90)=  38     110      13    9999     111      13    9999     120      13    9999     121      13    9999     310       9    9999
 91)=  38     311       9    9999     320       9    9999     321       9    9999     510       8    9999     511       8    9999
 92)=  38     520       8    9999     521       8    9999       0       0       0       0       0       0       0       0       0
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*****END OF SUBROUTINE TINPUT*****

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70 SECOND CYCLE 70 STEPS

INITIAL SETTINGS

- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	0	50								
3	2	0	40								
5	2	0	57								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	234	1900	54	7.6	32.7	1.5 + 0.6	(30.2)	95	(7.1)	5		37.3	1	55	0		
102	285	1900	66	15.0	36.4	1.9 + 0.9	(40.9)	102	(9.3)	6		50.2	1	55	0		
103	286	1900	66	16.7	36.5	1.9 + 1.0	(41.2)	102	(7.5)	6		48.7	1	55	0		
110	167	1900S	38	9.0	8.6	0.3 + 0.1	(5.6)	44	(2.4)	4	(0.0)*	8.0	1	7	50		
111	287	110L	38	9.0	7.3	0.4 + 0.2	(8.3)	36	(3.3)	4	(0.0)*	11.6	1	7	50		
120	272	1900S	65	9.0	12.8	0.6 + 0.3	(13.8)	62	(5.4)	11	(0.0)*	19.1	1	7	50		
121	505	120L	65	9.0	13.7	1.3 + 0.6	(27.3)	63	(10.2)	11	(0.0)*	37.5	1	7	50		
199	10	10000	0	7.2	4.6	0.0 + 0.0	(0.2)	34	(0.0)	0		0.2	1	5	50		
210	571	6000S	24	4.7	0.4	0.0 + 0.1	(0.9)	1	(0.1)	0		1.0					
220	854	210L	24	4.7	0.4	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5					
290	583	1874	83	15.0	20.8	1.1 + 2.3	(47.8)	102	(19.1)	9		66.9					
301	539	1950	74	15.0	28.7	2.9 + 1.4	(61.0)	94	(16.2)	10		77.2	3	45	0		
302	489	1900	69	15.0	26.8	2.5 + 1.1	(51.8)	90	(14.1)	9		65.9	3	45	0		
310	283	1950S	57	6.6	16.7	1.0 + 0.3	(18.6)	102	(9.2)	9	(0.0)*	66.5	3	7	40		
311	256	310L	57	6.6	17.3	0.9 + 0.3	(17.5)	66	(5.4)	9	(0.0)*	24.6	3	7	40		
320	285	1900S	74	6.6	23.4	1.3 + 0.6	(26.3)	109	(10.0)	13	(1.0)*	177.3	3	7	40		
321	399	320L	74	6.6	24.9	1.9 + 0.8	(39.2)	91	(11.6)	13	(1.0)*	151.6	3	7	40		
399	10	10000	0	7.2	8.9	0.0 + 0.0	(0.3)	49	(0.0)	0		0.4	3	5	40		
410	1023	6000S	37	4.9	0.5	0.0 + 0.1	(1.9)	1	(0.2)	0		2.1					
420	1185	410L	37	4.9	0.5	0.0 + 0.2	(2.2)	1	(0.3)	0		2.5					
490	10	1281	4	15.0	15.5	0.0 + 0.0	(0.6)	79	(0.3)	0		0.9					
501	186	1900	76	15.0	58.8	1.5 + 1.5	(43.2)*	129	(7.7)	5		8.6	5	62	0		
502	163	1900	67	15.0	50.7	1.3 + 1.0	(32.6)*	119	(6.2)	4		6.5	5	62	0		
503	191	1900	78	15.0	61.3	1.6 + 1.7	(46.2)*	132	(8.1)	5		9.2	5	62	0		
510	489	1900S	53	5.6	18.5	2.1 + 0.4	(35.6)	95	(14.8)	11	(0.4)*	151.6	5	7	57		
511	249	510L	53	5.6	3.9	0.1 + 0.2	(3.8)	23	(1.9)	11	(0.4)*	47.5	5	7	57		
520	489	1900S	82	5.6	22.9	2.1 + 1.0	(44.2)	101	(15.8)	23	(4.4)*	558.2	5	7	57		
521	650	520L	82	5.6	11.7	0.8 + 1.3	(30.1)	79	(16.5)	23	(4.4)*	481.6	5	7	57		
610	354	4000S	23	4.2	0.6	0.0 + 0.1	(0.8)	1	(0.1)	0		0.9					
620	554	610L	23	4.2	0.6	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4					
690	1300	2278	91	15.0	16.8	1.3 + 4.7	(86.1)	76	(31.7)	26		117.8					
710	1089	6000S	27	6.1	0.4	0.0 + 0.1	(1.8)	1	(0.2)	0		2.0					
720	542	710L	27	6.1	0.4	0.0 + 0.1	(0.9)	1	(0.1)	0		1.0					
790	543	2300	71	15.0	8.0	0.0 + 1.2	(17.1)	0	(0.0)	1		17.1					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1752.8	91.7	19.1	30.6	24.4	(683.0) +	(412.9) +	(1158.4) =	2254.4	TOTALS

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70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	63.2	+	107.2	=	263.9

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 72

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	30	10								
3	2	10	50								
5	2	60	47								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	234	1900	54	7.6	32.7	1.5 +	0.6	(30.2)	95	(7.1)	5		37.3	1	15	30		
102	285	1900	66	15.0	36.4	1.9 +	0.9	(40.9)	102	(9.3)	6		50.2	1	15	30		
103	286	1900	66	16.7	36.5	1.9 +	1.0	(41.2)	102	(7.5)	6		48.7	1	15	30		
110	167	1900S	38	9.0	8.8	0.3 +	0.1	(5.8)	47	(2.5)	5	(0.0)*	8.3	1	37	10		
111	287	110L	38	9.0	8.6	0.5 +	0.2	(9.8)	48	(4.4)	5	(0.0)*	14.1	1	37	10		
120	272	1900S	65	9.0	12.9	0.6 +	0.3	(13.8)	64	(5.6)	12	(0.0)*	19.4	1	37	10		
121	505	120L	65	9.0	13.9	1.3 +	0.6	(27.7)	70	(11.4)	12	(0.0)*	39.0	1	37	10		
199	10	10000	0	7.2	4.6	0.0 +	0.0	(0.2)	34	(0.0)	0		0.2	1	35	10		
210	571	6000S	24	4.7	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0					
220	854	210L	24	4.7	0.4	0.0 +	0.1	(1.3)	1	(0.2)	0		1.5					
290	583	1874	83	15.0	21.7	1.2 +	2.3	(50.0)	105	(19.7)	9		69.7					
301	539	1950	74	15.0	28.7	2.9 +	1.4	(61.0)	94	(16.2)	10		77.2	3	55	10		
302	489	1900	69	15.0	26.8	2.5 +	1.1	(51.8)	90	(14.1)	9		65.9	3	55	10		
310	283	1950S	57	6.6	4.5	0.0 +	0.3	(5.0)	6	(0.6)	5	(0.0)*	7.9	3	17	50		
311	256	310L	57	6.6	19.5	1.1 +	0.3	(19.7)	81	(6.7)	5	(0.0)*	26.3	3	17	50		
320	286	1900S	74	6.6	7.8	0.0 +	0.6	(8.8)	20	(1.9)	9	(0.0)*	18.8	3	17	50		
321	399	320L	74	6.6	19.9	1.4 +	0.8	(31.4)	82	(10.5)	9	(0.0)*	42.4	3	17	50		
399	10	10000	0	7.2	8.9	0.0 +	0.0	(0.3)	49	(0.0)	0		0.4	3	15	50		
410	1023	6000S	37	4.9	0.5	0.0 +	0.1	(1.9)	1	(0.2)	0		2.1					
420	1185	410L	37	4.9	0.5	0.0 +	0.2	(2.2)	1	(0.3)	0		2.5					
490	10	1281	5	15.0	19.0	0.0 +	0.0	(0.7)	90	(0.3)	0		1.0					
501	186	1900	76	15.0	58.8	1.5 +	1.5	(43.2)*	129	(7.7)	5		8.6	5	52	60		
502	163	1900	67	15.0	50.7	1.3 +	1.0	(32.6)*	119	(6.2)	4		6.5	5	52	60		
503	191	1900	78	15.0	61.3	1.6 +	1.7	(46.2)*	132	(8.1)	5		9.2	5	52	60		
510	489	1900S	53	5.6	4.7	0.3 +	0.4	(9.1)	51	(8.1)	10	(0.1)*	61.1	5	67	47		
511	249	510L	53	5.6	6.7	0.3 +	0.2	(6.6)	31	(2.5)	10	(0.1)*	20.7	5	67	47		
520	489	1900S	82	5.6	12.8	0.8 +	1.0	(24.6)	85	(13.4)	15	(1.1)*	205.0	5	67	47		
521	650	520L	82	5.6	11.6	0.8 +	1.3	(29.8)	37	(7.8)	15	(1.1)*	150.8	5	67	47		
610	354	4000S	23	4.2	0.6	0.0 +	0.1	(0.8)	1	(0.1)	0		0.9					
620	554	610L	23	4.2	0.6	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4					
690	1300	2278	91	15.0	15.7	0.9 +	4.7	(80.3)	63	(26.5)	23		106.8					
710	1089	6000S	27	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0					
720	542	710L	27	6.1	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0					
790	543	2300	71	15.0	8.0	0.0 +	1.2	(17.1)	0	(0.0)	1		17.1					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1752.8	85.9	20.4	24.8	24.4	(601.1) +	(272.8) +	(251.2) =	1125.1	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	56.6	+	90.7	=	240.8

NO. OF ENTRIES TO SUBPT = 10
NO. OF LINKS RECALCULATED= 282

.

70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	30	10								
3	2	10	50								
5	2	32	19								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	234	1900	54	7.6	32.7	1.5 +	0.6	(30.2)	95	(7.1)	5		37.3	1	15	30		
102	285	1900	66	15.0	36.4	1.9 +	0.9	(40.9)	102	(9.3)	6		50.2	1	15	30		
103	286	1900	66	16.7	36.5	1.9 +	1.0	(41.2)	102	(7.5)	6		48.7	1	15	30		
110	167	1900S	38	9.0	8.7	0.3 +	0.1	(5.8)	46	(2.5)	5	(0.0)*	8.2	1	37	10		
111	287	110L	38	9.0	8.5	0.5 +	0.2	(9.6)	45	(4.1)	5	(0.0)*	13.8	1	37	10		
120	272	1900S	65	9.0	12.2	0.6 +	0.3	(13.1)	59	(5.1)	9	(0.0)*	18.2	1	37	10		
121	505	120L	65	9.0	11.7	1.0 +	0.6	(23.4)	53	(8.5)	9	(0.0)*	31.9	1	37	10		
199	10	10000	0	7.2	4.6	0.0 +	0.0	(0.2)	34	(0.0)	0		0.2	1	35	10		
210	571	6000S	24	4.7	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0					

220	854	210L	24	4.7	0.4	0.0	+	0.1	(1.3)	1	(0.2)	0		1.5						
290	583	1874	83	15.0	20.2	1.0	+	2.3	(46.6)	102	(19.1)	9		65.6						
301	539	1950	74	15.0	28.7	2.9	+	1.4	(61.0)	94	(16.2)	10		77.2	3	55	10			
302	489	1900	69	15.0	26.8	2.5	+	1.1	(51.8)	90	(14.1)	9		65.9	3	55	10			
310	283	1950S	57	6.6	4.5	0.0	+	0.3	(5.0)	6	(0.6)	5	(0.0)*	7.9	3	17	50			
311	256	310L	57	6.6	19.5	1.1	+	0.3	(19.7)	81	(6.7)	5	(0.0)*	26.4	3	17	50			
320	286	1900S	74	6.6	7.8	0.0	+	0.6	(8.8)	20	(1.9)	9	(0.0)*	18.8	3	17	50			
321	399	320L	74	6.6	20.6	1.5	+	0.8	(32.4)	82	(10.5)	9	(0.0)*	43.5	3	17	50			
399	10	10000	0	7.2	8.9	0.0	+	0.0	(0.3)	49	(0.0)	0		0.4	3	15	50			
410	1023	6000S	37	4.9	0.5	0.0	+	0.1	(1.9)	1	(0.2)	0		2.1						
420	1185	410L	37	4.9	0.5	0.0	+	0.2	(2.2)	1	(0.3)	0		2.5						
490	10	1281	5	15.0	19.0	0.0	+	0.0	(0.7)	90	(0.3)	0		1.0						
501	186	1900	76	15.0	58.8	1.5	+	1.5	(43.2)*	129	(7.7)	5		8.6	5	24	32			
502	163	1900	67	15.0	50.7	1.3	+	1.0	(32.6)*	119	(6.2)	4		6.5	5	24	32			
503	191	1900	78	15.0	61.3	1.6	+	1.7	(46.2)*	132	(8.1)	5		9.2	5	24	32			
510	489	1900S	53	5.6	3.6	0.1	+	0.4	(6.9)	9	(1.4)	4	(0.0)*	13.7	5	39	19			
511	249	510L	53	5.6	6.5	0.3	+	0.2	(6.4)	50	(4.0)	4	(0.0)*	10.4	5	39	19			
520	489	1900S	82	5.6	8.0	0.1	+	1.0	(15.4)	15	(2.3)	15	(1.5)*	182.0	5	39	19			
521	650	520L	82	5.6	16.5	1.7	+	1.3	(42.3)	99	(20.6)	15	(1.5)*	217.8	5	39	19			
610	354	4000S	23	4.2	0.6	0.0	+	0.1	(0.8)	1	(0.1)	0		0.9						
620	554	610L	23	4.2	0.6	0.0	+	0.1	(1.3)	1	(0.1)	0		1.4						
690	1300	2278	91	15.0	14.8	0.6	+	4.7	(75.8)	68	(28.3)	16		104.1						
710	1089	6000S	27	6.1	0.4	0.0	+	0.1	(1.8)	1	(0.2)	0		2.0						
720	542	710L	27	6.1	0.4	0.0	+	0.1	(0.9)	1	(0.1)	0		1.0						
790	543	2300	71	15.0	8.0	0.0	+	1.2	(17.1)	0	(0.0)	1		17.1						

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1752.8	85.1	20.6	24.0	24.4	(590.2)	+ (195.9)	+ (311.0)	= 1097.0	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	55.7	+	88.1	=	237.3

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 227

.

70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	30	12								
3	2	8	49								
5	2	31	19								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE	DELAY	-------DELAY-------- UNIFORM (U+R+O=MEAN Q)	RANDOM+ OVERSAT	COST OF DELAY	----STOPS---- MEAN STOPS /PCU	COST OF STOPS	----QUEUE---- MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START END 1ST (SECONDS)	START END 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)	(PCU-H/H)		($/H)	(%)	($/H)			($/H)			
101	234	1900	62	7.6	37.7	1.7	+ 0.8	(34.8)	102	(7.7)	5		42.5	1	17 30	
102	285	1900	75	15.0	44.7	2.1	+ 1.5	(50.3)	113	(10.3)	7		60.6	1	17 30	
103	286	1900	75	16.7	44.9	2.1	+ 1.5	(50.7)	113	(8.4)	7		59.0	1	17 30	
110	167	1900S	36	9.0	7.7	0.3	+ 0.1	(5.1)	42	(2.3)	4	(0.0)*	7.3	1	37 12	
111	287	110L	36	9.0	7.7	0.4	+ 0.2	(8.7)	42	(3.8)	4	(0.0)*	12.5	1	37 12	
120	272	1900S	62	9.0	10.5	0.5	+ 0.3	(11.3)	53	(4.6)	8	(0.0)*	15.9	1	37 12	
121	505	120L	62	9.0	10.1	0.9	+ 0.5	(20.1)	48	(7.7)	8	(0.0)*	27.9	1	37 12	
199	10	10000	0	7.2	3.9	0.0	+ 0.0	(0.2)	32	(0.0)	0		0.2	1	35 12	
210	571	6000S	24	4.7	0.4	0.0	+ 0.1	(0.9)	1	(0.1)	0		1.0			
220	854	210L	24	4.7	0.4	0.0	+ 0.1	(1.3)	1	(0.2)	0		1.5			
290	583	1874	82	15.0	18.5	0.8	+ 2.2	(42.6)	94	(17.6)	8		60.2			
301	539	1950	77	15.0	31.2	3.0	+ 1.7	(66.3)	98	(16.9)	11		83.2	3	54 8	
302	489	1900	72	15.0	28.9	2.6	+ 1.3	(55.6)	93	(14.6)	9		70.3	3	54 8	
310	283	1950S	55	6.6	4.3	0.0	+ 0.3	(4.8)	6	(0.6)	5	(0.0)*	7.7	3	15 49	
311	256	310L	55	6.6	18.4	1.0	+ 0.3	(18.6)	78	(6.4)	5	(0.0)*	25.0	3	15 49	
320	286	1900S	72	6.6	6.9	0.0	+ 0.5	(7.8)	10	(0.9)	7	(0.0)*	12.3	3	15 49	
321	399	320L	72	6.6	19.4	1.4	+ 0.7	(30.6)	80	(10.3)	7	(0.0)*	40.9	3	15 49	
399	10	10000	0	7.2	8.4	0.0	+ 0.0	(0.3)	47	(0.0)	0		0.3	3	13 49	
410	1023	6000S	37	4.9	0.5	0.0	+ 0.1	(1.9)	1	(0.2)	0		2.1			
420	1185	410L	37	4.9	0.5	0.0	+ 0.2	(2.2)	1	(0.3)	0		2.5			
490	10	1281	6	15.0	22.7	0.0	+ 0.0	(0.9)	101	(0.3)	0		1.2			
501	186	1900	86	15.0	80.1	1.6	+ 2.6	(58.7)*	153	(9.1)	6		11.7	5	24 31	
502	163	1900	75	15.0	61.6	1.4	+ 1.4	(39.6)*	132	(6.9)	4		7.9	5	24 31	
503	191	1900	88	15.0	86.6	1.6	+ 3.0	(65.3)*	159	(9.8)	7		13.1	5	24 31	
510	489	1900S	52	5.6	3.1	0.1	+ 0.4	(5.9)	6	(1.0)	3	(0.0)*	10.9	5	38 19	
511	249	510L	52	5.6	6.2	0.2	+ 0.2	(6.1)	42	(3.4)	3	(0.0)*	9.4	5	38 19	
520	489	1900S	81	5.6	6.9	0.1	+ 0.9	(13.3)	12	(1.8)	15	(1.1)*	135.0	5	38 19	
521	650	520L	81	5.6	14.7	1.5	+ 1.2	(37.6)	93	(19.4)	15	(1.1)*	169.5	5	38 19	
610	354	4000S	23	4.2	0.6	0.0	+ 0.1	(0.8)	1	(0.1)	0		0.9			
620	554	610L	23	4.2	0.6	0.0	+ 0.1	(1.3)	1	(0.1)	0		1.4			
690	1300	2278	91	15.0	14.6	0.6	+ 4.6	(74.7)	68	(28.5)	16		103.2			
710	1089	6000S	27	6.1	0.4	0.0	+ 0.1	(1.8)	1	(0.2)	0		2.0			
720	542	710L	27	6.1	0.4	0.0	+ 0.1	(0.9)	1	(0.1)	0		1.0			
790	543	2300	71	15.0	8.0	0.0	+ 1.2	(17.1)	0	(0.0)	1		17.1			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1752.8	88.7	19.8	23.9	28.1	(607.2)	+ (185.1)	+ (225.1)	= 1017.4	TOTALS

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70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	59.8	+	88.3	=	241.5

NO. OF ENTRIES TO SUBPT = 14
NO. OF LINKS RECALCULATED= 341

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	40	22								
3	2	8	49								
5	2	21	9								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	OVERSAT DELAY ($/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. QUEUE (PCU)	AVERAGE EXCESS QUEUE (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	START END 2ND
101	234	1900	62	7.6	37.7	1.7 + 0.8	(34.8)	102	(7.7)	5		42.5	1	27	40
102	285	1900	75	15.0	44.7	2.1 + 1.5	(50.3)	113	(10.3)	7		60.6	1	27	40
103	286	1900	75	16.7	44.9	2.1 + 1.5	(50.7)	113	(8.4)	7		59.0	1	27	40
110	167	1900S	36	9.0	8.0	0.3 + 0.1	(5.3)	44	(2.4)	5	(0.0)*	7.6	1	47	22
111	287	110L	36	9.0	9.5	0.6 + 0.2	(10.7)	54	(4.9)	5	(0.0)*	15.7	1	47	22
120	272	1900S	62	9.0	10.4	0.5 + 0.3	(11.1)	54	(4.7)	9	(0.0)*	15.8	1	47	22
121	505	120L	62	9.0	9.6	0.8 + 0.5	(19.1)	51	(8.2)	9	(0.0)*	27.3	1	47	22
199	10	10000	0	7.2	3.9	0.0 + 0.0	(0.2)	32	(0.0)	0		0.2	1	45	22
210	571	6000S	24	4.7	0.4	0.0 + 0.1	(0.9)	1	(0.1)	0		1.0			
220	854	210L	24	4.7	0.4	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5			
290	583	1874	82	15.0	19.0	0.9 + 2.1	(43.7)	96	(18.0)	8		61.6			
301	539	1950	77	15.0	31.2	3.0 + 1.7	(66.3)	98	(16.9)	11		83.2	3	54	8
302	489	1900	72	15.0	28.9	2.6 + 1.3	(55.6)	93	(14.6)	9		70.3	3	54	8
310	283	1950S	55	6.6	9.8	0.4 + 0.3	(11.0)	23	(2.1)	5	(0.0)*	21.4	3	15	49
311	256	310L	55	6.6	17.4	0.9 + 0.3	(17.5)	76	(6.3)	5	(0.0)*	23.8	3	15	49
320	286	1900S	72	6.6	12.5	0.5 + 0.5	(14.1)	26	(2.4)	9	(0.0)*	26.2	3	15	49
321	399	320L	72	6.6	21.3	1.6 + 0.7	(33.6)	87	(11.1)	9	(0.0)*	44.7	3	15	49
399	10	10000	0	7.2	8.4	0.0 + 0.0	(0.3)	47	(0.0)	0		0.3	3	13	49
410	1023	6000S	37	4.9	0.5	0.0 + 0.1	(1.9)	1	(0.2)	0		2.1			
420	1185	410L	37	4.9	0.5	0.0 + 0.2	(2.2)	1	(0.3)	0		2.5			
490	10	1281	5	15.0	16.3	0.0 + 0.0	(0.6)	98	(0.3)	0		1.0			
501	186	1900	86	15.0	80.1	1.6 + 2.6	(58.7)*	153	(9.1)	6		11.7	5	14	21
502	163	1900	75	15.0	61.6	1.4 + 1.4	(39.6)*	132	(6.9)	4		7.9	5	14	21
503	191	1900	88	15.0	86.6	1.6 + 3.0	(65.3)*	159	(9.8)	7		13.1	5	14	21
510	489	1900S	52	5.6	6.8	0.6 + 0.4	(13.2)	30	(4.7)	5	(0.0)*	36.6	5	28	9
511	249	510L	52	5.6	4.2	0.1 + 0.2	(4.2)	29	(2.3)	5	(0.0)*	6.5	5	28	9
520	489	1900S	81	5.6	10.7	0.6 + 0.9	(20.6)	35	(5.5)	12	(0.5)*	93.5	5	28	9
521	650	520L	81	5.6	9.8	0.6 + 1.2	(25.0)	53	(11.1)	12	(0.5)*	81.4	5	28	9
610	354	4000S	23	4.2	0.6	0.0 + 0.1	(0.8)	1	(0.1)	0		0.9			
620	554	610L	23	4.2	0.6	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4			
690	1300	2278	91	15.0	14.9	0.7 + 4.6	(76.5)	73	(30.3)	17		106.8			
710	1089	6000S	27	6.1	0.4	0.0 + 0.1	(1.8)	1	(0.2)	0		2.0			
720	542	710L	27	6.1	0.4	0.0 + 0.1	(0.9)	1	(0.1)	0		1.0			
790	543	2300	71	15.0	8.0	0.0 + 1.2	(17.1)	0	(0.0)	1		17.1			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1752.8	89.9	19.5	25.2	28.1	(625.2) +	(232.5) +	(90.6) =	948.4	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	61.2	+	90.8	=	245.6

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 277

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10 28
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	40	22								
3	2	8	49								
5	2	21	9								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	OVERSAT DELAY ($/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. QUEUE (PCU)	AVERAGE EXCESS QUEUE (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	START END 2ND
101	234	1900	62	7.6	37.7	1.7 + 0.8	(34.8)	102	(7.7)	5		42.5	1	27	40
102	285	1900	75	15.0	44.7	2.1 + 1.5	(50.3)	113	(10.3)	7		60.6	1	27	40
103	286	1900	75	16.7	44.9	2.1 + 1.5	(50.7)	113	(8.4)	7		59.0	1	27	40
110	167	1900S	36	9.0	8.0	0.3 + 0.1	(5.3)	44	(2.4)	5	(0.0)*	7.6	1	47	22
111	287	110L	36	9.0	9.5	0.6 + 0.2	(10.7)	54	(4.9)	5	(0.0)*	15.7	1	47	22
120	272	1900S	62	9.0	10.4	0.5 + 0.3	(11.1)	54	(4.7)	9	(0.0)*	15.8	1	47	22
121	505	120L	62	9.0	9.6	0.8 + 0.5	(19.1)	51	(8.2)	9	(0.0)*	27.3	1	47	22
199	10	10000	0	7.2	3.9	0.0 + 0.0	(0.2)	32	(0.0)	0		0.2	1	45	22
210	571	6000S	24	4.7	0.4	0.0 + 0.1	(0.9)	1	(0.1)	0		1.0			
220	854	210L	24	4.7	0.4	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5			
290	583	1874	82	15.0	19.0	0.9 + 2.1	(43.7)	96	(18.0)	8		61.6			
301	539	1950	77	15.0	31.2	3.0 + 1.7	(66.3)	98	(16.9)	11		83.2	3	54	8
302	489	1900	72	15.0	28.9	2.6 + 1.3	(55.6)	93	(14.6)	9		70.3	3	54	8
310	283	1950S	55	6.6	9.8	0.4 + 0.3	(11.0)	23	(2.1)	5	(0.0)*	21.4	3	15	49
311	256	310L	55	6.6	17.4	0.9 + 0.3	(17.5)	76	(6.3)	5	(0.0)*	23.8	3	15	49
320	286	1900S	72	6.6	12.5	0.5 + 0.5	(14.1)	26	(2.4)	9	(0.0)*	26.2	3	15	49
321	399	320L	72	6.6	21.3	1.6 + 0.7	(33.6)	87	(11.1)	9	(0.0)*	44.7	3	15	49
399	10	10000	0	7.2	8.4	0.0 + 0.0	(0.3)	47	(0.0)	0		0.3	3	13	49
410	1023	6000S	37	4.9	0.5	0.0 + 0.1	(1.9)	1	(0.2)	0		2.1			
420	1185	410L	37	4.9	0.5	0.0 + 0.2	(2.2)	1	(0.3)	0		2.5			
490	10	1281	5	15.0	16.3	0.0 + 0.0	(0.6)	98	(0.3)	0		1.0			
501	186	1900	86	15.0	80.1	1.6 + 2.6	(58.7)*	153	(9.1)	6		11.7	5	14	21
502	163	1900	75	15.0	61.6	1.4 + 1.4	(39.6)*	132	(6.9)	4		7.9	5	14	21
503	191	1900	88	15.0	86.6	1.6 + 3.0	(65.3)*	159	(9.8)	7		13.1	5	14	21
510	489	1900S	52	5.6	6.8	0.6 + 0.4	(13.2)	30	(4.7)	5	(0.0)*	36.6	5	28	9
511	249	510L	52	5.6	4.2	0.1 + 0.2	(4.2)	29	(2.3)	5	(0.0)*	6.5	5	28	9
520	489	1900S	81	5.6	10.7	0.6 + 0.9	(20.6)	35	(5.5)	12	(0.5)*	93.5	5	28	9
521	650	520L	81	5.6	9.8	0.6 + 1.2	(25.0)	53	(11.1)	12	(0.5)*	81.4	5	28	9
610	354	4000S	23	4.2	0.6	0.0 + 0.1	(0.8)	1	(0.1)	0		0.9			
620	554	610L	23	4.2	0.6	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4			
690	1300	2278	91	15.0	14.9	0.7 + 4.6	(76.5)	73	(30.3)	17		106.8			
710	1089	6000S	27	6.1	0.4	0.0 + 0.1	(1.8)	1	(0.2)	0		2.0			
720	542	710L	27	6.1	0.4	0.0 + 0.1	(0.9)	1	(0.1)	0		1.0			

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	UNIFORM	RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST	START END 2ND
790	543	2300	71	15.0	8.0	0.0 +	1.2	(17.1)	0	(0.0)	1		17.1			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1752.8	89.9	19.5	25.2	28.1	(625.2) +	(232.5) +	(90.6) =	948.4	TOTALS

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70 SECOND CYCLE 70 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	61.2	+	90.8	=	245.6

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 324

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10 28 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	34	16								
3	2	5	46								
5	2	23	11								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	UNIFORM	RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST	START END 2ND
101	234	1900	62	7.6	37.7	1.7 +	0.8	(34.8)	102	(7.7)	5		42.5	1	21	34
102	285	1900	75	15.0	44.7	2.1 +	1.5	(50.3)	113	(10.3)	7		60.6	1	21	34
103	286	1900	75	16.7	44.9	2.1 +	1.5	(50.7)	113	(8.4)	7		59.0	1	21	34
110	167	1900S	36	9.0	7.9	0.3 +	0.1	(5.2)	44	(2.4)	5	(0.0)*	7.5	1	41	16
111	287	110L	36	9.0	8.9	0.5 +	0.2	(10.1)	52	(4.8)	5	(0.0)*	14.9	1	41	16
120	272	1900S	62	9.0	10.4	0.5 +	0.3	(11.2)	54	(4.7)	9	(0.0)*	15.8	1	41	16
121	505	120L	62	9.0	9.7	0.8 +	0.5	(19.2)	49	(8.0)	9	(0.0)*	27.2	1	41	16
199	10	10000	0	7.2	3.9	0.0 +	0.0	(0.2)	32	(0.0)	0		0.2	1	39	16
210	571	6000S	24	4.7	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0			
220	854	210L	24	4.7	0.4	0.0 +	0.1	(1.3)	1	(0.2)	0		1.5			
290	583	1874	82	15.0	18.9	0.9 +	2.2	(43.5)	96	(17.9)	8		61.4			
301	539	1950	77	15.0	31.2	3.0 +	1.7	(66.3)	98	(16.9)	11		83.2	3	51	5
302	489	1900	72	15.0	28.9	2.6 +	1.3	(55.6)	93	(14.6)	9		70.3	3	51	5
310	283	1950S	55	6.6	6.3	0.2 +	0.3	(7.0)	12	(1.1)	5	(0.0)*	12.7	3	12	46
311	256	310L	55	6.6	17.8	1.0 +	0.3	(18.0)	78	(6.4)	5	(0.0)*	24.4	3	12	46
320	286	1900S	72	6.6	8.9	0.2 +	0.5	(10.1)	16	(1.5)	8	(0.0)*	17.4	3	12	46
321	399	320L	72	6.6	21.1	1.6 +	0.7	(33.3)	86	(11.0)	8	(0.0)*	44.3	3	12	46
399	10	10000	0	7.2	8.4	0.0 +	0.0	(0.3)	47	(0.0)	0		0.3	3	10	46
410	1023	6000S	37	4.9	0.5	0.0 +	0.1	(1.9)	1	(0.2)	0		2.1			
420	1185	410L	37	4.9	0.5	0.0 +	0.2	(2.2)	1	(0.3)	0		2.5			
490	10	1281	5	15.0	16.6	0.0 +	0.0	(0.7)	100	(0.3)	0		1.0			
501	186	1900	86	15.0	80.1	1.6 +	2.6	(58.7)*	153	(9.1)	6		11.7	5	16	23
502	163	1900	75	15.0	61.6	1.4 +	1.4	(39.6)*	132	(6.9)	4		7.9	5	16	23
503	191	1900	88	15.0	86.6	1.6 +	3.0	(65.3)*	159	(9.8)	7		13.1	5	16	23
510	489	1900S	52	5.6	4.3	0.2 +	0.4	(8.3)	14	(2.2)	4	(0.0)*	19.4	5	30	11
511	249	510L	52	5.6	5.0	0.2 +	0.2	(4.9)	35	(2.8)	4	(0.0)*	7.7	5	30	11
520	489	1900S	81	5.6	8.1	0.2 +	0.9	(15.7)	19	(3.1)	10	(0.2)*	50.5	5	30	11
521	650	520L	81	5.6	10.5	0.7 +	1.2	(27.0)	55	(11.5)	10	(0.2)*	57.9	5	30	11
610	354	4000S	23	4.2	0.6	0.0 +	0.1	(0.8)	1	(0.1)	0		0.9			
620	554	610L	23	4.2	0.6	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4			
690	1300	2278	91	15.0	14.7	0.7 +	4.6	(75.4)	71	(29.4)	16		104.8			
710	1089	6000S	27	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0			
720	542	710L	27	6.1	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0			
790	543	2300	71	15.0	8.0	0.0 +	1.2	(17.1)	0	(0.0)	1		17.1			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1752.8	88.8	19.7	24.0	28.1	(608.6) +	(197.8) +	(39.0) =	845.4	TOTALS

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70 SECOND CYCLE 70 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	59.9	+	87.5	=	240.9

NO. OF ENTRIES TO SUBPT = 17
NO. OF LINKS RECALCULATED= 550

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10 28 1 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	35	15								
3	2	5	46								
5	2	23	11								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	UNIFORM	RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST	START END 2ND
101	234	1900	54	7.6	32.7	1.5 +	0.6	(30.2)	95	(7.1)	5		37.3	1	20	35
102	285	1900	66	15.0	36.4	1.9 +	0.9	(40.9)	102	(9.3)	6		50.2	1	20	35
103	286	1900	66	16.7	36.5	1.9 +	1.0	(41.2)	102	(7.5)	6		48.7	1	20	35
110	167	1900S	38	9.0	9.0	0.3 +	0.1	(5.9)	48	(2.6)	5	(0.0)*	8.5	1	42	15
111	287	110L	38	9.0	10.2	0.6 +	0.2	(11.5)	57	(5.2)	5	(0.0)*	16.7	1	42	15
120	272	1900S	65	9.0	12.1	0.6 +	0.3	(12.9)	59	(5.2)	10	(0.0)*	18.1	1	42	15
121	505	120L	65	9.0	11.2	1.0 +	0.6	(22.4)	55	(8.9)	10	(0.0)*	31.3	1	42	15
199	10	10000	0	7.2	4.6	0.0 +	0.0	(0.2)	34	(0.0)	0		0.2	1	40	15

210	571	6000S	24	4.7	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0							
220	854	210L	24	4.7	0.4	0.0 +	0.1	(1.3)	1	(0.2)	0		1.5							
290	583	1874	83	15.0	20.5	1.0 +	2.3	(47.0)	102	(19.1)	9		66.2							
301	539	1950	77	15.0	31.2	3.0 +	1.7	(66.3)	98	(16.9)	11		83.2		3	51	5			
302	489	1900	72	15.0	28.9	2.6 +	1.3	(55.6)	93	(14.6)	9		70.3		3	51	5			
310	283	1950S	55	6.6	6.1	0.2 +	0.3	(6.9)	12	(1.1)	5	(0.0)*	12.3		3	12	46			
311	256	310L	55	6.6	17.2	0.9 +	0.3	(17.3)	76	(6.2)	5	(0.0)*	23.6		3	12	46			
320	286	1900S	72	6.6	8.8	0.2 +	0.5	(9.9)	15	(1.4)	8	(0.0)*	17.0		3	12	46			
321	399	320L	72	6.6	20.1	1.5 +	0.7	(31.7)	83	(10.6)	8	(0.0)*	42.3		3	12	46			
399	10	10000	0	7.2	8.4	0.0 +	0.0	(0.3)	47	(0.0)	0		0.3		3	10	46			
410	1023	6000S	37	4.9	0.5	0.0 +	0.1	(1.9)	1	(0.2)	0		2.1							
420	1185	410L	37	4.9	0.5	0.0 +	0.2	(2.2)	1	(0.3)	0		2.5							
490	10	1281	6	15.0	17.1	0.0 +	0.0	(0.7)	101	(0.3)	0		1.0							
501	186	1900	86	15.0	80.1	1.6 +	2.6	(58.7)*	153	(9.1)	6		11.7		5	16	23			
502	163	1900	75	15.0	61.6	1.4 +	1.4	(39.6)*	132	(6.9)	4		7.9		5	16	23			
503	191	1900	88	15.0	86.6	1.6 +	3.0	(65.3)*	159	(9.8)	7		13.1		5	16	23			
510	489	1900S	52	5.6	4.3	0.2 +	0.4	(8.3)	14	(2.2)	4	(0.0)*	19.4		5	30	11			
511	249	510L	52	5.6	5.0	0.2 +	0.2	(4.9)	34	(2.8)	4	(0.0)*	7.6		5	30	11			
520	489	1900S	81	5.6	8.1	0.2 +	0.9	(15.7)	19	(3.1)	11	(0.2)*	54.3		5	30	11			
521	650	520L	81	5.6	10.5	0.7 +	1.2	(27.0)	56	(11.7)	11	(0.2)*	62.0		5	30	11			
610	354	4000S	23	4.2	0.6	0.0 +	0.1	(0.8)	1	(0.1)	0		0.9							
620	554	610L	23	4.2	0.6	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4							
690	1300	2278	91	15.0	14.7	0.7 +	4.6	(75.4)	71	(29.6)	17		105.0							
710	1089	6000S	27	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0							
720	542	710L	27	6.1	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0							
790	543	2300	71	15.0	8.0	0.0 +	1.2	(17.1)	0	(0.0)	1		17.1							

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1752.8	87.7	20.0	23.9	27.1	(593.2) +	(198.0) +	(46.7) =	837.9	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	58.6	+	87.8	=	239.9

NO. OF ENTRIES TO SUBPT = 12
NO. OF LINKS RECALCULATED= 421

.

70 SECOND CYCLE 70 STEPS

FINAL SETTINGS OBTAINED WITH INCREMENTS :- 10 28 -1 10 28 1 -1 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	35	15								
3	2	6	47								
5	2	23	11								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE	DELAY	DELAY (U+R+O=MEAN Q)	RANDOM+ OVERSAT DELAY	COST OF DELAY	STOPS MEAN /PCU	STOPS COST OF STOPS	QUEUE MEAN MAX.	QUEUE AVERAGE EXCESS	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START 1ST	GREEN TIMES START 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)	(PCU-H/H)		($/H)	(%)	($/H)	(PCU)	(PCU)	($/H)		(SECONDS) END	(SECONDS) END
101	234	1900	54	7.6	32.7	1.5 +	0.6	(30.2)	95	(7.1)	5		37.3	1	20	35
102	285	1900	66	15.0	36.4	1.9 +	0.9	(40.9)	102	(9.3)	6		50.2	1	20	35
103	286	1900	66	16.7	36.5	1.9 +	1.0	(41.2)	102	(7.5)	6		48.7	1	20	35
110	167	1900S	38	9.0	9.0	0.3 +	0.1	(5.9)	48	(2.6)	5	(0.0)*	8.5	1	42	15
111	287	110L	38	9.0	10.2	0.6 +	0.2	(11.6)	57	(5.3)	5	(0.0)*	16.8	1	42	15
120	272	1900S	65	9.0	12.0	0.6 +	0.3	(12.9)	59	(5.1)	10	(0.0)*	18.1	1	42	15
121	505	120L	65	9.0	11.2	1.0 +	0.6	(22.3)	55	(8.9)	10	(0.0)*	31.2	1	42	15
199	10	10000	0	7.2	4.6	0.0 +	0.0	(0.2)	34	(0.0)	0		0.2	1	40	15
210	571	6000S	24	4.7	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0			
220	854	210L	24	4.7	0.4	0.0 +	0.1	(1.3)	1	(0.2)	0		1.5			
290	583	1874	83	15.0	20.4	1.0 +	2.3	(46.9)	102	(19.1)	9		66.0			
301	539	1950	77	15.0	31.2	3.0 +	1.7	(66.3)	98	(16.9)	11		83.2	3	52	6
302	489	1900	72	15.0	28.9	2.6 +	1.3	(55.6)	93	(14.6)	9		70.3	3	52	6
310	283	1950S	55	6.6	5.6	0.1 +	0.3	(6.2)	10	(0.9)	5	(0.0)*	10.9	3	13	47
311	256	310L	55	6.6	17.2	0.9 +	0.3	(17.4)	76	(6.3)	5	(0.0)*	23.7	3	13	47
320	286	1900S	72	6.6	8.2	0.1 +	0.5	(9.2)	14	(1.3)	8	(0.0)*	15.5	3	13	47
321	399	320L	72	6.6	19.8	1.5 +	0.7	(31.2)	82	(10.5)	8	(0.0)*	41.8	3	13	47
399	10	10000	0	7.2	8.4	0.0 +	0.0	(0.3)	47	(0.0)	0		0.3	3	11	47
410	1023	6000S	37	4.9	0.5	0.0 +	0.1	(1.9)	1	(0.2)	0		2.1			
420	1185	410L	37	4.9	0.5	0.0 +	0.2	(2.2)	1	(0.3)	0		2.5			
490	10	1281	6	15.0	17.6	0.0 +	0.0	(0.7)	104	(0.3)	0		1.0			
501	186	1900	86	15.0	80.1	1.6 +	2.6	(58.7)*	153	(9.1)	6		11.7	5	16	23
502	163	1900	75	15.0	61.6	1.4 +	1.4	(39.6)*	132	(6.9)	4		7.9	5	16	23
503	191	1900	88	15.0	86.6	1.6 +	3.0	(65.3)*	159	(9.8)	7		13.1	5	16	23
510	489	1900S	52	5.6	4.7	0.3 +	0.4	(9.0)	16	(2.6)	4	(0.0)*	21.8	5	30	11
511	249	510L	52	5.6	4.8	0.1 +	0.2	(4.7)	32	(2.6)	4	(0.0)*	7.3	5	30	11
520	489	1900S	81	5.6	8.5	0.3 +	0.9	(16.4)	22	(3.4)	11	(0.2)*	56.1	5	30	11
521	650	520L	81	5.6	10.1	0.7 +	1.2	(26.0)	54	(11.2)	11	(0.2)*	60.0	5	30	11
610	354	4000S	23	4.2	0.6	0.0 +	0.1	(0.8)	1	(0.1)	0		0.9			
620	554	610L	23	4.2	0.6	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4			
690	1300	2278	91	15.0	14.7	0.7 +	4.6	(75.6)	71	(29.8)	17		105.4			
710	1089	6000S	27	6.1	0.4	0.0 +	0.1	(1.8)	1	(0.2)	0		2.0			
720	542	710L	27	6.1	0.4	0.0 +	0.1	(0.9)	1	(0.1)	0		1.0			
790	543	2300	71	15.0	8.0	0.0 +	1.2	(17.1)	0	(0.0)	1		17.1			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1752.8	87.6	20.0	23.8	27.1	(591.8) +	(199.4) +	(45.4) =	836.6	TOTALS

ROUTE

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.5	+	58.5	+	87.7	=	239.7

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 257

_________________ T R A N S Y T 12 _________________

Traffic Network Study Tool

Analysis Program Release 6 (February 2007)

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program advice and maintenance, contact:

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Run with file:- "UPPER BOAT PROPOSED 2018 PM + DEV.DAT" at 08:37 on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2018PM + Dev

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :
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NUMBER OF NODES	=	3
NUMBER OF LINKS	=	34
NUMBER OF OPTIMISED NODES	=	3
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	8
NUMBER OF STEPS IN CYCLE	=	70
MAXIMUM NUMBER OF SHARED STOPLINES	=	2
MAXIMUM NUMBER OF TIMING POINTS	=	2
MAXIMUM LINKS AT ANY NODE	=	7

CORE REQUESTED = 9519 WORDS
CORE AVAILABLE = 72000 WORDS
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DATA INPUT :-
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CARD NO. | CARD TYPE
(1)= **TITLE:- Upper Boat Proposed Layout 2018PM + Dev**

CARD NO.	CARD TYPE	CYCLE TIME (SEC)	NO. OF STEPS PER CYCLE	TIME PERIOD 1-1200 MINS.	EFFECTIVE-GREEN DISPLACEMENTS START (SEC)	EFFECTIVE-GREEN DISPLACEMENTS END (SEC)	EQUISAT SETTINGS 0=NO 1=YES	0=UNEQUAL CYCLE 1=EQUAL CYCLE	FLOW SCALE 10-200 %	CRUISE-SPEEDS SCALE 50-200 %	CARD32 0=TIMES 1=SPEEDS	OPTIMISE 0=NONE 1=O/SET 2=FULL	EXTRA COPIES FINAL OUTPUT	HILL-CLIMB OUTPUT 1=FULL	DELAY VALUE P PER PCU-H	STOP VALUE P PER 100
2)=	1	70	70	60	2	3	1	0	0	0	1	2	0	1	1420	260

LIST OF NODES TO BE OPTIMISED

CARD NO.	CARD TYPE															
3)=	2	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0

LINKS HAVING SHARED STOPLINES

CARD NO.	CARD TYPE	FIRST SET........................					SECOND SET.......................					THIRD SET........................				
4)=	7	110	111	0	0	0	120	121	0	0	0	210	220	0	0	0
5)=	7	310	311	0	0	0	320	321	0	0	0	410	420	0	0	0
6)=	7	510	511	0	0	0	520	521	0	0	0	610	620	0	0	0
7)=	7	710	720	0	0	0	0	0	0	0	0	0	0	0	0	0

NODE CARDS: MINIMUM STAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
8)=	10	1	7	7								
9)=	10	3	7	7								
10)=	10	5	7	7								

NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
11)=	11	1	7	5								
12)=	11	3	7	5								
13)=	11	5	7	5								

NODE CARDS: STAGE CHANGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	Sgl/Dbl Cycled	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
14)=	12	1	1	0	50								
15)=	12	3	1	0	39								
16)=	12	5	1	0	54								

LINK CARDS: GIVEWAY DATA

CARD NO.	CARD TYPE	LINK NO.	PRIORITY LINKS LINK1 NO.	PRIORITY LINKS LINK2 NO.	LINK1 ONLY % FLOW	GIVEWAY COEFFS. A1 X100	GIVEWAY COEFFS. A2 X100					LINK LENGTH	STOP WT.X100	MAX FLOW	DELAY WT.X100	DISPSN X100
17)=	30	290	210	220	0	48	48	0	0	0	0	200	0	1874	0	0
18)=	30	490	410	420	0	49	49	0	0	0	0	200	0	1281	0	0
19)=	30	690	610	620	0	52	52	0	0	0	0	200	0	2278	0	0
20)=	30	790	710	720	0	47	47	0	0	0	0	200	0	2300	0	0

LINK CARDS: FIXED DATA

CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	FIRST GREEN START STAGE	FIRST GREEN START LAG	FIRST GREEN END STAGE	FIRST GREEN END LAG	SECOND GREEN START STAGE	SECOND GREEN START LAG	SECOND GREEN END STAGE	SECOND GREEN END LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
21)=	31	101	1	2	5	1	0	0	0	0	0	102	0	1900	0	0
22)=	31	102	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
23)=	31	103	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
24)=	31	110	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
25)=	31	111	1	1	0	1	0	0	0	0	0	120	0	0	0	0
26)=	31	120	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
27)=	31	121	1	1	0	1	0	0	0	0	0	120	0	0	0	0
28)=	31	199	1	1	5	2	0	0	0	0	0	10	0	10000	0	0
29)=	31	210	0	0	0	0	0	0	0	0	0	63	0	6000	0	0
30)=	31	220	0	0	0	0	0	0	0	0	0	63	0	0	0	0
31)=	31	290	0	0	0	0	0	0	0	0	0	200	0	1874	0	0
32)=	31	301	3	2	5	1	0	0	0	0	0	200	0	1950	0	0
33)=	31	302	3	2	5	1	0	0	0	0	0	200	0	1900	0	0
34)=	31	310	3	1	7	2	0	0	0	0	0	88	500	1950	0	0
35)=	31	311	3	1	0	1	0	0	0	0	0	88	0	0	0	0
36)=	31	320	3	1	7	2	0	0	0	0	0	88	500	1900	0	0
37)=	31	321	3	1	0	1	0	0	0	0	0	88	0	0	0	0
38)=	31	399	3	1	5	2	0	0	0	0	0	10	0	10000	0	0
39)=	31	410	0	0	0	0	0	0	0	0	0	65	0	6000	0	0

40)=	31	420	0	0	0	0	0	0	0	0	0	65	0	0	0	0
41)=	31	490	0	0	0	0	0	0	0	0	0	200	0	1281	0	0
42)=	31	501	5	2	5	1	0	0	0	0	0	200	0	1900	0	0
43)=	31	502	5	2	5	1	0	0	0	0	0	200	0	1900	0	0
44)=	31	503	5	2	5	1	0	0	0	0	0	200	0	1900	0	0
45)=	31	510	5	1	7	2	0	0	0	0	0	75	500	1900	0	0
46)=	31	511	5	1	0	1	0	0	0	0	0	75	0	0	0	0
47)=	31	520	5	1	7	2	0	0	0	0	0	75	500	1900	0	0
48)=	31	521	5	1	0	1	0	0	0	0	0	75	0	0	0	0
49)=	31	610	0	0	0	0	0	0	0	0	0	56	0	4000	0	0
50)=	31	620	0	0	0	0	0	0	0	0	0	56	0	0	0	0
51)=	31	690	0	0	0	0	0	0	0	0	0	200	0	2278	0	0
52)=	31	710	0	0	0	0	0	0	0	0	0	82	0	6000	0	0
53)=	31	720	0	0	0	0	0	0	0	0	0	82	0	0	0	0
54)=	31	790	0	0	0	0	0	0	0	0	0	200	0	2300	0	0

LINK CARDS: FLOW DATA

					ENTRY 1			ENTRY 2			ENTRY 3			ENTRY 4		
CARD	CARD	LINK	TOTAL	UNIFORM	LINK		CRUISE	LINK		CRUISE	LINK		CRUISE	LINK		CRUISE
NO.	TYPE	NO.	FLOW	FLOW	NO.	FLOW	SPEED	NO.	FLOW	SPEED	NO.	FLOW	SPEED	NO.	FLOW	SPEED
55)=	32	101	234	0	0	0	48	0	0	0	0	0	0	0	0	0
56)=	32	102	290	0	0	0	48	0	0	0	0	0	0	0	0	0
57)=	32	103	286	0	0	0	43	0	0	0	0	0	0	0	0	0
58)=	32	110	167	0	790	167	48	0	0	0	0	0	0	0	0	0
59)=	32	111	307	0	720	229	48	710	78	48	0	0	0	0	0	0
60)=	32	120	274	0	790	274	48	0	0	0	0	0	0	0	0	0
61)=	32	121	510	0	710	499	48	720	11	48	0	0	0	0	0	0
62)=	32	199	10	0	0	0	5	0	0	0	0	0	0	0	0	0
63)=	32	210	576	0	102	290	48	103	286	48	0	0	0	0	0	0
64)=	32	220	861	0	111	10	48	121	510	48	110	67	48	120	274	48
65)=	32	290	574	0	0	0	48	0	0	0	0	0	0	0	0	0
66)=	32	301	549	0	0	0	48	0	0	0	0	0	0	0	0	0
67)=	32	302	489	0	0	0	48	0	0	0	0	0	0	0	0	0
68)=	32	310	288	0	210	288	48	0	0	0	0	0	0	0	0	0
69)=	32	311	263	0	290	110	48	220	153	48	0	0	0	0	0	0
70)=	32	320	286	0	210	286	48	0	0	0	0	0	0	0	0	0
71)=	32	321	357	0	290	238	48	220	119	48	0	0	0	0	0	0
72)=	32	399	10	0	0	0	5	0	0	0	0	0	0	0	0	0
73)=	32	410	1032	0	301	543	48	302	489	48	0	0	0	0	0	0
74)=	32	420	1188	0	310	288	48	320	286	48	311	257	48	321	357	48
75)=	32	490	10	0	0	0	48	0	0	0	0	0	0	0	0	0
76)=	32	501	250	0	0	0	48	0	0	0	0	0	0	0	0	0
77)=	32	502	235	0	0	0	48	0	0	0	0	0	0	0	0	0
78)=	32	503	274	0	0	0	48	0	0	0	0	0	0	0	0	0
79)=	32	510	488	0	410	488	48	0	0	0	0	0	0	0	0	0
80)=	32	511	249	0	420	239	48	490	10	48	0	0	0	0	0	0
81)=	32	520	489	0	410	489	48	0	0	0	0	0	0	0	0	0
82)=	32	521	640	0	420	630	48	490	10	48	0	0	0	0	0	0
83)=	32	610	509	0	502	235	48	503	274	48	0	0	0	0	0	0
84)=	32	620	554	0	521	231	48	520	323	48	0	0	0	0	0	0
85)=	32	690	1305	0	0	0	48	0	0	0	0	0	0	0	0	0
86)=	32	710	1095	0	690	1095	48	0	0	0	0	0	0	0	0	0
87)=	32	720	625	0	620	351	48	610	274	48	0	0	0	0	0	0
88)=	32	790	546	0	0	0	48	0	0	0	0	0	0	0	0	0

GRAPH PLOT CARDS

CARD	CARD	LINK	LINK	LINK	LINK	LINK	LINK	LINK	LINK							
NO.	TYPE	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.							
89)=	35	302	520	102	320	0	0	0	0	0	0	0	0	0	0	0

LINK DATA: QUEUE CONSTRAINTS

CARD	CARD	LINK	LIMIT	QUEUE	LINK	LIMIT	QUEUE	LINK	LIMIT	QUEUE	LINK	LIMIT	QUEUE	LINK	LIMIT	QUEUE
NO.	TYPE	NO.	QUEUE	WEIGHT	NO.	QUEUE	WEIGHT	NO.	QUEUE	WEIGHT	NO.	QUEUE	WEIGHT	NO.	QUEUE	WEIGHT
90)=	38	110	13	9999	111	13	9999	120	13	9999	121	13	9999	310	9	9999
91)=	38	311	9	9999	320	9	9999	321	9	9999	510	8	9999	511	8	9999
92)=	38	520	8	9999	521	8	9999	0	0	0	0	0	0	0	0	0

*****END OF SUBROUTINE TINPUT*****

.

INFORMATION TO AID CYCLE TIME SELECTION
(NODES CONSIDERED AS ISOLATED JUNCTIONS)

PERCENTAGE SATURATIONS BY NODE AND CYCLE

	CYCLE TIME (SECONDS)													
	30	35	40	45	50	60	70	80	90	100	120	140	160	180
NODE														
1	103	85	76	74	71	69	67	65	64	63	62	61	61	60
3	94	90	85	80	78	75	73	71	70	69	68	67	66	66
5	149	122	108	99	93	89	87	85	84	83	81	80	79	79
MAXIMA	148.5	122.3	108.0	99.0	92.8	89.1	86.6	84.8	83.5	82.5	81.0	79.9	79.2	78.6

.

INFORMATION TO AID CYCLE TIME SELECTION
(NODES CONSIDERED AS ISOLATED JUNCTIONS)

PERFORMANCE INDICES BY NODE AND CYCLE

	CYCLE TIME (SECONDS)													
	30	35	40	45	50	60	70	80	90	100	120	140	160	180
NODE														
1	469 >	211	212	200*	202	205	215 D	222 D	231 D	241 D	264 D	288 D	312 D	336 D
3	436 >	359	327	315	310*	311	317	327 D	338 D	350 D	376 D	404 D	433 D	462 D
5	3155 >	1894 >	1043 >	567 >	472 >	428	411	406*	407	411	426	446 D	467 D	491 D
TOTALS	4059.3	>2463.9	>1581.7	>1082.0	> 984.8	> 943.7	943.3*	955.1	976.1	1002.4	1066.8	1138.2	1211.5	1289.4
DOUBLES	4059.3	>2463.9	>1581.7	>1082.0	> 984.8	> 943.7	940.0	944.2	922.4*	923.7	942.2	943.3	955.1	976.1

KEY:- > A LONGER CYCLE TIME IS RECOMMENDED,TO GIVE SATURATION NOT EXCEEDING 90%

* MINIMUM PERFORMANCE INDEX FOR THIS NODE

D DOUBLE CYCLING GIVES LOWER PERFORMANCE INDEX AND SATURATION NOT EXCEEDING 90%.

TOTALS COLUMN TOTALS - ALL NODES OPERATING SINGLE CYCLING.

DOUBLES COLUMN TOTALS - BUT WITH P.I. FOR NODES MARKED D TAKEN FROM HALF CYCLE COLUMN.

TOO LOW CYCLE TOO SHORT FOR MINIMUM GREENS ON AT LEAST ONE NODE

PROGRAM TRANSYT FINISHED

========== end of file ==========

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_________________ T R A N S Y T 12 _________________

                Traffic Network Study Tool

          Analysis Program Release 6  (February 2007)
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         program advice and maintenance, contact:

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   RG40 3GA,UK
 ------------------------------------------------------------------------------
 THE USER OF THIS COMPUTER PROGRAM FOR THE SOLUTION OF AN ENGINEERING PROBLEM IS
 IN NO WAY RELIEVED OF THEIR RESPONSIBILITY FOR THE CORRECTNESS OF THE SOLUTION
 ------------------------------------------------------------------------------

Run with file:- "UPPER BOAT PROPOSED 2028 AM NO DEV.DAT"   at 08:37   on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2028AM No Dev


  PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :
  ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

  NUMBER OF NODES                      =    3
  NUMBER OF LINKS                      =   34
  NUMBER OF OPTIMISED NODES            =    3
  MAXIMUM NUMBER OF GRAPHIC PLOTS      =    8
  NUMBER OF STEPS IN CYCLE             =   80
  MAXIMUM NUMBER OF SHARED STOPLINES =    2
  MAXIMUM NUMBER OF TIMING POINTS      =    2
  MAXIMUM LINKS AT ANY NODE            =    7


  CORE REQUESTED =    9959 WORDS
  CORE AVAILABLE =   72000 WORDS
.

          DATA INPUT :-
           ~~~~ ~~~~~
 CARD   CARD
  NO.   TYPE
 (  1)= TITLE:- Upper Boat Proposed Layout 2028AM No Dev
 CARD   CARD   CYCLE  NO. OF   TIME EFFECTIVE-GREEN  EQUISAT 0=UNEQUAL FLOW   CRUISE-SPEEDS   OPTIMISE  EXTRA  HILL-   DELAY   STOP
  NO.   TYPE   TIME    STEPS  PERIOD DISPLACEMENTS  SETTINGS  CYCLE   SCALE   SCALE  CARD32   0=NONE   COPIES  CLIMB   VALUE   VALUE
                        PER   1-1200  START    END     0=NO  1=EQUAL  10-200  50-200 0=TIMES  1=O/SET   FINAL  OUTPUT  P PER   P PER
               (SEC)  CYCLE   MINS.   (SEC)   (SEC)   1=YES  CYCLE      %       %   1=SPEEDS 2=FULL   OUTPUT  1=FULL  PCU-H    100
   2)=   1      80      80     60       2       3       1       0       0       0       1       2       0       1     1420    260
 CARD   CARD                                      LIST  OF  NODES  TO  BE  OPTIMISED
  NO.   TYPE
   3)=   2       1       3      5       0       0       0       0       0       0       0       0       0       0       0       0

                                                  LINKS HAVING SHARED STOPLINES
 CARD   CARD     FIRST SET........................      SECOND SET.......................       THIRD SET........................
  NO.   TYPE
   4)=   7     110     111      0       0       0     120     121       0       0       0     210     220       0       0       0
   5)=   7     310     311      0       0       0     320     321       0       0       0     410     420       0       0       0
   6)=   7     510     511      0       0       0     520     521       0       0       0     610     620       0       0       0
   7)=   7     710     720      0       0       0       0       0       0       0       0       0       0       0       0       0

                               NODE CARDS:  MINIMUM STAGE TIMES (WORKING)
 CARD   CARD   NODE             S1      S2      S3      S4      S5      S6      S7      S8      S9     S10
  NO.   TYPE    NO.
   8)=  10       1               7       7
   9)=  10       3               7       7
  10)=  10       5               7       7

                               NODE CARDS:  PRECEDING INTERSTAGE TIMES (WORKING)
 CARD   CARD   NODE             S1      S2      S3      S4      S5      S6      S7      S8      S9     S10
  NO.   TYPE    NO.
  11)=  11       1               7       5
  12)=  11       3               7       5
  13)=  11       5               7       5

                               NODE CARDS:  STAGE CHANGE TIMES (WORKING)
 CARD   CARD   NODE   Sgl/Dbl   S1      S2      S3      S4      S5      S6      S7      S8      S9     S10
  NO.   TYPE    NO.   Cycled
  14)=  12       1       1       0      59
  15)=  12       3       1       0      58
  16)=  12       5       1       0      61

                                         LINK CARDS:   GIVEWAY DATA
                  PRIORITY LINKS   LINK1 GIVEWAY COEFFS.
 CARD   CARD   LINK    LINK1   LINK2    ONLY     A1      A2                                    LINK     STOP     MAX   DELAY  DISPSN
 NO.   TYPE    NO.      NO.     NO.  % FLOW    X100    X100                                  LENGTH WT.X100   FLOW  WT.X100   X100
  17)=  30     290     210     220      0      48      48       0       0       0       0     200       0    1874       0       0
  18)=  30     490     410     420      0      49      49       0       0       0       0     200       0    1281       0       0
  19)=  30     690     610     620      0      52      52       0       0       0       0     200       0    2278       0       0
  20)=  30     790     710     720      0      47      47       0       0       0       0     200       0    2300       0       0

                                         LINK  CARDS:   FIXED  DATA
                                  FIRST   GREEN                        SECOND  GREEN
 CARD   CARD   LINK     EXIT       START           END            START           END          LINK     STOP     SAT    DELAY   DISPSN
  NO.   TYPE    NO.     NODE    STAGE     LAG    STAGE    LAG    STAGE    LAG    STAGE    LAG  LENGTH  WT.X100  FLOW  WT.X100    X100
  21)=  31     101       1       2       5       1       0       0       0       0       0     102       0    1900       0       0
  22)=  31     102       1       2       5       1       0       0       0       0       0     200       0    1900       0       0
  23)=  31     103       1       2       5       1       0       0       0       0       0     200       0    1900       0       0
  24)=  31     110       1       1       7       2       0       0       0       0       0     120       0    1900       0       0
  25)=  31     111       1       1       0       1       0       0       0       0       0     120       0       0       0       0
  26)=  31     120       1       1       7       2       0       0       0       0       0     120       0    1900       0       0
  27)=  31     121       1       1       0       1       0       0       0       0       0     120       0       0       0       0
  28)=  31     199       1       1       5       2       0       0       0       0       0      10       0   10000       0       0
  29)=  31     210       0       0       0       0       0       0       0       0       0      63       0    6000       0       0
  30)=  31     220       0       0       0       0       0       0       0       0       0      63       0       0       0       0
  31)=  31     290       0       0       0       0       0       0       0       0       0     200       0    1874       0       0
  32)=  31     301       3       2       5       1       0       0       0       0       0     200       0    1950       0       0
  33)=  31     302       3       2       5       1       0       0       0       0       0     200       0    1900       0       0
  34)=  31     310       3       1       7       2       0       0       0       0       0      88     500    1950       0       0
  35)=  31     311       3       1       0       1       0       0       0       0       0      88       0       0       0       0
  36)=  31     320       3       1       7       2       0       0       0       0       0      88     500    1900       0       0
  37)=  31     321       3       1       0       1       0       0       0       0       0      88       0       0       0       0
  38)=  31     399       3       1       5       2       0       0       0       0       0      10       0   10000       0       0
  39)=  31     410       0       0       0       0       0       0       0       0       0      65       0    6000       0       0
```

```
 40)=  31     420       0       0       0       0       0       0       0       0       0      65       0       0       0       0
 41)=  31     490       0       0       0       0       0       0       0       0       0     200       0    1281       0       0
 42)=  31     501       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 43)=  31     502       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 44)=  31     503       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 45)=  31     510       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 46)=  31     511       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 47)=  31     520       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 48)=  31     521       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 49)=  31     610       0       0       0       0       0       0       0       0       0      56       0    4000       0       0
 50)=  31     620       0       0       0       0       0       0       0       0       0      56       0       0       0       0
 51)=  31     690       0       0       0       0       0       0       0       0       0     200       0    2278       0       0
 52)=  31     710       0       0       0       0       0       0       0       0       0      82       0    6000       0       0
 53)=  31     720       0       0       0       0       0       0       0       0       0      82       0       0       0       0
 54)=  31     790       0       0       0       0       0       0       0       0       0     200       0    2300       0       0
```

LINK CARDS: FLOW DATA

```
                                      ENTRY 1 ............    ENTRY 2 ............    ENTRY 3 ............    ENTRY 4 ............
CARD   CARD   LINK   TOTAL  UNIFORM  LINK          CRUISE   LINK          CRUISE   LINK          CRUISE   LINK          CRUISE
 NO.   TYPE    NO.   FLOW    FLOW     NO.   FLOW   SPEED    NO.   FLOW   SPEED    NO.   FLOW   SPEED    NO.   FLOW   SPEED
 55)=  32     101    196       0       0      0      48       0      0       0       0      0       0       0      0       0
 56)=  32     102    360       0       0      0      48       0      0       0       0      0       0       0      0       0
 57)=  32     103    360       0       0      0      43       0      0       0       0      0       0       0      0       0
 58)=  32     110    220       0     790    220      48       0      0       0       0      0       0       0      0       0
 59)=  32     111    308       0     720     70      48     710    238      48       0      0       0       0      0       0
 60)=  32     120    418       0     790    418      48       0      0       0       0      0       0       0      0       0
 61)=  32     121    748       0     710    738      48     720     10      48       0      0       0       0      0       0
 62)=  32     199     10       0       0      0       5       0      0       0       0      0       0       0      0       0
 63)=  32     210    730       0     102    360      48     101     10      48     103    360      48       0      0       0
 64)=  32     220   1522       0     111    170      48     121    738      48     110    196      48     120    418      48
 65)=  32     290    216       0       0      0      48       0      0       0       0      0       0       0      0       0
 66)=  32     301    319       0       0      0      48       0      0       0       0      0       0       0      0       0
 67)=  32     302    289       0       0      0      48       0      0       0       0      0       0       0      0       0
 68)=  32     310    360       0     210    360      48       0      0       0       0      0       0       0      0       0
 69)=  32     311    562       0     290     40      48     220    522      48       0      0       0       0      0       0
 70)=  32     320    360       0     210    360      48       0      0       0       0      0       0       0      0       0
 71)=  32     321    300       0     290     78      48     220    222      48       0      0       0       0      0       0
 72)=  32     399     10       0       0      0       5       0      0       0       0      0       0       0      0       0
 73)=  32     410    608       0     301    319      48     302    289      48       0      0       0       0      0       0
 74)=  32     420   1542       0     310    360      48     320    360      48     311    522      48     321    300      48
 75)=  32     490     10       0       0      0      48       0      0       0       0      0       0       0      0       0
 76)=  32     501    197       0       0      0      48       0      0       0       0      0       0       0      0       0
 77)=  32     502    197       0       0      0      48       0      0       0       0      0       0       0      0       0
 78)=  32     503    104       0       0      0      48       0      0       0       0      0       0       0      0       0
 79)=  32     510    289       0     410    289      48       0      0       0       0      0       0       0      0       0
 80)=  32     511    356       0     420    346      48     490     10      48       0      0       0       0      0       0
 81)=  32     520    289       0     410    289      48       0      0       0       0      0       0       0      0       0
 82)=  32     521    438       0     420    438      48       0      0       0       0      0       0       0      0       0

 83)=  32     610    210       0     502    106      48     503    104      48       0      0       0       0      0       0
 84)=  32     620    324       0     521     96      48     520    228      48       0      0       0       0      0       0
 85)=  32     690   1476       0       0      0      48       0      0       0       0      0       0       0      0       0
 86)=  32     710   1326       0     690   1326      48       0      0       0       0      0       0       0      0       0
 87)=  32     720    198       0     620     94      48     610    104      48       0      0       0       0      0       0
 88)=  32     790    748       0       0      0      48       0      0       0       0      0       0       0      0       0
```

GRAPH PLOT CARDS

```
CARD   CARD   LINK    LINK    LINK    LINK    LINK    LINK    LINK    LINK
 NO.   TYPE    NO.     NO.     NO.     NO.     NO.     NO.     NO.     NO.
 89)=  35     102     320     302     520       0       0       0       0       0       0       0       0       0       0
```

LINK DATA: QUEUE CONSTRAINTS

```
CARD   CARD   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE
 NO.   TYPE    NO.    QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT
 90)=  38     110      13    9999     111      13    9999     120      13    9999     121      13    9999     310       9    9999
 91)=  38     311       9    9999     320       9    9999     321       9    9999       0       0       0       0       0       0
```

*****END OF SUBROUTINE TINPUT*****

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80 SECOND CYCLE 80 STEPS

INITIAL SETTINGS

- (SECONDS)

```
  NODE   NUMBER   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE
   NO   OF STAGES   1       2       3       4       5       6       7       8       9      10

    1       2       0      59
    3       2       0      58
    5       2       0      61
```

```
 LINK    FLOW    SAT    DEGREE   MEAN TIMES   -------DELAY--------    ----STOPS----    ----QUEUE----  PERFORMANCE   EXIT   GREEN TIMES
NUMBER   INTO    FLOW     OF      PER PCU      UNIFORM RANDOM+ COST     MEAN    COST     MEAN            INDEX.       NODE   START  START
         LINK            SAT     CRUISE                OVERSAT  OF     STOPS    OF      MAX.  AVERAGE  WEIGHTED SUM          END    END
                                          DELAY  (U+R+O=MEAN Q) DELAY    /PCU   STOPS                 EXCESS  OF ( ) VALUES          1ST    2ND
        (PCU/H) (PCU/H)  (%)   (SEC)  (SEC)    (PCU-H/H)     ($/H)     (%)    ($/H)    (PCU)  (PCU)     ($/H)                 (SECONDS)

  101     196    1900     49    7.6   36.3    1.5 +  0.5  ( 28.1)     94  (  5.9)       4               34.0      1     64   0
  102     360    1900     89   15.0   66.0    3.1 +  3.5  ( 93.7)    132  ( 15.2)      11              109.0      1     64   0
  103     360    1900     89   16.7   66.0    3.1 +  3.5  ( 93.7)    132  ( 12.2)      11              106.0      1     64   0
  110     220   1900S     42    9.0    9.4    0.4 +  0.2  (  8.1)     46  (  3.3)       6   ( 0.0)*     11.4      1      7  59
  111     309    110L     42    9.0    7.9    0.5 +  0.2  (  9.6)     41  (  4.0)       6   ( 0.0)*     13.6      1      7  59
  120     417   1900S     92    9.0   29.1    1.4 +  2.0  ( 47.9)     96  ( 12.9)      27   ( 3.8)*    437.0      1      7  59
  121     747    120L     92    9.0   27.9    2.3 +  3.5  ( 82.3)     90  ( 21.5)      27   ( 3.8)*    480.1      1      7  59
  199      10   10000      0    7.2    4.3    0.0 +  0.0  (  0.2)     31  (  0.0)       0                0.2      1      5  59
  210     730   6000S     38    4.7    0.5    0.0 +  0.1  (  1.4)      1  (  0.1)       0                1.5
  220    1520    210L     38    4.7    0.5    0.0 +  0.2  (  2.9)      1  (  0.3)       0                3.2
  290     216    1874     93   15.0   94.2    1.4 +  4.2  ( 80.2)    165  ( 11.4)       9               91.7
  301     319    1950     73   15.0   43.4    2.5 +  1.3  ( 54.7)    105  ( 10.8)       8               65.4      3     63   0
  302     289    1900     68   15.0   41.1    2.3 +  1.0  ( 46.9)    102  (  9.5)       7               56.4      3     63   0
  310     361   1950S     73    6.6   19.7    1.5 +  0.5  ( 28.0)    105  ( 12.1)      17   ( 1.5)*    241.4      3      7  58
  311     560    310L     73    6.6   12.2    1.1 +  0.8  ( 26.8)     55  (  9.9)      17   ( 1.5)*    189.5      3      7  58
  320     361   1900S     54    6.6   16.2    1.3 +  0.3  ( 23.1)    101  ( 11.7)      12   ( 0.5)*    133.7      3      7  58
  321     300    320L     54    6.6   10.8    0.6 +  0.3  ( 12.8)     55  (  5.3)      12   ( 0.5)*     70.3      3      7  58
  399      10   10000      0    7.2    4.7    0.0 +  0.0  (  0.2)     33  (  0.0)       0                0.2      3      5  58
  410     608   6000S     36    4.9    0.5    0.0 +  0.1  (  1.1)      1  (  0.1)       0                1.2
  420    1541    410L     36    4.9    0.5    0.0 +  0.2  (  2.8)      1  (  0.3)       0                3.1
  490      10   1281      5   15.0   16.8    0.0 +  0.0  (  0.7)     73  (  0.2)       0                0.9
  501     197    1900     55   15.0   40.7    1.6 +  0.6  ( 31.6)    100  (  6.3)       5               37.9      5     66   0
  502     197    1900     55   15.0   40.7    1.6 +  0.6  ( 31.6)    100  (  6.3)       5               37.9      5     66   0
  503     104    1900     29   15.0   35.1    0.8 +  0.2  ( 14.4)     90  (  3.0)       2               17.4      5     66   0
  510     289   1900S     49    5.6   15.3    1.0 +  0.2  ( 17.5)    100  (  9.2)       8               63.6      5      7  61
  511     355    510L     49    5.6    4.6    0.2 +  0.3  (  6.4)     16  (  1.8)       8                8.2      5      7  61
  520     289   1900S     56    5.6   15.9    1.0 +  0.2  ( 18.2)    100  (  9.3)       9               64.7      5      7  61
  521     438    520L     56    5.6    4.9    0.2 +  0.4  (  8.4)     16  (  2.3)       9               10.7      5      7  61
  610     210   4000S     13    4.2    0.5    0.0 +  0.0  (  0.4)      1  (  0.0)       0                0.5
  620     324    610L     13    4.2    0.5    0.0 +  0.0  (  0.7)      1  (  0.1)       0                0.7
  690    1476   2278      85   15.0    8.7    0.7 +  2.8  ( 50.7)     52  ( 24.5)      14               75.2
  710    1325   6000S     25    6.2    0.4    0.0 +  0.1  (  2.1)      1  (  0.2)       0                2.3
  720     198    710L     25    6.1    0.4    0.0 +  0.0  (  0.3)      1  (  0.0)       0                0.3
  790     748   2300      86   15.0   15.4    0.2 +  3.0  ( 45.6)     60  ( 14.5)       8               60.0
```

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1757.3	98.3	17.9	30.4	31.1	(873.2) +	(393.6) +	(1162.5) =	2429.4	TOTALS

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	70.7	+	102.2	=	266.6

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 70

.

80 SECOND CYCLE 80 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	24	3								
3	2	56	34								
5	2	0	61								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	UNIFORM DELAY (U+R+O=MEAN Q) (PCU-H/H)	RANDOM+ OVERSAT DELAY ($/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. QUEUE (PCU)	AVERAGE EXCESS QUEUE (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	196	1900	49	7.6	36.3	1.5 +	0.5	(28.1)	94	(5.9)	4		34.0	1	8	24		
102	360	1900	89	15.0	66.0	3.1 +	3.5	(93.7)	132	(15.2)	11		109.0	1	8	24		
103	360	1900	89	16.7	66.0	3.1 +	3.5	(93.7)	132	(12.2)	11		106.0	1	8	24		
110	220	1900S	42	9.0	8.1	0.3 +	0.2	(7.0)	40	(2.8)	6	(0.0)*	9.8	1	31	3		
111	309	110L	42	9.0	10.1	0.7 +	0.2	(12.3)	51	(5.0)	6	(0.0)*	17.4	1	31	3		
120	417	1900S	92	9.0	28.5	1.3 +	2.0	(46.8)	99	(13.3)	28	(4.7)*	529.4	1	31	3		
121	747	120L	92	9.0	29.1	2.5 +	3.5	(85.8)	102	(24.4)	28	(4.7)*	579.6	1	31	3		
199	10	10000	0	7.2	4.3	0.0 +	0.0	(0.2)	31	(0.0)	0		0.2	1	29	3		
210	730	6000S	38	4.7	0.5	0.0 +	0.1	(1.4)	1	(0.1)	0		1.5					
220	1520	210L	38	4.7	0.5	0.0 +	0.2	(2.9)	1	(0.3)	0		3.2					
290	216	1874	89	15.0	75.6	1.4 +	3.2	(64.4)	149	(10.3)	8		74.7					
301	319	1950	73	15.0	43.4	2.5 +	1.3	(54.7)	105	(10.8)	8		65.4	3	39	56		
302	289	1900	68	15.0	41.1	2.3 +	1.0	(46.9)	102	(9.5)	7		56.4	3	39	56		
310	361	1950S	73	6.6	8.8	0.4 +	0.5	(12.5)	20	(2.3)	12	(0.2)*	48.7	3	63	34		
311	560	310L	73	6.6	14.8	1.5 +	0.8	(32.8)	73	(13.2)	12	(0.2)*	70.5	3	63	34		
320	361	1900S	54	6.6	6.8	0.4 +	0.3	(9.7)	18	(2.1)	5	(0.0)*	19.9	3	63	34		
321	300	320L	54	6.6	11.5	0.7 +	0.3	(13.6)	54	(5.2)	5	(0.0)*	18.8	3	63	34		
399	10	10000	0	7.2	4.7	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	3	61	34		
410	608	6000S	36	4.9	0.5	0.0 +	0.1	(1.1)	1	(0.1)	0		1.2					
420	1541	410L	36	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.1					
490	10	1281	6	15.0	17.2	0.0 +	0.0	(0.7)	94	(0.3)	0		1.0					
501	197	1900	55	15.0	40.7	1.6 +	0.6	(31.6)	100	(6.3)	5		37.9	5	66	0		
502	197	1900	55	15.0	40.7	1.6 +	0.6	(31.6)	100	(6.3)	5		37.9	5	66	0		
503	104	1900	29	15.0	35.1	0.8 +	0.2	(14.4)	90	(3.0)	2		17.4	5	66	0		
510	289	1900S	49	5.6	7.0	0.3 +	0.2	(8.0)	22	(2.0)	5		18.2	5	7	61		
511	355	510L	49	5.6	7.0	0.4 +	0.3	(9.8)	43	(4.9)	5		14.7	5	7	61		
520	289	1900S	56	5.6	7.4	0.3 +	0.2	(8.4)	23	(2.1)	7		18.8	5	7	61		
521	438	520L	56	5.6	7.7	0.6 +	0.4	(13.3)	46	(6.4)	7		19.8	5	7	61		
610	210	4000S	13	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.5					
620	324	610L	13	4.2	0.5	0.0 +	0.0	(0.7)	1	(0.1)	0		0.7					
690	1476	2278	85	15.0	8.7	0.7 +	2.8	(50.4)	42	(19.7)	22		70.2					
710	1325	6000S	25	6.2	0.4	0.0 +	0.1	(2.1)	1	(0.2)	0		2.3					
720	198	710L	25	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3					
790	748	2300	86	15.0	15.7	0.3 +	3.0	(46.4)	61	(14.5)	11		60.9					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1757.3	95.2	18.5	28.3	30.0	(828.7) +	(233.2) +	(987.8) =	2049.8	TOTALS

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	67.1	+	90.7	=	251.6

NO. OF ENTRIES TO SUBPT = 10
NO. OF LINKS RECALCULATED= 268

.

80 SECOND CYCLE 80 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	72	51								
3	2	24	2								
5	2	0	61								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	UNIFORM DELAY (U+R+O=MEAN Q) (PCU-H/H)	RANDOM+ OVERSAT DELAY ($/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. QUEUE (PCU)	AVERAGE EXCESS QUEUE (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	196	1900	49	7.6	36.3	1.5 +	0.5	(28.1)	94	(5.9)	4		34.0	1	56	72		
102	360	1900	89	15.0	66.0	3.1 +	3.5	(93.7)	132	(15.2)	11		109.0	1	56	72		
103	360	1900	89	16.7	66.0	3.1 +	3.5	(93.7)	132	(12.2)	11		106.0	1	56	72		
110	220	1900S	42	9.0	8.6	0.4 +	0.2	(7.5)	44	(3.1)	5	(0.0)*	10.5	1	79	51		
111	309	110L	42	9.0	8.4	0.5 +	0.2	(10.3)	41	(4.0)	5	(0.0)*	14.3	1	79	51		
120	417	1900S	92	9.0	28.9	1.4 +	2.0	(47.5)	97	(13.0)	28	(4.6)*	520.9	1	79	51		
121	747	120L	92	9.0	29.6	2.6 +	3.5	(87.2)	100	(24.0)	28	(4.6)*	571.7	1	79	51		
199	10	10000	0	7.2	4.3	0.0 +	0.0	(0.2)	31	(0.0)	0		0.2	1	77	51		
210	730	6000S	38	4.7	0.5	0.0 +	0.1	(1.4)	1	(0.1)	0		1.5					
220	1520	210L	38	4.7	0.5	0.0 +	0.2	(2.9)	1	(0.3)	0		3.2					

290	216	1874	89	15.0	76.5	1.4	+	3.2	(65.2)	149	(10.4)	8			75.5				
301	319	1950	73	15.0	43.4	2.5	+	1.3	(54.7)	105	(10.8)	8			65.4	3	7	24	
302	289	1900	68	15.0	41.1	2.3	+	1.0	(46.9)	102	(9.5)	7			56.4	3	7	24	
310	361	1950S	73	6.6	8.8	0.4	+	0.5	(12.5)	20	(2.3)	12	(0.2)*		47.8	3	31	2	
311	560	310L	73	6.6	14.7	1.5	+	0.8	(32.5)	72	(13.1)	12	(0.2)*		69.2	3	31	2	
320	361	1900S	54	6.6	6.8	0.4	+	0.3	(9.7)	18	(2.1)	5	(0.0)*		19.9	3	31	2	
321	300	320L	54	6.6	11.4	0.7	+	0.3	(13.5)	53	(5.1)	5	(0.0)*		18.7	3	31	2	
399	10	10000	0	7.2	4.7	0.0	+	0.0	(0.2)	33	(0.0)	0			0.2	3	29	2	
410	608	6000S	36	4.9	0.5	0.0	+	0.1	(1.1)	1	(0.1)	0			1.2				
420	1541	410L	36	4.9	0.5	0.0	+	0.2	(2.8)	1	(0.3)	0			3.1				
490	10	1281	6	15.0	17.2	0.0	+	0.0	(0.7)	94	(0.3)	0			1.0				
501	197	1900	55	15.0	40.7	1.6	+	0.6	(31.6)	100	(6.3)	5			37.9	5	66	0	
502	197	1900	55	15.0	40.7	1.6	+	0.6	(31.6)	100	(6.3)	5			37.9	5	66	0	
503	104	1900	29	15.0	35.1	0.8	+	0.2	(14.4)	90	(3.0)	2			17.4	5	66	0	
510	289	1900S	49	5.6	2.7	0.0	+	0.2	(3.1)	3	(0.3)	5			4.7	5	7	61	
511	355	510L	49	5.6	7.5	0.5	+	0.3	(10.6)	46	(5.2)	5			15.8	5	7	61	
520	289	1900S	56	5.6	3.1	0.0	+	0.2	(3.6)	4	(0.4)	6			5.5	5	7	61	
521	438	520L	56	5.6	8.3	0.6	+	0.4	(14.3)	50	(7.0)	6			21.3	5	7	61	
610	210	4000S	13	4.2	0.5	0.0	+	0.0	(0.4)	1	(0.0)	0			0.5				
620	324	610L	13	4.2	0.5	0.0	+	0.0	(0.7)	1	(0.1)	0			0.7				
690	1476	2278	85	15.0	8.2	0.5	+	2.8	(47.8)	44	(21.0)	11			68.8				
710	1325	6000S	25	6.2	0.4	0.0	+	0.1	(2.1)	1	(0.2)	0			2.3				
720	198	710L	25	6.1	0.4	0.0	+	0.0	(0.3)	1	(0.0)	0			0.3				
790	748	2300	86	15.0	15.3	0.2	+	3.0	(45.1)	57	(13.7)	9			58.8				

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1757.3	94.4	18.6	27.5	30.1	(817.7) +	(215.8) +	(968.1) =	2001.7	TOTALS

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	66.2	+	89.1	=	249.0

NO. OF ENTRIES TO SUBPT = 9
NO. OF LINKS RECALCULATED= 264

.

80 SECOND CYCLE 80 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	71	51								
3	2	23	2								
5	2	0	60								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT ($/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END (SECONDS)
101	196	1900	52	7.6	38.3	1.6 +	0.5	(29.6)	97	(6.1)	4		35.7	1	56	71
102	360	1900	95	15.0	88.8	3.2 +	5.7	(126.1)	154	(17.8)	14		143.9	1	56	71
103	360	1900	95	16.7	88.8	3.2 +	5.7	(126.1)	154	(14.3)	14		140.4	1	56	71
110	220	1900S	41	9.0	8.1	0.3 +	0.1	(7.0)	42	(3.0)	5	(0.0)*	10.0	1	78	51
111	309	110L	41	9.0	7.9	0.5 +	0.2	(9.7)	40	(3.9)	5	(0.0)*	13.6	1	78	51
120	417	1900S	91	9.0	25.1	1.3 +	1.6	(41.3)	90	(12.1)	27	(3.7)*	423.1	1	78	51
121	747	120L	91	9.0	25.8	2.4 +	2.9	(76.1)	94	(22.6)	27	(3.7)*	468.4	1	78	51
199	10	10000	0	7.2	4.0	0.0 +	0.0	(0.2)	30	(0.0)	0		0.2	1	76	51
210	730	6000S	38	4.7	0.5	0.0 +	0.1	(1.4)	1	(0.1)	0		1.5			
220	1520	210L	38	4.7	0.5	0.0 +	0.2	(2.9)	1	(0.3)	0		3.2			
290	216	1874	90	15.0	77.7	1.3 +	3.4	(66.2)	151	(10.5)	8		76.7			
301	319	1950	77	15.0	47.9	2.6 +	1.6	(60.3)	111	(11.4)	8		71.7	3	7	23
302	289	1900	72	15.0	44.6	2.3 +	1.2	(50.9)	107	(9.9)	7		60.7	3	7	23
310	361	1950S	71	6.6	8.2	0.3 +	0.5	(11.7)	19	(2.2)	11	(0.2)*	39.9	3	30	2
311	560	310L	71	6.6	14.0	1.4 +	0.7	(31.0)	70	(12.7)	11	(0.2)*	60.7	3	30	2
320	361	1900S	52	6.6	6.4	0.3 +	0.3	(9.2)	17	(2.0)	5	(0.0)*	19.1	3	30	2
321	300	320L	52	6.6	10.6	0.6 +	0.3	(12.5)	51	(4.9)	5	(0.0)*	17.4	3	30	2
399	10	10000	0	7.2	4.3	0.0 +	0.0	(0.2)	31	(0.0)	0		0.2	3	28	2
410	608	6000S	36	4.9	0.5	0.0 +	0.1	(1.1)	1	(0.1)	0		1.2			
420	1541	410L	36	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.1			
490	10	1281	6	15.0	17.4	0.0 +	0.0	(0.7)	95	(0.3)	0		1.0			
501	197	1900	52	15.0	38.4	1.6 +	0.5	(29.8)	97	(6.1)	4		35.9	5	65	0
502	197	1900	52	15.0	38.4	1.6 +	0.5	(29.8)	97	(6.1)	4		35.9	5	65	0
503	104	1900	27	15.0	33.6	0.8 +	0.2	(13.8)	88	(2.9)	2		16.7	5	65	0
510	289	1900S	50	5.6	2.8	0.0 +	0.2	(3.2)	3	(0.3)	5		4.8	5	7	60
511	355	510L	50	5.6	7.8	0.5 +	0.3	(11.0)	47	(5.3)	5		16.3	5	7	60
520	289	1900S	57	5.6	3.2	0.0 +	0.3	(3.7)	4	(0.4)	6		5.8	5	7	60
521	438	520L	57	5.6	8.6	0.7 +	0.4	(14.9)	51	(7.1)	6		22.0	5	7	60
610	210	4000S	13	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.5			
620	324	610L	13	4.2	0.5	0.0 +	0.0	(0.7)	1	(0.1)	0		0.7			
690	1476	2278	85	15.0	8.2	0.5 +	2.8	(47.9)	44	(21.1)	11		69.0			
710	1325	6000S	25	6.2	0.4	0.0 +	0.1	(2.1)	1	(0.2)	0		2.3			
720	198	710L	25	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3			
790	748	2300	86	15.0	15.3	0.2 +	3.0	(45.0)	57	(13.7)	9		58.8			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1757.3	98.1	17.9	27.2	34.0	(869.5) +	(217.8) +	(773.4) =	1860.7	TOTALS

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80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	70.4	+	90.2	=	254.3

NO. OF ENTRIES TO SUBPT = 13
NO. OF LINKS RECALCULATED= 345

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80 SECOND CYCLE 80 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12

- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	47	27								
3	2	23	2								
5	2	68	48								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. QUEUE (PCU)	AVERAGE EXCESS QUEUE (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	END 1ST (SECONDS)	END 2ND (SECONDS)
101	196	1900	52	7.6	38.3	1.6 + 0.5	(29.6)	97	(6.1)	4		35.7	1	32	47		
102	360	1900	95	15.0	88.8	3.2 + 5.7	(126.1)	154	(17.8)	14		143.9	1	32	47		
103	360	1900	95	16.7	88.8	3.2 + 5.7	(126.1)	154	(14.3)	14		140.4	1	32	47		
110	220	1900S	41	9.0	8.2	0.4 + 0.1	(7.1)	41	(2.9)	5	(0.0)*	10.0	1	54	27		
111	309	110L	41	9.0	7.7	0.5 + 0.2	(9.3)	40	(3.9)	5	(0.0)*	13.3	1	54	27		
120	417	1900S	91	9.0	24.6	1.2 + 1.6	(40.4)	85	(11.4)	25	(2.8)*	330.1	1	54	27		
121	747	120L	91	9.0	24.0	2.1 + 2.9	(70.7)	84	(20.2)	25	(2.8)*	369.3	1	54	27		
199	10	10000	0	7.2	4.0	0.0 + 0.0	(0.2)	30	(0.0)	0		0.2	1	52	27		
210	730	6000S	38	4.7	0.5	0.0 + 0.1	(1.4)	1	(0.1)	0		1.5					
220	1520	210L	38	4.7	0.5	0.0 + 0.2	(2.9)	1	(0.3)	0		3.2					
290	216	1874	97	15.0	122.1	1.4 + 5.9	(104.1)	186	(12.9)	11		116.9					
301	319	1950	77	15.0	47.9	2.6 + 1.6	(60.3)	111	(11.4)	8		71.7	3	7	23		
302	289	1900	72	15.0	44.6	2.3 + 1.2	(50.9)	107	(9.9)	7		60.7	3	7	23		
310	361	1950S	71	6.6	4.9	0.0 + 0.5	(6.9)	8	(0.9)	9	(0.0)*	12.2	3	30	2		
311	560	310L	71	6.6	14.4	1.5 + 0.7	(31.9)	64	(11.5)	9	(0.0)*	44.1	3	30	2		
320	361	1900S	52	6.6	3.0	0.0 + 0.3	(4.3)	4	(0.4)	3	(0.0)*	6.4	3	30	2		
321	300	320L	52	6.6	9.1	0.5 + 0.3	(10.7)	43	(4.1)	3	(0.0)*	14.9	3	30	2		
399	10	10000	0	7.2	4.3	0.0 + 0.0	(0.2)	31	(0.0)	0		0.2	3	28	2		
410	608	6000S	36	4.9	0.5	0.0 + 0.1	(1.1)	1	(0.1)	0		1.2					
420	1541	410L	36	4.9	0.5	0.0 + 0.2	(2.8)	1	(0.3)	0		3.1					
490	10	1281	6	15.0	25.5	0.0 + 0.0	(1.0)	102	(0.3)	0		1.3					
501	197	1900	52	15.0	38.4	1.6 + 0.5	(29.8)	97	(6.1)	4		35.9	5	53	68		
502	197	1900	52	15.0	38.4	1.6 + 0.5	(29.8)	97	(6.1)	4		35.9	5	53	68		
503	104	1900	27	15.0	33.6	0.8 + 0.2	(13.8)	88	(2.9)	2		16.7	5	53	68		
510	289	1900S	50	5.6	2.8	0.0 + 0.2	(3.2)	4	(0.3)	6		4.8	5	75	48		
511	355	510L	50	5.6	13.6	1.1 + 0.3	(19.1)	70	(8.0)	6		27.1	5	75	48		
520	289	1900S	57	5.6	3.2	0.0 + 0.3	(3.7)	4	(0.4)	8		5.6	5	75	48		
521	438	520L	57	5.6	15.4	1.5 + 0.4	(26.5)	75	(10.6)	8		37.1	5	75	48		
610	210	4000S	13	4.2	0.5	0.0 + 0.0	(0.4)	1	(0.0)	0		0.5					
620	324	610L	13	4.2	0.5	0.0 + 0.0	(0.7)	1	(0.1)	0		0.7					
690	1476	2278	85	15.0	8.2	0.5 + 2.8	(47.8)	44	(20.8)	11		68.6					
710	1325	6000S	25	6.2	0.4	0.0 + 0.1	(2.1)	1	(0.2)	0		2.3					
720	198	710L	25	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.3					
790	748	2300	86	15.0	15.2	0.2 + 3.0	(45.0)	56	(13.6)	9		58.5					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1757.3	100.9	17.4	27.6	36.5	(910.2) +	(206.1) +	(558.3) =	1674.6	TOTALS

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	73.7	+	90.2	=	257.6

NO. OF ENTRIES TO SUBPT = 10
NO. OF LINKS RECALCULATED= 348

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80 SECOND CYCLE 80 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12 32
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	47	27								
3	2	23	2								
5	2	68	48								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. QUEUE (PCU)	AVERAGE EXCESS QUEUE (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	END 1ST (SECONDS)	END 2ND (SECONDS)
101	196	1900	52	7.6	38.3	1.6 + 0.5	(29.6)	97	(6.1)	4		35.7	1	32	47		
102	360	1900	95	15.0	88.8	3.2 + 5.7	(126.1)	154	(17.8)	14		143.9	1	32	47		
103	360	1900	95	16.7	88.8	3.2 + 5.7	(126.1)	154	(14.3)	14		140.4	1	32	47		
110	220	1900S	41	9.0	8.2	0.4 + 0.1	(7.1)	41	(2.9)	5	(0.0)*	10.0	1	54	27		
111	309	110L	41	9.0	7.7	0.5 + 0.2	(9.3)	40	(3.9)	5	(0.0)*	13.3	1	54	27		
120	417	1900S	91	9.0	24.6	1.2 + 1.6	(40.4)	85	(11.4)	25	(2.8)*	330.1	1	54	27		
121	747	120L	91	9.0	24.0	2.1 + 2.9	(70.7)	84	(20.2)	25	(2.8)*	369.3	1	54	27		
199	10	10000	0	7.2	4.0	0.0 + 0.0	(0.2)	30	(0.0)	0		0.2	1	52	27		
210	730	6000S	38	4.7	0.5	0.0 + 0.1	(1.4)	1	(0.1)	0		1.5					
220	1520	210L	38	4.7	0.5	0.0 + 0.2	(2.9)	1	(0.3)	0		3.2					
290	216	1874	97	15.0	122.2	1.4 + 5.9	(104.1)	186	(12.9)	11		117.0					
301	319	1950	77	15.0	47.9	2.6 + 1.6	(60.3)	111	(11.4)	8		71.7	3	7	23		
302	289	1900	72	15.0	44.6	2.3 + 1.2	(50.9)	107	(9.9)	7		60.7	3	7	23		
310	361	1950S	71	6.6	4.9	0.0 + 0.5	(6.9)	8	(0.9)	9	(0.0)*	12.2	3	30	2		
311	560	310L	71	6.6	14.4	1.5 + 0.7	(31.9)	64	(11.5)	9	(0.0)*	44.1	3	30	2		
320	361	1900S	52	6.6	3.0	0.0 + 0.3	(4.3)	4	(0.4)	3	(0.0)*	6.4	3	30	2		
321	300	320L	52	6.6	9.1	0.5 + 0.3	(10.7)	43	(4.1)	3	(0.0)*	14.9	3	30	2		
399	10	10000	0	7.2	4.3	0.0 + 0.0	(0.2)	31	(0.0)	0		0.2	3	28	2		
410	608	6000S	36	4.9	0.5	0.0 + 0.1	(1.1)	1	(0.1)	0		1.2					
420	1541	410L	36	4.9	0.5	0.0 + 0.2	(2.8)	1	(0.3)	0		3.1					
490	10	1281	6	15.0	25.5	0.0 + 0.0	(1.0)	102	(0.3)	0		1.3					
501	197	1900	52	15.0	38.4	1.6 + 0.5	(29.8)	97	(6.1)	4		35.9	5	53	68		
502	197	1900	52	15.0	38.4	1.6 + 0.5	(29.8)	97	(6.1)	4		35.9	5	53	68		
503	104	1900	27	15.0	33.6	0.8 + 0.2	(13.8)	88	(2.9)	2		16.7	5	53	68		
510	289	1900S	50	5.6	2.8	0.0 + 0.2	(3.2)	4	(0.3)	6		4.8	5	75	48		
511	355	510L	50	5.6	13.6	1.1 + 0.3	(19.1)	70	(8.0)	6		27.1	5	75	48		
520	289	1900S	57	5.6	3.2	0.0 + 0.3	(3.7)	4	(0.4)	8		5.6	5	75	48		
521	438	520L	57	5.6	15.4	1.5 + 0.4	(26.5)	75	(10.6)	8		37.1	5	75	48		
610	210	4000S	13	4.2	0.5	0.0 + 0.0	(0.4)	1	(0.0)	0		0.5					
620	324	610L	13	4.2	0.5	0.0 + 0.0	(0.7)	1	(0.1)	0		0.7					
690	1476	2278	85	15.0	8.2	0.5 + 2.8	(47.8)	44	(20.8)	11		68.6					
710	1325	6000S	25	6.2	0.4	0.0 + 0.1	(2.1)	1	(0.2)	0		2.3					
720	198	710L	25	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.3					
790	748	2300	86	15.0	15.2	0.2 + 3.0	(45.0)	56	(13.6)	9		58.5					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1757.3	100.9	17.4	27.6	36.5	(910.2) +	(206.1) +	(558.3) =	1674.6	TOTALS

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	73.7	+	90.2	=	257.7

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 329

.

80 SECOND CYCLE 80 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12 32 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	49	29								
3	2	24	3								
5	2	68	48								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	196	1900	52	7.6	38.3	1.6 +	0.5	(29.6)	97	(6.1)	4		35.7	1	34	49		
102	360	1900	95	15.0	88.8	3.2 +	5.7	(126.1)	154	(17.8)	14		143.9	1	34	49		
103	360	1900	95	16.7	88.8	3.2 +	5.7	(126.1)	154	(14.3)	14		140.4	1	34	49		
110	220	1900S	41	9.0	8.1	0.3 +	0.1	(7.0)	41	(2.9)	5	(0.0)*	9.9	1	56	29		
111	309	110L	41	9.0	7.7	0.5 +	0.2	(9.4)	40	(4.0)	5	(0.0)*	13.3	1	56	29		
120	417	1900S	91	9.0	24.4	1.2 +	1.6	(40.1)	84	(11.3)	25	(2.8)*	327.9	1	56	29		
121	747	120L	91	9.0	23.9	2.0 +	2.9	(70.6)	85	(20.4)	25	(2.8)*	367.4	1	56	29		
199	10	10000	0	7.2	4.0	0.0 +	0.0	(0.2)	30	(0.0)	0		0.2	1	54	29		
210	730	6000S	38	4.7	0.5	0.0 +	0.1	(1.4)	1	(0.1)	0		1.5					
220	1520	210L	38	4.7	0.5	0.0 +	0.2	(2.9)	1	(0.3)	0		3.2					
290	216	1874	97	15.0	118.4	1.4 +	5.7	(100.9)	183	(12.7)	10		113.6					
301	319	1950	77	15.0	47.9	2.6 +	1.6	(60.3)	111	(11.4)	8		71.7	3	8	24		
302	289	1900	72	15.0	44.6	2.3 +	1.2	(50.9)	107	(9.9)	7		60.7	3	8	24		
310	361	1950S	71	6.6	4.8	0.0 +	0.5	(6.9)	6	(0.7)	9	(0.0)*	11.4	3	31	3		
311	560	310L	71	6.6	14.5	1.5 +	0.7	(32.1)	65	(11.6)	9	(0.0)*	44.5	3	31	3		
320	361	1900S	52	6.6	3.0	0.0 +	0.3	(4.3)	4	(0.4)	3	(0.0)*	6.4	3	31	3		
321	300	320L	52	6.6	9.1	0.5 +	0.3	(10.7)	43	(4.1)	3	(0.0)*	14.9	3	31	3		
399	10	10000	0	7.2	4.3	0.0 +	0.0	(0.2)	31	(0.0)	0		0.2	3	29	3		
410	608	6000S	36	4.9	0.5	0.0 +	0.1	(1.1)	1	(0.1)	0		1.2					
420	1541	410L	36	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.1					
490	10	1281	7	15.0	26.0	0.0 +	0.0	(1.0)	103	(0.3)	0		1.4					
501	197	1900	52	15.0	38.4	1.6 +	0.5	(29.8)	97	(6.1)	4		35.9	5	53	68		
502	197	1900	52	15.0	38.4	1.6 +	0.5	(29.8)	97	(6.1)	4		35.9	5	53	68		
503	104	1900	27	15.0	33.6	0.8 +	0.2	(13.8)	88	(2.9)	2		16.7	5	53	68		
510	289	1900S	50	5.6	2.8	0.0 +	0.2	(3.2)	4	(0.3)	6		4.8	5	75	48		
511	355	510L	50	5.6	13.4	1.0 +	0.3	(18.7)	70	(8.0)	6		26.7	5	75	48		
520	289	1900S	57	5.6	3.2	0.0 +	0.3	(3.7)	4	(0.4)	8		5.6	5	75	48		
521	438	520L	57	5.6	15.1	1.4 +	0.4	(26.1)	76	(10.7)	8		36.8	5	75	48		
610	210	4000S	13	4.2	0.5	0.0 +	0.0	(0.4)	1	(0.0)	0		0.5					
620	324	610L	13	4.2	0.5	0.0 +	0.0	(0.7)	1	(0.1)	0		0.7					
690	1476	2278	85	15.0	8.2	0.5 +	2.8	(47.8)	44	(20.8)	11		68.6					
710	1325	6000S	25	6.2	0.4	0.0 +	0.1	(2.1)	1	(0.2)	0		2.3					
720	198	710L	25	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.3					
790	748	2300	86	15.0	15.2	0.2 +	3.0	(45.0)	56	(13.6)	9		58.6					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1757.3	100.6	17.5	27.5	36.3	(906.0) +	(205.6) +	(554.4) =	1666.0	TOTALS

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	73.4	+	90.3	=	257.4

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 249

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80 SECOND CYCLE 80 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 12 32 -1 12 32 1 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	49	29								
3	2	24	2								
5	2	70	48								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	196	1900	52	7.6	38.3	1.6 +	0.5	(29.6)	97	(6.1)	4		35.7	1	34	49		
102	360	1900	95	15.0	88.8	3.2 +	5.7	(126.1)	154	(17.8)	14		143.9	1	34	49		
103	360	1900	95	16.7	88.8	3.2 +	5.7	(126.1)	154	(14.3)	14		140.4	1	34	49		
110	220	1900S	41	9.0	8.1	0.3 +	0.1	(7.0)	41	(2.9)	5	(0.0)*	9.9	1	56	29		
111	309	110L	41	9.0	7.8	0.5 +	0.2	(9.5)	40	(4.0)	5	(0.0)*	13.5	1	56	29		
120	417	1900S	91	9.0	24.4	1.2 +	1.6	(40.1)	84	(11.3)	25	(2.8)*	328.7	1	56	29		
121	747	120L	91	9.0	24.0	2.0 +	2.9	(70.6)	85	(20.4)	25	(2.8)*	368.4	1	56	29		
199	10	10000	0	7.2	4.0	0.0 +	0.0	(0.2)	30	(0.0)	0		0.2	1	54	29		
210	730	6000S	38	4.7	0.5	0.0 +	0.1	(1.4)	1	(0.1)	0		1.5					

220	1520	210L	38	4.7	0.5	0.0	+	0.2	(2.9)	1	(0.3)	0		3.2					
290	216	1874	96	15.0	116.9	1.4	+	5.6	(99.6)	182	(12.6)	10		112.2					
301	319	1950	73	15.0	43.4	2.5	+	1.3	(54.7)	105	(10.8)	8		65.4	3	7	24		
302	289	1900	68	15.0	41.1	2.3	+	1.0	(46.9)	102	(9.5)	7		56.4	3	7	24		
310	361	1950S	73	6.6	5.2	0.0	+	0.5	(7.4)	8	(0.9)	10	(0.0)*	14.0	3	31	2		
311	560	310L	73	6.6	15.6	1.6	+	0.8	(34.5)	67	(12.1)	10	(0.0)*	48.9	3	31	2		
320	361	1900S	54	6.6	3.1	0.0	+	0.3	(4.5)	4	(0.4)	4	(0.0)*	6.7	3	31	2		
321	300	320L	54	6.6	9.7	0.5	+	0.3	(11.4)	45	(4.3)	4	(0.0)*	15.7	3	31	2		
399	10	10000	0	7.2	4.7	0.0	+	0.0	(0.2)	33	(0.0)	0		0.2	3	29	2		
410	608	6000S	36	4.9	0.5	0.0	+	0.1	(1.1)	1	(0.1)	0		1.2					
420	1541	410L	36	4.9	0.5	0.0	+	0.2	(2.8)	1	(0.3)	0		3.1					
490	10	1281	6	15.0	25.0	0.0	+	0.0	(1.0)	101	(0.3)	0		1.3					
501	197	1900	46	15.0	34.6	1.5	+	0.4	(26.9)	92	(5.8)	4		32.7	5	53	70		
502	197	1900	46	15.0	34.6	1.5	+	0.4	(26.9)	92	(5.8)	4		32.7	5	53	70		
503	104	1900	24	15.0	31.0	0.7	+	0.2	(12.7)	85	(2.8)	2		15.5	5	53	70		
510	289	1900S	52	5.6	3.1	0.0	+	0.2	(3.5)	4	(0.4)	6		5.2	5	77	48		
511	355	510L	52	5.6	15.3	1.2	+	0.3	(21.4)	75	(8.5)	6		29.9	5	77	48		
520	289	1900S	59	5.6	3.5	0.0	+	0.3	(4.0)	4	(0.4)	8		6.1	5	77	48		
521	438	520L	59	5.6	17.2	1.7	+	0.4	(29.7)	80	(11.3)	8		41.0	5	77	48		
610	210	4000S	13	4.2	0.5	0.0	+	0.0	(0.4)	1	(0.0)	0		0.5					
620	324	610L	13	4.2	0.5	0.0	+	0.0	(0.7)	1	(0.1)	0		0.7					
690	1476	2278	85	15.0	8.2	0.5	+	2.9	(47.8)	44	(20.8)	11		68.5					
710	1325	6000S	25	6.2	0.4	0.0	+	0.1	(2.1)	1	(0.2)	0		2.3					
720	198	710L	25	6.1	0.4	0.0	+	0.0	(0.3)	1	(0.0)	0		0.3					
790	748	2300	86	15.0	15.2	0.2	+	3.0	(44.8)	55	(13.3)	9		58.1					

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1757.3	100.1	17.6	27.6	35.7	(898.8) +	(206.3) +	(559.1) =	1664.1	TOTALS

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	72.8	+	90.2	=	256.7

NO. OF ENTRIES TO SUBPT = 15
NO. OF LINKS RECALCULATED= 512

.

80 SECOND CYCLE 80 STEPS

FINAL SETTINGS OBTAINED WITH INCREMENTS :- 12 32 -1 12 32 1 -1 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	49	29								
3	2	24	2								
5	2	70	48								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE		DELAY	-------DELAY-------- UNIFORM	RANDOM+ OVERSAT	COST OF DELAY	----STOPS---- MEAN STOPS /PCU	COST OF STOPS	----QUEUE---- MEAN MAX.	AVERAGE EXCESS	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START 1ST	START 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)		(PCU-H/H)		($/H)	(%)	($/H)	(PCU)	(PCU)	($/H)		END (SECONDS)	END
101	196	1900	52	7.6	38.3		1.6	+ 0.5	(29.6)	97	(6.1)	4		35.7	1	34	49
102	360	1900	95	15.0	88.8		3.2	+ 5.7	(126.1)	154	(17.8)	14		143.9	1	34	49
103	360	1900	95	16.7	88.8		3.2	+ 5.7	(126.1)	154	(14.3)	14		140.4	1	34	49
110	220	1900S	41	9.0	8.1		0.3	+ 0.1	(7.0)	41	(2.9)	5	(0.0)*	9.9	1	56	29
111	309	110L	41	9.0	7.8		0.5	+ 0.2	(9.5)	40	(4.0)	5	(0.0)*	13.5	1	56	29
120	417	1900S	91	9.0	24.4		1.2	+ 1.6	(40.1)	84	(11.3)	25	(2.8)*	328.7	1	56	29
121	747	120L	91	9.0	24.0		2.0	+ 2.9	(70.6)	85	(20.4)	25	(2.8)*	368.4	1	56	29
199	10	10000	0	7.2	4.0		0.0	+ 0.0	(0.2)	30	(0.0)	0		0.2	1	54	29
210	730	6000S	38	4.7	0.5		0.0	+ 0.1	(1.4)	1	(0.1)	0		1.5			
220	1520	210L	38	4.7	0.5		0.0	+ 0.2	(2.9)	1	(0.3)	0		3.2			
290	216	1874	96	15.0	116.9		1.4	+ 5.6	(99.6)	182	(12.6)	10		112.2			
301	319	1950	73	15.0	43.4		2.5	+ 1.3	(54.7)	105	(10.8)	8		65.4	3	7	24
302	289	1900	68	15.0	41.1		2.3	+ 1.0	(46.9)	102	(9.5)	7		56.4	3	7	24
310	361	1950S	73	6.6	5.2		0.0	+ 0.5	(7.4)	8	(0.9)	10	(0.0)*	14.0	3	31	2
311	560	310L	73	6.6	15.6		1.6	+ 0.8	(34.5)	67	(12.1)	10	(0.0)*	48.9	3	31	2
320	361	1900S	54	6.6	3.1		0.0	+ 0.3	(4.5)	4	(0.4)	4	(0.0)*	6.7	3	31	2
321	300	320L	54	6.6	9.7		0.5	+ 0.3	(11.4)	45	(4.3)	4	(0.0)*	15.7	3	31	2
399	10	10000	0	7.2	4.7		0.0	+ 0.0	(0.2)	33	(0.0)	0		0.2	3	29	2
410	608	6000S	36	4.9	0.5		0.0	+ 0.1	(1.1)	1	(0.1)	0		1.2			
420	1541	410L	36	4.9	0.5		0.0	+ 0.2	(2.8)	1	(0.3)	0		3.1			
490	10	1281	6	15.0	25.0		0.0	+ 0.0	(1.0)	101	(0.3)	0		1.3			
501	197	1900	46	15.0	34.6		1.5	+ 0.4	(26.9)	92	(5.8)	4		32.7	5	53	70
502	197	1900	46	15.0	34.6		1.5	+ 0.4	(26.9)	92	(5.8)	4		32.7	5	53	70
503	104	1900	24	15.0	31.0		0.7	+ 0.2	(12.7)	85	(2.8)	2		15.5	5	53	70
510	289	1900S	52	5.6	3.1		0.0	+ 0.2	(3.5)	4	(0.4)	6		5.2	5	77	48
511	355	510L	52	5.6	15.3		1.2	+ 0.3	(21.4)	75	(8.5)	6		29.9	5	77	48
520	289	1900S	59	5.6	3.5		0.0	+ 0.3	(4.0)	4	(0.4)	8		6.1	5	77	48
521	438	520L	59	5.6	17.2		1.7	+ 0.4	(29.7)	80	(11.3)	8		41.0	5	77	48
610	210	4000S	13	4.2	0.5		0.0	+ 0.0	(0.4)	1	(0.0)	0		0.5			
620	324	610L	13	4.2	0.5		0.0	+ 0.0	(0.7)	1	(0.1)	0		0.7			
690	1476	2278	85	15.0	8.2		0.5	+ 2.9	(47.8)	44	(20.8)	11		68.5			
710	1325	6000S	25	6.2	0.4		0.0	+ 0.1	(2.1)	1	(0.2)	0		2.3			
720	198	710L	25	6.1	0.4		0.0	+ 0.0	(0.3)	1	(0.0)	0		0.3			
790	748	2300	86	15.0	15.2		0.2	+ 3.0	(44.8)	55	(13.3)	9		58.1			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1757.3	100.1	17.6	27.6	35.7	(898.8) +	(206.3) +	(559.1) =	1664.1	TOTALS

ROUTE

.

80 SECOND CYCLE 80 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	93.7	+	72.8	+	90.2	=	256.7

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 252

T R A N S Y T 12

Traffic Network Study Tool

Analysis Program Release 6 (February 2007)

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Run with file:- "UPPER BOAT PROPOSED 2028 AM + DEV.DAT" at 08:38 on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2028AM + Dev

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	3
NUMBER OF LINKS	=	34
NUMBER OF OPTIMISED NODES	=	3
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	8
NUMBER OF STEPS IN CYCLE	=	70
MAXIMUM NUMBER OF SHARED STOPLINES	=	2
MAXIMUM NUMBER OF TIMING POINTS	=	2
MAXIMUM LINKS AT ANY NODE	=	7

CORE REQUESTED = 9519 WORDS
CORE AVAILABLE = 72000 WORDS

.

DATA INPUT :-

CARD NO. / CARD TYPE

(1)= **TITLE:- Upper Boat Proposed Layout 2028AM + Dev**

CARD NO.	CARD TYPE	CYCLE TIME (SEC)	NO. OF STEPS PER CYCLE	TIME PERIOD 1-1200 MINS.	EFFECTIVE-GREEN DISPLACEMENTS START (SEC)	EFFECTIVE-GREEN DISPLACEMENTS END (SEC)	EQUISAT SETTINGS 0=NO 1=YES	0=UNEQUAL CYCLE 1=EQUAL CYCLE	FLOW SCALE 10-200 %	CRUISE-SPEEDS SCALE 50-200 %	CARD32 0=TIMES 1=SPEEDS	OPTIMISE 0=NONE 1=O/SET 2=FULL	EXTRA COPIES FINAL OUTPUT	HILL-CLIMB OUTPUT 1=FULL	DELAY VALUE P PER PCU-H	STOP VALUE P PER 100
2)=	1	70	70	60	2	3	1	0	0	0	1	2	0	1	1420	260

LIST OF NODES TO BE OPTIMISED

CARD NO.	CARD TYPE															
3)=	2	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0

LINKS HAVING SHARED STOPLINES

CARD NO.	CARD TYPE	FIRST SET........................					SECOND SET.......................					THIRD SET........................				
4)=	7	110	111	0	0	0	120	121	0	0	0	210	220	0	0	0
5)=	7	310	311	0	0	0	320	321	0	0	0	410	420	0	0	0
6)=	7	510	511	0	0	0	520	521	0	0	0	610	620	0	0	0
7)=	7	710	720	0	0	0	0	0	0	0	0	0	0	0	0	0

NODE CARDS: MINIMUM STAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
8)=	10	1	7	7								
9)=	10	3	7	7								
10)=	10	5	7	7								

NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
11)=	11	1	7	5								
12)=	11	3	7	5								
13)=	11	5	7	5								

NODE CARDS: STAGE CHANGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	Sgl/Dbl Cycled	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
14)=	12	1	1	0	51								
15)=	12	3	1	0	49								
16)=	12	5	1	0	53								

LINK CARDS: GIVEWAY DATA

CARD NO.	CARD TYPE	LINK NO.	PRIORITY LINKS LINK1 NO.	PRIORITY LINKS LINK2 NO.	ONLY % FLOW	LINK1 GIVEWAY COEFFS. A1 X100	LINK1 GIVEWAY COEFFS. A2 X100					LINK LENGTH	STOP WT.X100	MAX FLOW	DELAY WT.X100	DISPSN X100
17)=	30	290	210	220	0	48	48	0	0	0	0	200	0	1874	0	0
18)=	30	490	410	420	0	49	49	0	0	0	0	200	0	1281	0	0
19)=	30	690	610	620	0	52	52	0	0	0	0	200	0	2278	0	0
20)=	30	790	710	720	0	47	47	0	0	0	0	200	0	2300	0	0

LINK CARDS: FIXED DATA

CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	FIRST GREEN START STAGE	FIRST GREEN START LAG	FIRST GREEN END STAGE	FIRST GREEN END LAG	SECOND GREEN START STAGE	SECOND GREEN START LAG	SECOND GREEN END STAGE	SECOND GREEN END LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
21)=	31	101	1	2	5	1	0	0	0	0	0	102	0	1900	0	0
22)=	31	102	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
23)=	31	103	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
24)=	31	110	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
25)=	31	111	1	1	0	1	0	0	0	0	0	120	0	0	0	0
26)=	31	120	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
27)=	31	121	1	1	0	1	0	0	0	0	0	120	0	0	0	0
28)=	31	199	1	1	5	2	0	0	0	0	0	10	0	10000	0	0
29)=	31	210	0	0	0	0	0	0	0	0	0	63	0	6000	0	0
30)=	31	220	0	0	0	0	0	0	0	0	0	63	0	0	0	0
31)=	31	290	0	0	0	0	0	0	0	0	0	200	0	1874	0	0
32)=	31	301	3	2	5	1	0	0	0	0	0	200	0	1950	0	0
33)=	31	302	3	2	5	1	0	0	0	0	0	200	0	1900	0	0
34)=	31	310	3	1	7	2	0	0	0	0	0	88	500	1950	0	0
35)=	31	311	3	1	0	1	0	0	0	0	0	88	0	0	0	0
36)=	31	320	3	1	7	2	0	0	0	0	0	88	500	1900	0	0
37)=	31	321	3	1	0	1	0	0	0	0	0	88	0	0	0	0
38)=	31	399	3	1	5	2	0	0	0	0	0	10	0	10000	0	0
39)=	31	410	0	0	0	0	0	0	0	0	0	65	0	6000	0	0

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 40)=  31     420       0       0       0       0       0       0       0       0       0      65       0       0       0       0
 41)=  31     490       0       0       0       0       0       0       0       0       0     200       0    1281       0       0
 42)=  31     501       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 43)=  31     502       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 44)=  31     503       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 45)=  31     510       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 46)=  31     511       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 47)=  31     520       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 48)=  31     521       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 49)=  31     610       0       0       0       0       0       0       0       0       0      56       0    4000       0       0
 50)=  31     620       0       0       0       0       0       0       0       0       0      56       0       0       0       0
 51)=  31     690       0       0       0       0       0       0       0       0       0     200       0    2278       0       0
 52)=  31     710       0       0       0       0       0       0       0       0       0      82       0    6000       0       0
 53)=  31     720       0       0       0       0       0       0       0       0       0      82       0       0       0       0
 54)=  31     790       0       0       0       0       0       0       0       0       0     200       0    2300       0       0
```

LINK CARDS: FLOW DATA

```
                                    ENTRY 1 ............    ENTRY 2 ............    ENTRY 3 ............    ENTRY 4 ............
CARD   CARD   LINK   TOTAL  UNIFORM  LINK          CRUISE  LINK          CRUISE  LINK          CRUISE  LINK          CRUISE
 NO.   TYPE    NO.   FLOW    FLOW    NO.   FLOW    SPEED   NO.   FLOW    SPEED   NO.   FLOW    SPEED   NO.   FLOW    SPEED
 55)=  32     101     196       0       0      0       48      0      0       0      0      0       0      0      0       0
 56)=  32     102     396       0       0      0       48      0      0       0      0      0       0      0      0       0
 57)=  32     103     396       0       0      0       43      0      0       0      0      0       0      0      0       0
 58)=  32     110     220       0     790    220       48      0      0       0      0      0       0      0      0       0
 59)=  32     111     336       0     720     68       48    710    268      48      0      0       0      0      0       0
 60)=  32     120     448       0     790    448       48      0      0       0      0      0       0      0      0       0
 61)=  32     121     774       0     710    764       48    720     10      48      0      0       0      0      0       0
 62)=  32     199      10       0       0      0        5      0      0       0      0      0       0      0      0       0
 63)=  32     210     802       0     102    396       48    101     10      48    103    396      48      0      0       0
 64)=  32     220    1608       0     111    200       48    121    764      48    110    196      48    120    448      48
 65)=  32     290     218       0       0      0       48      0      0       0      0      0       0      0      0       0
 66)=  32     301     395       0       0      0       48      0      0       0      0      0       0      0      0       0
 67)=  32     302     287       0       0      0       48      0      0       0      0      0       0      0      0       0
 68)=  32     310     396       0     210    396       48      0      0       0      0      0       0      0      0       0
 69)=  32     311     650       0     290     44       48    220    606      48      0      0       0      0      0       0
 70)=  32     320     396       0     210    396       48      0      0       0      0      0       0      0      0       0
 71)=  32     321     302       0     290     78       48    220    224      48      0      0       0      0      0       0
 72)=  32     399      10       0       0      0        5      0      0       0      0      0       0      0      0       0
 73)=  32     410     676       0     301    389       48    302    287      48      0      0       0      0      0       0
 74)=  32     420    1738       0     310    392       48    320    396      48    311    648      48    321    302      48
 75)=  32     490      10       0       0      0       48      0      0       0      0      0       0      0      0       0
 76)=  32     501     206       0       0      0       48      0      0       0      0      0       0      0      0       0
 77)=  32     502     206       0       0      0       48      0      0       0      0      0       0      0      0       0
 78)=  32     503     120       0       0      0       48      0      0       0      0      0       0      0      0       0
 79)=  32     510     287       0     410    287       48      0      0       0      0      0       0      0      0       0
 80)=  32     511     322       0     420    312       48    490     10      48      0      0       0      0      0       0
 81)=  32     520     287       0     410    287       48      0      0       0      0      0       0      0      0       0
 82)=  32     521     476       0     420    476       48      0      0       0      0      0       0      0      0       0

 83)=  32     610     230       0     502    110       48    503    120      48      0      0       0      0      0       0
 84)=  32     620     320       0     521     96       48    520    224      48      0      0       0      0      0       0
 85)=  32     690    1528       0       0      0       48      0      0       0      0      0       0      0      0       0
 86)=  32     710    1380       0     690   1380       48      0      0       0      0      0       0      0      0       0
 87)=  32     720     212       0     620     92       48    610    120      48      0      0       0      0      0       0
 88)=  32     790     778       0       0      0       48      0      0       0      0      0       0      0      0       0
```

GRAPH PLOT CARDS

```
CARD   CARD   LINK    LINK    LINK    LINK    LINK    LINK    LINK    LINK
 NO.   TYPE    NO.     NO.     NO.     NO.     NO.     NO.     NO.     NO.
 89)=  35     102     320     302     520       0       0       0       0       0       0       0       0       0       0
```

LINK DATA: QUEUE CONSTRAINTS

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CARD   CARD   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE
 NO.   TYPE    NO.    QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT
 90)=  38     110      13    9999     111      13    9999     120      13    9999     121      13    9999     310       9    9999
 91)=  38     311       9    9999     320       9    9999     321       9    9999     510       8    9999     511       8    9999
 92)=  38     520       8    9999     521       8    9999       0       0       0       0       0       0       0       0       0
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*****END OF SUBROUTINE TINPUT*****

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70 SECOND CYCLE 70 STEPS

INITIAL SETTINGS
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	0	51								
3	2	0	49								
5	2	0	53								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) (PCU-H/H)	OVERSAT COST OF DELAY ($/H)	STOPS /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	196	1900	48	7.6	32.6	1.3 + 0.5	(25.2)	94	(5.9)	4		31.1	1	56	0		
102	396	1900	97	15.0	95.9	3.0 + 7.5	(149.8)	171	(21.7)	15		171.5	1	56	0		
103	396	1900	97	16.7	95.9	3.0 + 7.5	(149.8)	171	(17.4)	15		167.3	1	56	0		
110	219	1900S	45	9.0	9.6	0.4 + 0.2	(8.3)	52	(3.7)	6	(0.0)*	12.0	1	7	51		
111	336	110L	45	9.0	8.5	0.5 + 0.3	(11.3)	45	(4.9)	6	(0.0)*	16.2	1	7	51		
120	448	1900S	100	9.0	66.3	1.6 + 6.6	(117.2)	152	(21.8)	42	(17.1)*	1853.6	1	7	51		
121	775	120L	100	9.0	65.4	2.7 + 11.4	(200.1)	148	(36.7)	42	(17.1)*	1951.4	1	7	51		
199	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	1	5	51		
210	802	6000S	40	4.7	0.5	0.0 + 0.1	(1.6)	1	(0.2)	0		1.8					
220	1608	210L	40	4.7	0.5	0.0 + 0.2	(3.2)	1	(0.4)	0		3.5					
290	218	1874	120	15.0	382.5	2.1 + 21.0	(328.9)	266	(18.6)	29		347.5					
301	395	1950	83	15.0	46.8	2.8 + 2.4	(72.9)	118	(14.9)	10		87.8	3	54	0		
302	287	1900	62	15.0	33.9	1.9 + 0.8	(38.3)	98	(9.0)	6		47.4	3	54	0		
310	396	1950S	87	6.6	25.4	1.6 + 1.2	(39.7)	113	(14.4)	21	(3.5)*	460.1	3	7	49		
311	641	310L	87	6.6	20.6	1.7 + 1.9	(52.1)	81	(16.9)	21	(3.5)*	417.4	3	7	49		
320	396	1900S	59	6.6	14.8	1.2 + 0.4	(23.2)	99	(12.6)	12	(0.4)*	130.4	3	7	49		
321	290<	320L	59	6.6	11.6	0.6 + 0.3	(13.3)	58	(5.7)	12	(0.4)*	63.0	3	7	49		
399	10	10000	0	7.2	4.9	0.0 + 0.0	(0.2)	36	(0.0)	0		0.2	3	5	49		
410	676	6000S	40	4.9	0.5	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5					
420	1717<	410L	40	4.9	0.5	0.0 + 0.2	(3.4)	1	(0.4)	0		3.8					
490	10	1281	6	15.0	24.9	0.0 + 0.0	(1.0)	104	(0.3)	0		1.3					
501	206	1900	58	15.0	38.2	1.5 + 0.7	(31.0)	102	(6.8)	4		37.8	5	58	0		
502	206	1900	58	15.0	38.2	1.5 + 0.7	(31.0)	102	(6.8)	4		37.8	5	58	0		
503	120	1900	34	15.0	32.5	0.8 + 0.3	(15.4)	92	(3.6)	2		18.9	5	58	0		
510	286	1900S	47	5.6	13.5	0.9 + 0.2	(15.2)	97	(8.9)	7	(0.0)*	59.7	5	7	53		
511	319	510L	47	5.6	4.8	0.2 + 0.2	(6.0)	16	(1.7)	7	(0.0)*	7.6	5	7	53		
520	286	1900S	59	5.6	14.5	0.9 + 0.3	(16.4)	98	(9.0)	7	(0.0)*	61.6	5	7	53		
521	470	520L	59	5.6	5.2	0.2 + 0.5	(9.6)	15	(2.3)	7	(0.0)*	11.8	5	7	53		
610	230	4000S	14	4.2	0.5	0.0 + 0.0	(0.5)	1	(0.1)	0		0.5					
620	318	610L	14	4.2	0.5	0.0 + 0.0	(0.7)	1	(0.1)	0		0.7					
690	1528	2278	89	15.0	11.2	0.9 + 3.9	(67.3)	53	(26.1)	24		93.4					
710	1381	6000S	27	6.1	0.4	0.0 + 0.2	(2.2)	1	(0.3)	0		2.5					
720	212	710L	27	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.4					
790	778	2300	97	15.0	44.3	0.5 + 9.1	(135.9)	135	(33.8)	17		169.7					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1868.0	149.9	12.5	31.9	78.8	(1572.4) + (485.1)	+	(4214.0)	= 6271.4	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	99.6	+	127.3	+	139.1	=	366.0

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 70

.

70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	30	11								
3	2	0	49								
5	2	30	13								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) UNIFORM (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END
101	196	1900	48	7.6	32.6	1.3 + 0.5	(25.2)	94	(5.9)	4		31.1	1	16	30
102	396	1900	97	15.0	95.9	3.0 + 7.5	(149.8)	171	(21.7)	15		171.5	1	16	30
103	396	1900	97	16.7	95.9	3.0 + 7.5	(149.8)	171	(17.4)	15		167.3	1	16	30
110	219	1900S	45	9.0	9.4	0.4 + 0.2	(8.1)	49	(3.5)	6	(0.0)*	11.6	1	37	11
111	336	110L	45	9.0	8.8	0.6 + 0.3	(11.7)	48	(5.2)	6	(0.0)*	16.9	1	37	11
120	448	1900S	100	9.0	65.0	1.5 + 6.6	(114.9)	147	(21.2)	42	(16.8)*	1818.6	1	37	11
121	775	120L	100	9.0	64.7	2.5 + 11.4	(197.8)	149	(36.9)	42	(16.8)*	1917.2	1	37	11
199	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	1	35	11
210	802	6000S	40	4.7	0.5	0.0 + 0.1	(1.6)	1	(0.2)	0		1.8			
220	1608	210L	40	4.7	0.5	0.0 + 0.2	(3.2)	1	(0.4)	0		3.5			
290	218	1874	121	15.0	388.3	1.8 + 21.7	(333.9)	267	(18.7)	27		352.6			
301	395	1950	83	15.0	46.8	2.8 + 2.4	(72.9)	118	(14.9)	10		87.8	3	54	0
302	287	1900	62	15.0	33.9	1.9 + 0.8	(38.3)	98	(9.0)	6		47.4	3	54	0
310	396	1950S	87	6.6	11.1	0.0 + 1.2	(17.4)	19	(2.4)	16	(1.4)*	168.8	3	7	49
311	641	310L	87	6.6	25.4	2.6 + 1.9	(64.2)	101	(21.0)	16	(1.4)*	224.5	3	7	49
320	396	1900S	59	6.6	4.0	0.0 + 0.4	(6.2)	6	(0.8)	4	(0.0)*	10.2	3	7	49
321	289<	320L	59	6.6	12.3	0.7 + 0.3	(14.0)	55	(5.3)	4	(0.0)*	19.3	3	7	49
399	10	10000	0	7.2	4.9	0.0 + 0.0	(0.2)	36	(0.0)	0		0.2	3	5	49
410	676	6000S	40	4.9	0.5	0.0 + 0.1	(1.3)	1	(0.2)	0		1.5			
420	1716<	410L	40	4.9	0.5	0.0 + 0.2	(3.4)	1	(0.4)	0		3.8			
490	10	1281	7	15.0	28.2	0.0 + 0.0	(1.1)	109	(0.3)	0		1.5			
501	206	1900	58	15.0	38.2	1.5 + 0.7	(31.0)	102	(6.8)	4		37.8	5	18	30
502	206	1900	58	15.0	38.2	1.5 + 0.7	(31.0)	102	(6.8)	4		37.8	5	18	30
503	120	1900	34	15.0	32.5	0.8 + 0.3	(15.4)	92	(3.6)	2		18.9	5	18	30
510	286	1900S	47	5.6	3.1	0.0 + 0.2	(3.5)	6	(0.5)	4	(0.0)*	6.1	5	37	13
511	319	510L	47	5.6	8.4	0.5 + 0.2	(10.5)	50	(5.2)	4	(0.0)*	15.7	5	37	13
520	286	1900S	59	5.6	3.9	0.0 + 0.3	(4.4)	7	(0.6)	8	(0.0)*	7.5	5	37	13
521	470	520L	59	5.6	10.7	0.9 + 0.5	(19.8)	67	(10.3)	8	(0.0)*	30.1	5	37	13
610	230	4000S	14	4.2	0.5	0.0 + 0.0	(0.5)	1	(0.1)	0		0.5			
620	318	610L	14	4.2	0.5	0.0 + 0.0	(0.7)	1	(0.1)	0		0.7			
690	1528	2278	89	15.0	10.4	0.5 + 3.9	(62.5)	53	(25.9)	14		88.4			
710	1381	6000S	27	6.1	0.4	0.0 + 0.2	(2.2)	1	(0.3)	0		2.5			
720	212	710L	27	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.4			
790	778	2300	97	15.0	44.3	0.5 + 9.1	(135.9)	133	(33.2)	19		169.1			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1868.0	147.1	12.7	28.5	79.4	(1532.7) + (296.3)	+	(3643.6)	= 5472.7	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	99.6	+	124.1	+	127.1	=	350.8

NO. OF ENTRIES TO SUBPT = 11
NO. OF LINKS RECALCULATED= 277

.

70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	30	11								
3	2	0	49								
5	2	30	13								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) UNIFORM (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END
101	196	1900	48	7.6	32.6	1.3 + 0.5	(25.2)	94	(5.9)	4		31.1	1	16	30
102	396	1900	97	15.0	95.9	3.0 + 7.5	(149.8)	171	(21.7)	15		171.5	1	16	30
103	396	1900	97	16.7	95.9	3.0 + 7.5	(149.8)	171	(17.4)	15		167.3	1	16	30
110	219	1900S	45	9.0	9.4	0.4 + 0.2	(8.1)	49	(3.5)	6	(0.0)*	11.6	1	37	11
111	336	110L	45	9.0	8.8	0.6 + 0.3	(11.7)	48	(5.2)	6	(0.0)*	16.9	1	37	11
120	448	1900S	100	9.0	65.0	1.5 + 6.6	(114.9)	147	(21.2)	42	(16.8)*	1818.5	1	37	11
121	775	120L	100	9.0	64.7	2.5 + 11.4	(197.8)	149	(36.9)	42	(16.8)*	1917.1	1	37	11
199	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	1	35	11
210	802	6000S	40	4.7	0.5	0.0 + 0.1	(1.6)	1	(0.2)	0		1.8			

220	1608	210L	40	4.7	0.5	0.0	+	0.2	(3.2)	1	(0.4)	0		3.5									
290	218	1874	121	15.0	388.3	1.8	+	21.7	(333.9)	267	(18.7)	27		352.6									
301	395	1950	83	15.0	46.8	2.8	+	2.4	(72.9)	118	(14.9)	10		87.8	3	54	0						
302	287	1900	62	15.0	33.9	1.9	+	0.8	(38.3)	98	(9.0)	6		47.4	3	54	0						
310	396	1950S	87	6.6	11.1	0.0	+	1.2	(17.4)	19	(2.4)	16	(1.4)*	168.8	3	7	49						
311	641	310L	87	6.6	25.4	2.6	+	1.9	(64.2)	101	(21.0)	16	(1.4)*	224.5	3	7	49						
320	396	1900S	59	6.6	4.0	0.0	+	0.4	(6.2)	6	(0.8)	4	(0.0)*	10.2	3	7	49						
321	289<	320L	59	6.6	12.3	0.7	+	0.3	(14.0)	55	(5.3)	4	(0.0)*	19.3	3	7	49						
399	10	10000	0	7.2	4.9	0.0	+	0.0	(0.2)	36	(0.0)	0		0.2	3	5	49						
410	676	6000S	40	4.9	0.5	0.0	+	0.1	(1.3)	1	(0.2)	0		1.5									
420	1716<	410L	40	4.9	0.5	0.0	+	0.2	(3.4)	1	(0.4)	0		3.8									
490	10	1281	7	15.0	28.2	0.0	+	0.0	(1.1)	109	(0.3)	0		1.5									
501	206	1900	58	15.0	38.2	1.5	+	0.7	(31.0)	102	(6.8)	4		37.8	5	18	30						
502	206	1900	58	15.0	38.2	1.5	+	0.7	(31.0)	102	(6.8)	4		37.8	5	18	30						
503	120	1900	34	15.0	32.5	0.8	+	0.3	(15.4)	92	(3.6)	2		18.9	5	18	30						
510	286	1900S	47	5.6	3.1	0.0	+	0.2	(3.5)	6	(0.5)	4	(0.0)*	6.1	5	37	13						
511	319	510L	47	5.6	8.4	0.5	+	0.2	(10.5)	50	(5.2)	4	(0.0)*	15.7	5	37	13						
520	286	1900S	59	5.6	3.9	0.0	+	0.3	(4.4)	7	(0.6)	8	(0.0)*	7.5	5	37	13						
521	470	520L	59	5.6	10.7	0.9	+	0.5	(19.8)	67	(10.3)	8	(0.0)*	30.1	5	37	13						
610	230	4000S	14	4.2	0.5	0.0	+	0.0	(0.5)	1	(0.1)	0		0.5									
620	318	610L	14	4.2	0.5	0.0	+	0.0	(0.7)	1	(0.1)	0		0.7									
690	1528	2278	89	15.0	10.4	0.5	+	3.9	(62.5)	53	(25.9)	14		88.4									
710	1381	6000S	27	6.1	0.4	0.0	+	0.2	(2.2)	1	(0.3)	0		2.5									
720	212	710L	27	6.1	0.4	0.0	+	0.0	(0.3)	1	(0.0)	0		0.4									
790	778	2300	97	15.0	44.3	0.5	+	9.1	(135.8)	133	(33.2)	19		169.0									

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1868.0	147.1	12.7	28.5	79.4	(1532.7)	+ (296.3)	+ (3643.5)	= 5472.5	TOTALS

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70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	99.6	+	124.1	+	127.1	=	350.8

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 189

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	26	10								
3	2	69	50								
5	2	32	12								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE	DELAY	-------DELAY-------- UNIFORM (U+R+O=MEAN Q)	RANDOM+ OVERSAT	COST OF DELAY	----STOPS---- MEAN STOPS /PCU	COST OF STOPS	----QUEUE---- MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START 1ST	START 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)	(PCU-H/H)		($/H)	(%)	($/H)	(PCU)	(PCU)	($/H)		END (SECONDS)	END
101	196	1900	60	7.6	40.5	1.5	+ 0.7	(31.3)	106	(6.7)	4		38.0	1	15	26
102	396	1900	122	15.0	380.7	4.1	+ 37.8	(594.7)	265	(33.7)	46	+	628.4	1	15	26
103	396	1900	122	16.7	380.7	4.1	+ 37.8	(594.7)	265	(27.0)	46	+	621.7	1	15	26
110	219	1900S	43	9.0	7.6	0.3	+ 0.1	(6.6)	43	(3.0)	5	(0.0)*	9.6	1	33	10
111	335	110L	43	9.0	7.0	0.4	+ 0.2	(9.2)	40	(4.4)	5	(0.0)*	13.6	1	33	10
120	448	1900S	94	9.0	28.5	1.1	+ 2.4	(50.4)	95	(13.7)	27	(3.9)*	457.7	1	33	10
121	775	120L	94	9.0	28.2	1.9	+ 4.2	(86.1)	97	(24.2)	27	(3.9)*	503.9	1	33	10
199	10	10000	0	7.2	3.3	0.0	+ 0.0	(0.1)	29	(0.0)	0		0.1	1	31	10
210	662<	6000S	38	4.7	0.5	0.0	+ 0.1	(1.3)	1	(0.1)	0		1.4			
220	1609	210L	38	4.7	0.5	0.0	+ 0.2	(3.1)	1	(0.4)	0		3.4			
290	218	1874	108	15.0	230.4	1.6	+ 12.4	(198.1)	245	(17.1)	18		215.2			
301	395	1950	95	15.0	79.5	3.0	+ 5.7	(123.9)	155	(19.7)	13		143.5	3	55	69
302	287	1900	70	15.0	40.2	2.0	+ 1.2	(45.5)	107	(9.9)	6		55.3	3	55	69
310	327<	1950S	78	6.6	6.4	0.0	+ 0.6	(8.2)	7	(0.9)	12	(0.3)*	44.7	3	6	50
311	646	310L	78	6.6	17.9	2.1	+ 1.1	(45.5)	82	(17.1)	12	(0.3)*	94.4	3	6	50
320	327<	1900S	51	6.6	3.1	0.0	+ 0.3	(3.9)	4	(0.5)	3	(0.0)*	6.3	3	6	50
321	298	320L	51	6.6	9.5	0.5	+ 0.2	(11.1)	47	(4.5)	3	(0.0)*	15.7	3	6	50
399	10	10000	0	7.2	4.2	0.0	+ 0.0	(0.2)	33	(0.0)	0		0.2	3	4	50
410	676	6000S	38	4.9	0.5	0.0	+ 0.1	(1.3)	1	(0.1)	0		1.4			
420	1591<	410L	38	4.9	0.5	0.0	+ 0.2	(3.0)	1	(0.4)	0		3.4			
490	10	1281	8	15.0	32.2	0.0	+ 0.0	(1.3)	119	(0.4)	0		1.7			
501	206	1900	47	15.0	31.2	1.3	+ 0.4	(25.4)	92	(6.1)	4		31.5	5	17	32
502	206	1900	47	15.0	31.2	1.3	+ 0.4	(25.4)	92	(6.1)	4		31.5	5	17	32
503	120	1900	28	15.0	28.0	0.7	+ 0.2	(13.2)	85	(3.3)	2		16.5	5	17	32
510	286	1900S	49	5.6	3.7	0.1	+ 0.2	(4.2)	7	(0.7)	4	(0.0)*	7.6	5	39	12
511	296<	510L	49	5.6	10.6	0.6	+ 0.2	(12.4)	56	(5.8)	4	(0.0)*	18.2	5	39	12
520	286	1900S	60	5.6	4.6	0.1	+ 0.3	(5.2)	9	(0.8)	8	(0.0)*	9.4	5	39	12
521	436<	520L	60	5.6	13.3	1.2	+ 0.5	(22.9)	72	(11.0)	8	(0.0)*	34.2	5	39	12
610	230	4000S	14	4.2	0.5	0.0	+ 0.0	(0.5)	1	(0.1)	0		0.5			
620	312	610L	14	4.2	0.5	0.0	+ 0.0	(0.6)	1	(0.1)	0		0.7			
690	1528	2278	89	15.0	10.1	0.5	+ 3.8	(61.1)	52	(25.4)	13		86.5			
710	1381	6000S	27	6.1	0.4	0.0	+ 0.2	(2.2)	1	(0.3)	0		2.5			
720	210	710L	27	6.1	0.4	0.0	+ 0.0	(0.3)	1	(0.0)	0		0.4			
790	778	2300	97	15.0	43.0	0.5	+ 8.8	(131.8)	94	(23.5)	21		155.3			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1868.0	188.8	9.9	29.0	120.6	(2124.8)	+ (278.3)	+ (851.3)	= 3254.3	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	99.6	+	172.1	+	121.6	=	393.3

NO. OF ENTRIES TO SUBPT = 19
NO. OF LINKS RECALCULATED= 430

.

70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	26	10								
3	2	69	50								
5	2	32	12								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) UNIFORM+RANDOM+OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	196	1900	60	7.6	40.5	1.5 + 0.7	(31.3)	106	(6.7)	4		38.0	1	15	26		
102	396	1900	122	15.0	380.7	4.1 + 37.8	(594.7)	265	(33.7)	46	+	628.4	1	15	26		
103	396	1900	122	16.7	380.7	4.1 + 37.8	(594.7)	265	(27.0)	46	+	621.7	1	15	26		
110	219	1900S	43	9.0	7.6	0.3 + 0.1	(6.6)	43	(3.0)	5	(0.0)*	9.6	1	33	10		
111	335	110L	43	9.0	7.0	0.4 + 0.2	(9.2)	40	(4.4)	5	(0.0)*	13.6	1	33	10		
120	448	1900S	94	9.0	28.5	1.1 + 2.4	(50.4)	95	(13.7)	27	(3.9)*	457.7	1	33	10		
121	775	120L	94	9.0	28.2	1.9 + 4.2	(86.1)	97	(24.2)	27	(3.9)*	503.9	1	33	10		
199	10	10000	0	7.2	3.3	0.0 + 0.0	(0.1)	29	(0.0)	0		0.1	1	31	10		
210	662<	6000S	38	4.7	0.5	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4					
220	1609	210L	38	4.7	0.5	0.0 + 0.2	(3.1)	1	(0.4)	0		3.4					
290	218	1874	108	15.0	230.4	1.6 + 12.4	(198.1)	245	(17.1)	18		215.2					
301	395	1950	95	15.0	79.5	3.0 + 5.7	(123.9)	155	(19.7)	13		143.5	3	55	69		
302	287	1900	70	15.0	40.2	2.0 + 1.2	(45.5)	107	(9.9)	6		55.3	3	55	69		
310	327<	1950S	78	6.6	6.4	0.0 + 0.6	(8.2)	7	(0.9)	12	(0.3)*	44.7	3	6	50		
311	646	310L	78	6.6	17.9	2.1 + 1.1	(45.5)	82	(17.1)	12	(0.3)*	94.4	3	6	50		
320	327<	1900S	51	6.6	3.1	0.0 + 0.3	(3.9)	4	(0.5)	3	(0.0)*	6.3	3	6	50		
321	298	320L	51	6.6	9.5	0.5 + 0.2	(11.1)	47	(4.5)	3	(0.0)*	15.7	3	6	50		
399	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	3	4	50		
410	676	6000S	38	4.9	0.5	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4					
420	1591<	410L	38	4.9	0.5	0.0 + 0.2	(3.0)	1	(0.4)	0		3.4					
490	10	1281	8	15.0	32.2	0.0 + 0.0	(1.3)	119	(0.4)	0		1.7					
501	206	1900	47	15.0	31.2	1.3 + 0.4	(25.4)	92	(6.1)	4		31.5	5	17	32		
502	206	1900	47	15.0	31.2	1.3 + 0.4	(25.4)	92	(6.1)	4		31.5	5	17	32		
503	120	1900	28	15.0	28.0	0.7 + 0.2	(13.2)	85	(3.3)	2		16.5	5	17	32		
510	286	1900S	49	5.6	3.7	0.1 + 0.2	(4.2)	7	(0.7)	4	(0.0)*	7.6	5	39	12		
511	296<	510L	49	5.6	10.6	0.6 + 0.2	(12.4)	56	(5.8)	4	(0.0)*	18.2	5	39	12		
520	286	1900S	60	5.6	4.6	0.1 + 0.3	(5.2)	9	(0.8)	8	(0.0)*	9.4	5	39	12		
521	436<	520L	60	5.6	13.3	1.2 + 0.5	(22.9)	72	(11.0)	8	(0.0)*	34.2	5	39	12		
610	230	4000S	14	4.2	0.5	0.0 + 0.0	(0.5)	1	(0.1)	0		0.5					
620	312	610L	14	4.2	0.5	0.0 + 0.0	(0.6)	1	(0.1)	0		0.7					
690	1528	2278	89	15.0	10.1	0.5 + 3.8	(61.1)	52	(25.4)	13		86.5					
710	1381	6000S	27	6.1	0.4	0.0 + 0.2	(2.2)	1	(0.3)	0		2.5					
720	210	710L	27	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.4					
790	778	2300	97	15.0	43.0	0.5 + 8.8	(131.8)	94	(23.5)	21		155.3					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1868.0	188.8	9.9	29.0	120.6	(2124.8) + (278.3)	+ (851.3)	= 3254.3		TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	99.6	+	172.1	+	121.6	=	393.3

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 230

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70 SECOND CYCLE 70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 10 28 -1 10 28
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	26	10								
3	2	69	50								
5	2	32	12								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) UNIFORM+RANDOM+OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	196	1900	60	7.6	40.5	1.5 + 0.7	(31.3)	106	(6.7)	4		38.0	1	15	26		
102	396	1900	122	15.0	380.7	4.1 + 37.8	(594.7)	265	(33.7)	46	+	628.4	1	15	26		
103	396	1900	122	16.7	380.7	4.1 + 37.8	(594.7)	265	(27.0)	46	+	621.7	1	15	26		
110	219	1900S	43	9.0	7.6	0.3 + 0.1	(6.6)	43	(3.0)	5	(0.0)*	9.6	1	33	10		
111	335	110L	43	9.0	7.0	0.4 + 0.2	(9.2)	40	(4.4)	5	(0.0)*	13.6	1	33	10		
120	448	1900S	94	9.0	28.5	1.1 + 2.4	(50.4)	95	(13.7)	27	(3.9)*	457.7	1	33	10		
121	775	120L	94	9.0	28.2	1.9 + 4.2	(86.1)	97	(24.2)	27	(3.9)*	503.9	1	33	10		
199	10	10000	0	7.2	3.3	0.0 + 0.0	(0.1)	29	(0.0)	0		0.1	1	31	10		
210	662<	6000S	38	4.7	0.5	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4					
220	1609	210L	38	4.7	0.5	0.0 + 0.2	(3.1)	1	(0.4)	0		3.4					
290	218	1874	108	15.0	230.3	1.6 + 12.4	(198.0)	245	(17.1)	18		215.2					
301	395	1950	95	15.0	79.5	3.0 + 5.7	(123.9)	155	(19.7)	13		143.5	3	55	69		
302	287	1900	70	15.0	40.2	2.0 + 1.2	(45.5)	107	(9.9)	6		55.3	3	55	69		
310	327<	1950S	78	6.6	6.4	0.0 + 0.6	(8.2)	7	(0.9)	12	(0.3)*	44.7	3	6	50		
311	646	310L	78	6.6	17.9	2.1 + 1.1	(45.5)	82	(17.1)	12	(0.3)*	94.4	3	6	50		
320	327<	1900S	51	6.6	3.1	0.0 + 0.3	(3.9)	4	(0.5)	3	(0.0)*	6.3	3	6	50		
321	298	320L	51	6.6	9.5	0.5 + 0.2	(11.1)	47	(4.5)	3	(0.0)*	15.7	3	6	50		
399	10	10000	0	7.2	4.2	0.0 + 0.0	(0.2)	33	(0.0)	0		0.2	3	4	50		
410	676	6000S	38	4.9	0.5	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4					
420	1591<	410L	38	4.9	0.5	0.0 + 0.2	(3.0)	1	(0.4)	0		3.4					
490	10	1281	8	15.0	32.2	0.0 + 0.0	(1.3)	119	(0.4)	0		1.7					
501	206	1900	47	15.0	31.2	1.3 + 0.4	(25.4)	92	(6.1)	4		31.5	5	17	32		
502	206	1900	47	15.0	31.2	1.3 + 0.4	(25.4)	92	(6.1)	4		31.5	5	17	32		
503	120	1900	28	15.0	28.0	0.7 + 0.2	(13.2)	85	(3.3)	2		16.5	5	17	32		
510	286	1900S	49	5.6	3.7	0.1 + 0.2	(4.2)	7	(0.7)	4	(0.0)*	7.6	5	39	12		
511	296<	510L	49	5.6	10.6	0.6 + 0.2	(12.4)	56	(5.8)	4	(0.0)*	18.2	5	39	12		
520	286	1900S	60	5.6	4.6	0.1 + 0.3	(5.2)	9	(0.8)	8	(0.0)*	9.4	5	39	12		
521	436<	520L	60	5.6	13.3	1.2 + 0.5	(22.9)	72	(11.0)	8	(0.0)*	34.2	5	39	12		
610	230	4000S	14	4.2	0.5	0.0 + 0.0	(0.5)	1	(0.1)	0		0.5					
620	312	610L	14	4.2	0.5	0.0 + 0.0	(0.6)	1	(0.1)	0		0.7					
690	1528	2278	89	15.0	10.1	0.5 + 3.8	(61.1)	52	(25.4)	13		86.5					
710	1381	6000S	27	6.1	0.4	0.0 + 0.2	(2.2)	1	(0.3)	0		2.5					
720	210	710L	27	6.1	0.4	0.0 + 0.0	(0.3)	1	(0.0)	0		0.4					

```
  790     778   2300     97  15.0  43.0    0.5 +  8.8  (131.8)     94  ( 23.5)      21              155.3

  TOTAL          TOTAL       MEAN         TOTAL    TOTAL    TOTAL        TOTAL         PENALTY       TOTAL
 DISTANCE         TIME     JOURNEY       UNIFORM   RANDOM+   COST         COST          FOR       PERFORMANCE
TRAVELLED        SPENT      SPEED         DELAY    OVERSAT    OF           OF          EXCESS       INDEX
                                                     DELAY    DELAY        STOPS        QUEUES
(PCU-KM/H)     (PCU-H/H)    (KM/H)     (PCU-H/H)(PCU-H/H)   ($/H)        ($/H)         ($/H)        ($/H)

  1868.0         188.8        9.9         29.0    120.6    (2124.7) + (  278.3)  +  ( 851.3)   =    3254.3      TOTALS
.

     70 SECOND CYCLE  70 STEPS

**********************************************************************************************************************************
                                  CRUISE              DELAY              STOPS              TOTALS
                               LITRES PER HOUR     LITRES PER HOUR     LITRES PER HOUR     LITRES PER HOUR

FUEL CONSUMPTION PREDICTIONS        99.6         +     172.1         +     121.6         =     393.3

NO. OF ENTRIES TO SUBPT  =    7
NO. OF LINKS RECALCULATED=  290
.

     70 SECOND CYCLE  70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-   10  28  -1  10  28   1
 - (SECONDS)

  NODE   NUMBER   STAGE   STAGE   STAGE   STAGE   STAGE  STAGE   STAGE   STAGE   STAGE   STAGE
   NO   OF STAGES   1       2       3       4       5      6       7       8       9      10

    1       2      22       6
    3       2      69      50
    5       2      32      12

 LINK    FLOW   SAT   DEGREE  MEAN TIMES  -------DELAY--------   ----STOPS----   ----QUEUE----  PERFORMANCE   EXIT   GREEN TIMES
NUMBER   INTO   FLOW    OF     PER PCU    UNIFORM RANDOM+ COST    MEAN   COST    MEAN              INDEX.      NODE   START  START
         LINK          SAT    CRUISE             OVERSAT  OF    STOPS    OF     MAX.  AVERAGE  WEIGHTED SUM            END     END
                                      DELAY  (U+R+O=MEAN Q) DELAY   /PCU   STOPS          EXCESS  OF ( ) VALUES          1ST     2ND
       (PCU/H) (PCU/H)  (%)  (SEC) (SEC)    (PCU-H/H)    ($/H)    (%)    ($/H)    (PCU)  (PCU)     ($/H)                (SECONDS)

  101     196   1900     60   7.6  40.5    1.5 +  0.7  ( 31.3)    106  (  6.7)      4               38.0      1     11  22
  102     396   1900    122  15.0 381.5    4.2 + 37.8  (595.8)    265  ( 33.7)     46     +        629.5      1     11  22
  103     396   1900    122  16.7 381.5    4.2 + 37.8  (595.8)    265  ( 27.0)     46     +        622.9      1     11  22
  110     219   1900S    43   9.0   7.9    0.3 +  0.1  (  6.8)     43  (  3.1)      5  ( 0.0)*       9.9      1     29   6
  111     335    110L    43   9.0   6.8    0.4 +  0.2  (  9.0)     39  (  4.2)      5  ( 0.0)*      13.1      1     29   6
  120     448   1900S    94   9.0  29.1    1.2 +  2.4  ( 51.4)     97  ( 13.9)     27  ( 4.0)*     466.2      1     29   6
  121     775    120L    94   9.0  28.4    1.9 +  4.2  ( 86.7)     98  ( 24.2)     27  ( 4.0)*     511.7      1     29   6
  199      10  10000      0   7.2   3.3    0.0 +  0.0  (  0.1)     29  (  0.0)      0               0.1      1     27   6
  210    662<  6000S    38   4.7   0.5    0.0 +  0.1  (  1.3)      1  (  0.1)      0               1.4
  220   1609   210L     38   4.7   0.5    0.0 +  0.2  (  3.1)      1  (  0.4)      0               3.4
  290    218   1874    107  15.0 223.5    1.6 + 12.0  (192.2)    243  ( 17.0)     18             209.2
  301    395   1950     95  15.0  79.5    3.0 +  5.7  (123.9)    155  ( 19.7)     13             143.5      3     55  69
  302    287   1900     70  15.0  40.2    2.0 +  1.2  ( 45.5)    107  (  9.9)      6              55.3      3     55  69
  310    327<  1950S    78   6.6   6.4    0.0 +  0.6  (  8.2)      8  (  1.1)     11  ( 0.2)*      33.0      3      6  50
  311    646    310L    78   6.6  16.8    1.9 +  1.1  ( 42.9)     76  ( 15.8)     11  ( 0.2)*      78.1      3      6  50
  320    327<  1900S    51   6.6   3.0    0.0 +  0.3  (  3.9)      4  (  0.5)      3  ( 0.0)*       6.2      3      6  50
  321    298    320L    51   6.6   9.0    0.5 +  0.2  ( 10.5)     44  (  4.3)      3  ( 0.0)*      14.8      3      6  50
  399     10  10000      0   7.2   4.2    0.0 +  0.0  (  0.2)     33  (  0.0)      0               0.2      3      4  50
  410    676   6000S    38   4.9   0.5    0.0 +  0.1  (  1.3)      1  (  0.1)      0               1.4
  420   1592<  410L     38   4.9   0.5    0.0 +  0.2  (  3.0)      1  (  0.4)      0               3.4
  490     10   1281      8  15.0  32.1    0.0 +  0.0  (  1.3)    119  (  0.4)      0               1.6
  501    206   1900     47  15.0  31.2    1.3 +  0.4  ( 25.4)     92  (  6.1)      4              31.5      5     17  32
  502    206   1900     47  15.0  31.2    1.3 +  0.4  ( 25.4)     92  (  6.1)      4              31.5      5     17  32
  503    120   1900     28  15.0  28.0    0.7 +  0.2  ( 13.2)     85  (  3.3)      2              16.5      5     17  32
  510    286   1900S    49   5.6   3.7    0.1 +  0.2  (  4.2)      7  (  0.7)      5  ( 0.0)*       7.6      5     39  12
  511    297<  510L     49   5.6  11.1    0.7 +  0.2  ( 13.0)     62  (  6.4)      5  ( 0.0)*      19.5      5     39  12
  520    286   1900S    61   5.6   4.6    0.1 +  0.3  (  5.2)      9  (  0.8)      8  ( 0.0)*       9.7      5     39  12
  521    436<  520L     61   5.6  14.0    1.2 +  0.5  ( 24.2)     75  ( 11.5)      8  ( 0.0)*      36.2      5     39  12
  610    230   4000S    14   4.2   0.5    0.0 +  0.0  (  0.5)      1  (  0.1)      0               0.5
  620    312    610L    14   4.2   0.5    0.0 +  0.0  (  0.6)      1  (  0.1)      0               0.7
  690   1528   2278     89  15.0  10.1    0.5 +  3.8  ( 61.1)     52  ( 25.4)     13              86.5
  710   1381   6000S    27   6.1   0.4    0.0 +  0.2  (  2.2)      1  (  0.3)      0               2.5
  720    210    710L    27   6.1   0.4    0.0 +  0.0  (  0.3)      1  (  0.0)      0               0.4
  790    778   2300     97  15.0  43.0    0.5 +  8.8  (131.9)     94  ( 23.5)     21             155.4

  TOTAL          TOTAL       MEAN         TOTAL    TOTAL    TOTAL        TOTAL         PENALTY       TOTAL
 DISTANCE         TIME     JOURNEY       UNIFORM   RANDOM+   COST         COST          FOR       PERFORMANCE
TRAVELLED        SPENT      SPEED         DELAY    OVERSAT    OF           OF          EXCESS       INDEX
                                                     DELAY    DELAY        STOPS        QUEUES
(PCU-KM/H)     (PCU-H/H)    (KM/H)     (PCU-H/H)(PCU-H/H)   ($/H)        ($/H)         ($/H)        ($/H)

  1868.0         188.5        9.9         29.2    120.2    (2121.2) + (  278.5)  +  ( 841.5)   =    3241.3      TOTALS
.

     70 SECOND CYCLE  70 STEPS

**********************************************************************************************************************************
                                  CRUISE              DELAY              STOPS              TOTALS
                               LITRES PER HOUR     LITRES PER HOUR     LITRES PER HOUR     LITRES PER HOUR

FUEL CONSUMPTION PREDICTIONS        99.6         +     171.8         +     121.5         =     392.9

NO. OF ENTRIES TO SUBPT  =   11
NO. OF LINKS RECALCULATED=  324
.

     70 SECOND CYCLE  70 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :-   10  28  -1  10  28   1  -1
 - (SECONDS)

  NODE   NUMBER   STAGE   STAGE   STAGE   STAGE   STAGE  STAGE   STAGE   STAGE   STAGE   STAGE
   NO   OF STAGES   1       2       3       4       5      6       7       8       9      10

    1       2      22       6
    3       2      69      50
    5       2      32      12

 LINK    FLOW   SAT   DEGREE  MEAN TIMES  -------DELAY--------   ----STOPS----   ----QUEUE----  PERFORMANCE   EXIT   GREEN TIMES
NUMBER   INTO   FLOW    OF     PER PCU    UNIFORM RANDOM+ COST    MEAN   COST    MEAN              INDEX.      NODE   START  START
         LINK          SAT    CRUISE             OVERSAT  OF    STOPS    OF     MAX.  AVERAGE  WEIGHTED SUM            END     END
                                      DELAY  (U+R+O=MEAN Q) DELAY   /PCU   STOPS          EXCESS  OF ( ) VALUES          1ST     2ND
       (PCU/H) (PCU/H)  (%)  (SEC) (SEC)    (PCU-H/H)    ($/H)    (%)    ($/H)    (PCU)  (PCU)     ($/H)                (SECONDS)

  101     196   1900     60   7.6  40.5    1.5 +  0.7  ( 31.3)    106  (  6.7)      4               38.0      1     11  22
  102     396   1900    122  15.0 381.5    4.2 + 37.8  (595.8)    265  ( 33.7)     46     +        629.5      1     11  22
  103     396   1900    122  16.7 381.5    4.2 + 37.8  (595.8)    265  ( 27.0)     46     +        622.9      1     11  22
  110     219   1900S    43   9.0   7.9    0.3 +  0.1  (  6.8)     43  (  3.1)      5  ( 0.0)*       9.9      1     29   6
  111     335    110L    43   9.0   6.8    0.4 +  0.2  (  9.0)     39  (  4.2)      5  ( 0.0)*      13.1      1     29   6
  120     448   1900S    94   9.0  29.1    1.2 +  2.4  ( 51.4)     97  ( 13.9)     27  ( 4.0)*     466.2      1     29   6
  121     775    120L    94   9.0  28.4    1.9 +  4.2  ( 86.7)     98  ( 24.2)     27  ( 4.0)*     511.7      1     29   6
  199      10  10000      0   7.2   3.3    0.0 +  0.0  (  0.1)     29  (  0.0)      0               0.1      1     27   6
```

210	662<	6000S	38	4.7	0.5	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4						
220	1609	210L	38	4.7	0.5	0.0 +	0.2	(3.1)	1	(0.4)	0		3.4						
290	218	1874	107	15.0	223.5	1.6 +	12.0	(192.2)	243	(17.0)	18		209.2						
301	395	1950	95	15.0	79.5	3.0 +	5.7	(123.9)	155	(19.7)	13		143.5	3	55	69			
302	287	1900	70	15.0	40.2	2.0 +	1.2	(45.5)	107	(9.9)	6		55.3	3	55	69			
310	327<	1950S	78	6.6	6.4	0.0 +	0.6	(8.2)	8	(1.1)	11	(0.2)*	33.0	3	6	50			
311	646	310L	78	6.6	16.8	1.9 +	1.1	(42.9)	76	(15.8)	11	(0.2)*	78.1	3	6	50			
320	327<	1900S	51	6.6	3.0	0.0 +	0.3	(3.9)	4	(0.5)	3	(0.0)*	6.2	3	6	50			
321	298	320L	51	6.6	9.0	0.5 +	0.2	(10.5)	44	(4.3)	3	(0.0)*	14.8	3	6	50			
399	10	10000	0	7.2	4.2	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	3	4	50			
410	676	6000S	38	4.9	0.5	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4						
420	1592<	410L	38	4.9	0.5	0.0 +	0.2	(3.0)	1	(0.4)	0		3.4						
490	10	1281	8	15.0	32.1	0.0 +	0.0	(1.3)	119	(0.4)	0		1.6						
501	206	1900	47	15.0	31.2	1.3 +	0.4	(25.4)	92	(6.1)	4		31.5	5	17	32			
502	206	1900	47	15.0	31.2	1.3 +	0.4	(25.4)	92	(6.1)	4		31.5	5	17	32			
503	120	1900	28	15.0	28.0	0.7 +	0.2	(13.2)	85	(3.3)	2		16.5	5	17	32			
510	286	1900S	49	5.6	3.7	0.1 +	0.2	(4.2)	7	(0.7)	5	(0.0)*	7.6	5	39	12			
511	297<	510L	49	5.6	11.1	0.7 +	0.2	(13.0)	62	(6.4)	5	(0.0)*	19.5	5	39	12			
520	286	1900S	61	5.6	4.6	0.1 +	0.3	(5.2)	9	(0.8)	8	(0.0)*	9.7	5	39	12			
521	436<	520L	61	5.6	14.0	1.2 +	0.5	(24.2)	75	(11.5)	8	(0.0)*	36.2	5	39	12			
610	230	4000S	14	4.2	0.5	0.0 +	0.0	(0.5)	1	(0.1)	0		0.5						
620	312	610L	14	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.7						
690	1528	2278	89	15.0	10.1	0.5 +	3.8	(61.1)	52	(25.4)	13		86.5						
710	1381	6000S	27	6.1	0.4	0.0 +	0.2	(2.2)	1	(0.3)	0		2.5						
720	210	710L	27	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.4						
790	778	2300	97	15.0	43.0	0.5 +	8.8	(131.9)	94	(23.5)	21		155.4						

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1868.0	188.5	9.9	29.2	120.2	(2121.2) + (278.5)	+	(841.6)	= 3241.3	TOTALS

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	99.6	+	171.8	+	121.5	=	392.9

NO. OF ENTRIES TO SUBPT = 14
NO. OF LINKS RECALCULATED= 519

.

70 SECOND CYCLE 70 STEPS

FINAL SETTINGS OBTAINED WITH INCREMENTS :- 10 28 -1 10 28 1 -1 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	22	6								
3	2	69	50								
5	2	32	12								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) UNIFORM (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START END 2ND
101	196	1900	60	7.6	40.5	1.5 +	0.7	(31.3)	106	(6.7)	4		38.0	1	11	22
102	396	1900	122	15.0	381.5	4.2 +	37.8	(595.8)	265	(33.7)	46	+	629.5	1	11	22
103	396	1900	122	16.7	381.5	4.2 +	37.8	(595.8)	265	(27.0)	46	+	622.9	1	11	22
110	219	1900S	43	9.0	7.9	0.3 +	0.1	(6.8)	43	(3.1)	5	(0.0)*	9.9	1	29	6
111	335	110L	43	9.0	6.8	0.4 +	0.2	(9.0)	39	(4.2)	5	(0.0)*	13.1	1	29	6
120	448	1900S	94	9.0	29.1	1.2 +	2.4	(51.4)	97	(13.9)	27	(4.0)*	466.2	1	29	6
121	775	120L	94	9.0	28.4	1.9 +	4.2	(86.7)	98	(24.2)	27	(4.0)*	511.7	1	29	6
199	10	10000	0	7.2	3.3	0.0 +	0.0	(0.1)	29	(0.0)	0		0.1	1	27	6
210	662<	6000S	38	4.7	0.5	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4			
220	1609	210L	38	4.7	0.5	0.0 +	0.2	(3.1)	1	(0.4)	0		3.4			
290	218	1874	107	15.0	223.5	1.6 +	12.0	(192.2)	243	(17.0)	18		209.2			
301	395	1950	95	15.0	79.5	3.0 +	5.7	(123.9)	155	(19.7)	13		143.5	3	55	69
302	287	1900	70	15.0	40.2	2.0 +	1.2	(45.5)	107	(9.9)	6		55.3	3	55	69
310	327<	1950S	78	6.6	6.4	0.0 +	0.6	(8.2)	8	(1.1)	11	(0.2)*	33.0	3	6	50
311	646	310L	78	6.6	16.8	1.9 +	1.1	(42.9)	76	(15.8)	11	(0.2)*	78.1	3	6	50
320	327<	1900S	51	6.6	3.0	0.0 +	0.3	(3.9)	4	(0.5)	3	(0.0)*	6.2	3	6	50
321	298	320L	51	6.6	9.0	0.5 +	0.2	(10.5)	44	(4.3)	3	(0.0)*	14.8	3	6	50
399	10	10000	0	7.2	4.2	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	3	4	50
410	676	6000S	38	4.9	0.5	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4			
420	1592<	410L	38	4.9	0.5	0.0 +	0.2	(3.0)	1	(0.4)	0		3.4			
490	10	1281	8	15.0	32.1	0.0 +	0.0	(1.3)	119	(0.4)	0		1.6			
501	206	1900	47	15.0	31.2	1.3 +	0.4	(25.4)	92	(6.1)	4		31.5	5	17	32
502	206	1900	47	15.0	31.2	1.3 +	0.4	(25.4)	92	(6.1)	4		31.5	5	17	32
503	120	1900	28	15.0	28.0	0.7 +	0.2	(13.2)	85	(3.3)	2		16.5	5	17	32
510	286	1900S	49	5.6	3.7	0.1 +	0.2	(4.2)	7	(0.7)	5	(0.0)*	7.6	5	39	12
511	297<	510L	49	5.6	11.1	0.7 +	0.2	(13.0)	62	(6.4)	5	(0.0)*	19.5	5	39	12
520	286	1900S	61	5.6	4.6	0.1 +	0.3	(5.2)	9	(0.8)	8	(0.0)*	9.7	5	39	12
521	436<	520L	61	5.6	14.0	1.2 +	0.5	(24.2)	75	(11.5)	8	(0.0)*	36.2	5	39	12
610	230	4000S	14	4.2	0.5	0.0 +	0.0	(0.5)	1	(0.1)	0		0.5			
620	312	610L	14	4.2	0.5	0.0 +	0.0	(0.6)	1	(0.1)	0		0.7			
690	1528	2278	89	15.0	10.1	0.5 +	3.8	(61.1)	52	(25.4)	13		86.5			
710	1381	6000S	27	6.1	0.4	0.0 +	0.2	(2.2)	1	(0.3)	0		2.5			
720	210	710L	27	6.1	0.4	0.0 +	0.0	(0.3)	1	(0.0)	0		0.4			
790	778	2300	97	15.0	43.0	0.5 +	8.8	(131.9)	94	(23.5)	21		155.4			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1868.0	188.5	9.9	29.2	120.2	(2121.2) + (278.5)	+	(841.5)	= 3241.3	TOTALS

ROUTE

.

70 SECOND CYCLE 70 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	99.6	+	171.8	+	121.5	=	392.9

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 272

_________________ T R A N S Y T 12 _________________

Traffic Network Study Tool

Analysis Program Release 6 (February 2007)

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Run with file:- "UPPER BOAT PROPOSED 2028 PM NO DEV.DAT" at 08:38 on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2028PM No Dev

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	3
NUMBER OF LINKS	=	34
NUMBER OF OPTIMISED NODES	=	3
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	8
NUMBER OF STEPS IN CYCLE	=	90
MAXIMUM NUMBER OF SHARED STOPLINES	=	2
MAXIMUM NUMBER OF TIMING POINTS	=	2
MAXIMUM LINKS AT ANY NODE	=	7

CORE REQUESTED = 10399 WORDS
CORE AVAILABLE = 72000 WORDS

DATA INPUT :-

CARD NO. / CARD TYPE
(1)= **TITLE:- Upper Boat Proposed Layout 2028PM No Dev**

CARD NO.	CARD TYPE	CYCLE TIME (SEC)	NO. OF STEPS PER CYCLE	TIME PERIOD 1-1200 MINS.	EFFECTIVE-GREEN DISPLACEMENTS START (SEC)	END (SEC)	EQUISAT SETTINGS 0=NO 1=YES	0=UNEQUAL CYCLE 1=EQUAL CYCLE	FLOW SCALE 10-200 %	CRUISE-SPEEDS SCALE 50-200 %	CARD32 0=TIMES 1=SPEEDS	OPTIMISE 0=NONE 1=O/SET 2=FULL	EXTRA COPIES FINAL OUTPUT	HILL-CLIMB OUTPUT 1=FULL	DELAY VALUE P PER PCU-H	STOP VALUE P PER 100
2)=	1	90	90	60	2	3	1	0	0	0	1	2	0	1	1420	260

LIST OF NODES TO BE OPTIMISED

CARD NO.	CARD TYPE															
3)=	2	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0

LINKS HAVING SHARED STOPLINES

CARD NO.	CARD TYPE	FIRST SET.......					SECOND SET.......					THIRD SET.......				
4)=	7	110	111	0	0	0	120	121	0	0	0	210	220	0	0	0
5)=	7	310	311	0	0	0	320	321	0	0	0	410	420	0	0	0
6)=	7	510	511	0	0	0	520	521	0	0	0	610	620	0	0	0
7)=	7	710	720	0	0	0	0	0	0	0	0	0	0	0	0	0

NODE CARDS: MINIMUM STAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
8)=	10	1		7	7								
9)=	10	3		7	7								
10)=	10	5		7	7								

NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
11)=	11	1		7	5								
12)=	11	3		7	5								
13)=	11	5		7	5								

NODE CARDS: STAGE CHANGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	Sgl/Dbl Cycled	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
14)=	12	1	1	0	64								
15)=	12	3	1	0	52								
16)=	12	5	1	0	74								

LINK CARDS: GIVEWAY DATA

CARD NO.	CARD TYPE	LINK NO.	PRIORITY LINKS LINK1 NO.	LINK2 NO.	LINK1 ONLY % FLOW	GIVEWAY COEFFS. A1 X100	A2 X100					LINK LENGTH	STOP WT.X100	MAX FLOW	DELAY WT.X100	DISPSN X100
17)=	30	290	210	220	0	48	48	0	0	0	0	200	0	1874	0	0
18)=	30	490	410	420	0	49	49	0	0	0	0	200	0	1281	0	0
19)=	30	690	610	620	0	52	52	0	0	0	0	200	0	2278	0	0
20)=	30	790	710	720	0	47	47	0	0	0	0	200	0	2300	0	0

LINK CARDS: FIXED DATA

CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	FIRST GREEN START STAGE	START LAG	END STAGE	END LAG	SECOND GREEN START STAGE	START LAG	END STAGE	END LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
21)=	31	101	1	2	5	1	0	0	0	0	0	102	0	1900	0	0
22)=	31	102	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
23)=	31	103	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
24)=	31	110	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
25)=	31	111	1	1	0	1	0	0	0	0	0	120	0	0	0	0
26)=	31	120	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
27)=	31	121	1	1	0	1	0	0	0	0	0	120	0	0	0	0
28)=	31	199	1	1	5	2	0	0	0	0	0	10	0	10000	0	0
29)=	31	210	0	0	0	0	0	0	0	0	0	63	0	6000	0	0
30)=	31	220	0	0	0	0	0	0	0	0	0	63	0	0	0	0
31)=	31	290	0	0	0	0	0	0	0	0	0	200	0	1874	0	0
32)=	31	301	3	2	5	1	0	0	0	0	0	200	0	1950	0	0
33)=	31	302	3	2	5	1	0	0	0	0	0	200	0	1900	0	0
34)=	31	310	3	1	7	2	0	0	0	0	0	88	500	1950	0	0
35)=	31	311	3	1	0	1	0	0	0	0	0	88	0	0	0	0
36)=	31	320	3	1	7	2	0	0	0	0	0	88	500	1900	0	0
37)=	31	321	3	1	0	1	0	0	0	0	0	88	0	0	0	0
38)=	31	399	3	1	5	2	0	0	0	0	0	10	0	10000	0	0
39)=	31	410	0	0	0	0	0	0	0	0	0	65	0	6000	0	0

```
 40)=  31     420       0       0       0       0       0       0       0       0       0      65       0       0       0       0
 41)=  31     490       0       0       0       0       0       0       0       0       0     200       0    1281       0       0
 42)=  31     501       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 43)=  31     502       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 44)=  31     503       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 45)=  31     510       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 46)=  31     511       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 47)=  31     520       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 48)=  31     521       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 49)=  31     610       0       0       0       0       0       0       0       0       0      56       0    4000       0       0
 50)=  31     620       0       0       0       0       0       0       0       0       0      56       0       0       0       0
 51)=  31     690       0       0       0       0       0       0       0       0       0     200       0    2278       0       0
 52)=  31     710       0       0       0       0       0       0       0       0       0      82       0    6000       0       0
 53)=  31     720       0       0       0       0       0       0       0       0       0      82       0       0       0       0
 54)=  31     790       0       0       0       0       0       0       0       0       0     200       0    2300       0       0
```

LINK CARDS: FLOW DATA

```
                                    ENTRY 1 ............    ENTRY 2 ............    ENTRY 3 ............    ENTRY 4 ............
CARD   CARD   LINK   TOTAL  UNIFORM  LINK          CRUISE  LINK          CRUISE  LINK          CRUISE  LINK          CRUISE
 NO.   TYPE    NO.   FLOW    FLOW    NO.   FLOW    SPEED   NO.   FLOW    SPEED   NO.   FLOW    SPEED   NO.   FLOW    SPEED
 55)=  32     101     266       0       0      0       48      0      0       0      0      0       0      0      0       0
 56)=  32     102     324       0       0      0       48      0      0       0      0      0       0      0      0       0
 57)=  32     103     324       0       0      0       43      0      0       0      0      0       0      0      0       0
 58)=  32     110     189       0     790    189       48      0      0       0      0      0       0      0      0       0
 59)=  32     111     307       0     720    218       48    710     89      48      0      0       0      0      0       0
 60)=  32     120     308       0     790    308       48      0      0       0      0      0       0      0      0       0
 61)=  32     121     573       0     710    561       48    720     12      48      0      0       0      0      0       0
 62)=  32     199      10       0       0      0        5      0      0       0      0      0       0      0      0       0
 63)=  32     210     648       0     102    324       48    103    324      48      0      0       0      0      0       0
 64)=  32     220     957       0     120    308       48    121    573      48    110     76      48      0      0       0
 65)=  32     290     662       0       0      0       48      0      0       0      0      0       0      0      0       0
 66)=  32     301     612       0       0      0       48      0      0       0      0      0       0      0      0       0
 67)=  32     302     555       0       0      0       48      0      0       0      0      0       0      0      0       0
 68)=  32     310     322       0     210    322       48      0      0       0      0      0       0      0      0       0
 69)=  32     311     291       0     290    125       48    220    166      48      0      0       0      0      0       0
 70)=  32     320     324       0     210    324       48      0      0       0      0      0       0      0      0       0
 71)=  32     321     466       0     290    331       48    220    135      48      0      0       0      0      0       0
 72)=  32     399      10       0       0      0        5      0      0       0      0      0       0      0      0       0
 73)=  32     410    1161       0     301    606       48    302    555      48      0      0       0      0      0       0
 74)=  32     420    1396       0     310    322       48    320    324      48    311    284      48    321    466      48
 75)=  32     490      10       0       0      0       48      0      0       0      0      0       0      0      0       0
 76)=  32     501     211       0       0      0       48      0      0       0      0      0       0      0      0       0
 77)=  32     502     185       0       0      0       48      0      0       0      0      0       0      0      0       0
 78)=  32     503     217       0       0      0       48      0      0       0      0      0       0      0      0       0
 79)=  32     510     554       0     410    554       48      0      0       0      0      0       0      0      0       0
 80)=  32     511     366       0     420    356       48    490     10      48      0      0       0      0      0       0
 81)=  32     520     555       0     410    555       48      0      0       0      0      0       0      0      0       0
 82)=  32     521     656       0     420    655       48    490     10      48      0      0       0      0      0       0

 83)=  32     610     402       0     502    185       48    503    217      48      0      0       0      0      0       0
 84)=  32     620     628       0     521    262       48    520    366      48      0      0       0      0      0       0
 85)=  32     690    1478       0       0      0       48      0      0       0      0      0       0      0      0       0
 86)=  32     710    1239       0     690   1239       48      0      0       0      0      0       0      0      0       0
 87)=  32     720     615       0     620    398       48    610    217      48      0      0       0      0      0       0
 88)=  32     790     616       0       0      0       48      0      0       0      0      0       0      0      0       0
```

GRAPH PLOT CARDS

```
CARD   CARD   LINK    LINK    LINK    LINK    LINK    LINK    LINK    LINK
 NO.   TYPE    NO.     NO.     NO.     NO.     NO.     NO.     NO.     NO.
 89)=  35     302     520     102     320       0       0       0       0       0       0       0       0       0       0
```

LINK DATA: QUEUE CONSTRAINTS

```
CARD   CARD   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE
 NO.   TYPE    NO.    QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT
 90)=  38     110      13    9999     111      13    9999     120      13    9999     121      13    9999     310       9    9999
 91)=  38     311       9    9999     320       9    9999     321       9    9999     510       8    9999     511       8    9999
 92)=  38     520       8    9999     521       8    9999       0       0       0       0       0       0       0       0       0
```

*****END OF SUBROUTINE TINPUT*****

.

90 SECOND CYCLE 90 STEPS

INITIAL SETTINGS
- (SECONDS)

```
  NODE   NUMBER   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE
   NO   OF STAGES   1       2       3       4       5       6       7       8       9      10

    1       2       0      64
    3       2       0      52
    5       2       0      74
```

```
 LINK    FLOW   SAT   DEGREE  MEAN TIMES  -------DELAY--------   ----STOPS----   ----QUEUE----  PERFORMANCE   EXIT   GREEN TIMES
NUMBER   INTO   FLOW    OF     PER PCU    UNIFORM RANDOM+ COST    MEAN   COST     MEAN              INDEX.      NODE   START  START
         LINK          SAT     CRUISE              OVERSAT  OF    STOPS   OF      MAX.  AVERAGE  WEIGHTED SUM          END    END
                              DELAY  (U+R+O=MEAN Q) DELAY  /PCU   STOPS          EXCESS  OF ( ) VALUES          1ST    2ND
       (PCU/H) (PCU/H)  (%)  (SEC) (SEC)   (PCU-H/H)   ($/H)   (%)   ($/H)    (PCU)  (PCU)     ($/H)                (SECONDS)

  101     266   1900     57   7.6  38.9     2.2 +  0.7  ( 40.8)    93  (  8.0)      7                48.8      1     69    0
  102     324   1900     70  15.0  43.6     2.8 +  1.1  ( 55.7)   100  ( 10.4)      8                66.1      1     69    0
  103     324   1900     70  16.7  43.6     2.8 +  1.1  ( 55.7)   100  (  8.4)      8                64.1      1     69    0
  110     189   1900S    40   9.0   9.6     0.4 +  0.1  (  7.2)    44  (  2.7)      6   ( 0.0)*       9.9      1      7   64
  111     297    110L    40   9.0   8.5     0.5 +  0.2  (  9.9)    41  (  4.0)      6   ( 0.0)*      14.0      1      7   64
  120     308   1900S    68   9.0  15.1     0.9 +  0.4  ( 18.3)    63  (  6.2)     14   ( 0.1)*      30.6      1      7   64
  121    520<    120L    68   9.0  16.5     1.7 +  0.7  ( 33.9)    59  ( 10.9)     14   ( 0.1)*      50.9      1      7   64
  199      10  10000      0   7.2   5.4     0.0 +  0.0  (  0.2)    33  (  0.0)      0                 0.2      1      5   64
  210     648   6000S    26   4.7   0.4     0.0 +  0.1  (  1.0)     0  (  0.1)      0                 1.1
  220    904<    210L    26   4.7   0.4     0.0 +  0.1  (  1.4)     0  (  0.1)      0                 1.6
  290     662   1874    104  15.0 133.4     2.9 + 21.6  (348.2)   187  ( 39.8)     52     +         388.0
  301     612   1950     83  15.0  39.3     4.3 +  2.4  ( 94.9)   100  ( 19.7)     16                114.6      3     57    0
  302     555   1900     77  15.0  35.4     3.8 +  1.7  ( 77.6)    94  ( 16.8)     14                 94.4      3     57    0
  310     321   1950S    60   6.6  23.5     1.7 +  0.4  ( 29.8)   105  ( 10.8)     13   ( 0.9)*      171.8      3      7   52
  311    276<    310L    60   6.6  19.8     1.2 +  0.3  ( 21.5)    65  (  6.0)     13   ( 0.9)*      115.6      3      7   52
  320     324   1900S    79   6.6  32.9     2.2 +  0.8  ( 42.1)   109  ( 11.4)     19   ( 3.5)*      451.5      3      7   52
  321    445<    320L    79   6.6  30.7     2.7 +  1.1  ( 53.8)    87  ( 13.0)     19   ( 3.5)*      419.3      3      7   52
  399      10  10000      0   7.2  10.4     0.0 +  0.0  (  0.4)    47  (  0.0)      0                 0.4      3      5   52
  410    1161   6000S    42   4.9   0.5     0.0 +  0.2  (  2.4)     1  (  0.2)      0                 2.6
  420   1361<    410L    42   4.9   0.5     0.0 +  0.2  (  2.8)     1  (  0.3)      0                 3.0
  490      10   1281      6  15.0  24.1     0.0 +  0.0  (  1.0)    93  (  0.3)      0                 1.3
  501     211   1900     83  15.0  76.5     2.2 +  2.3  ( 63.6)   132  (  8.9)      7                72.6      5     79    0
  502     185   1900     73  15.0  62.8     1.9 +  1.3  ( 45.8)   118  (  7.0)      6                52.9      5     79    0
  503     217   1900     86  15.0  81.5     2.3 +  2.6  ( 69.7)   136  (  9.5)      8                79.2      5     79    0
  510     555   1900S    64   5.6  19.7     2.5 +  0.5  ( 43.2)    82  ( 14.6)     16   ( 1.8)*      297.2      5      7   74
  511     358    510L    64   5.6   6.1     0.3 +  0.3  (  8.6)    40  (  4.7)     16   ( 1.8)*      194.3      5      7   74
  520     555   1900S    83   5.6  23.6     2.5 +  1.1  ( 51.6)    86  ( 15.3)     28   ( 6.6)*      784.8      5      7   74
  521    638<    520L    83   5.6  14.0     1.2 +  1.3  ( 35.2)    83  ( 17.5)     28   ( 6.6)*      709.1      5      7   74
  610     402   4000S    26   4.2   0.6     0.0 +  0.1  (  1.0)     1  (  0.1)      0                 1.0
  620     622    610L    26   4.2   0.6     0.0 +  0.1  (  1.5)     1  (  0.1)      0                 1.6
  690    1478   2278    110  15.0 195.2     5.9 + 74.2  (999.9)   215  (102.2)    148     +        1240.4
  710   1123<   6000S    29   6.1   0.4     0.0 +  0.1  (  1.9)     0  (  0.2)      0                 2.0
  720     611    710L    29   6.1   0.4     0.0 +  0.1  (  1.0)     0  (  0.1)      0                 1.1
  790     616   2300     92  15.0  28.4     0.0 +  4.8  ( 68.9)    62  ( 12.3)      8                81.2
```

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1991.7	212.7	9.4	49.0	122.0	(2428.9) + (570.2)	+ (2568.1)	= 5567.1	TOTALS	

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	196.7	+	164.8	=	467.7

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 82

.

90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	39	13								
3	2	77	39								
5	2	13	87								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END (SECONDS)
101	266	1900	57	7.6	38.9	2.2 +	0.7	(40.8)	93	(8.0)	7		48.8	1	18	39
102	324	1900	70	15.0	43.6	2.8 +	1.1	(55.7)	100	(10.4)	8		66.1	1	18	39
103	324	1900	70	16.7	43.6	2.8 +	1.1	(55.7)	100	(8.4)	8		64.1	1	18	39
110	188	1900S	40	9.0	10.3	0.4 +	0.1	(7.7)	46	(2.8)	6	(0.0)*	10.5	1	46	13
111	297	110L	40	9.0	11.6	0.8 +	0.2	(13.6)	49	(4.8)	6	(0.0)*	18.4	1	46	13
120	308	1900S	68	9.0	14.2	0.8 +	0.4	(17.3)	62	(6.1)	14	(0.0)*	27.7	1	46	13
121	519<	120L	68	9.0	13.7	1.3 +	0.7	(28.1)	56	(10.3)	14	(0.0)*	42.6	1	46	13
199	10	10000	0	7.2	5.4	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	1	44	13
210	648	6000S	26	4.7	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1			
220	903<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.6			
290	662	1874	104	15.0	128.6	2.9 +	20.7	(335.7)	184	(39.1)	49	+	374.9			
301	612	1950	83	15.0	39.3	4.3 +	2.4	(94.9)	100	(19.7)	16		114.6	3	44	77
302	555	1900	77	15.0	35.4	3.8 +	1.7	(77.6)	94	(16.8)	14		94.4	3	44	77
310	321	1950S	60	6.6	23.4	1.7 +	0.4	(29.6)	49	(5.1)	9	(0.0)*	55.3	3	84	39
311	277<	310L	60	6.6	19.4	1.1 +	0.3	(21.2)	67	(6.3)	9	(0.0)*	27.7	3	84	39
320	324	1900S	79	6.6	27.8	1.7 +	0.8	(35.6)	54	(5.6)	14	(0.9)*	150.7	3	84	39
321	447<	320L	79	6.6	25.2	2.0 +	1.1	(44.4)	75	(11.3)	14	(0.9)*	142.7	3	84	39
399	10	10000	0	7.2	10.4	0.0 +	0.0	(0.4)	47	(0.0)	0		0.4	3	82	39
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6			
420	1362<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.0			
490	10	1281	9	15.0	28.0	0.0 +	0.0	(1.1)	122	(0.4)	0		1.5			
501	211	1900	83	15.0	76.5	2.2 +	2.3	(63.6)	132	(8.9)	7		72.6	5	2	13
502	185	1900	73	15.0	62.8	1.9 +	1.3	(45.8)	118	(7.0)	6		52.9	5	2	13
503	217	1900	86	15.0	81.5	2.3 +	2.6	(69.7)	136	(9.5)	8		79.2	5	2	13
510	555	1900S	64	5.6	4.0	0.1 +	0.5	(8.7)	7	(1.2)	7	(0.0)*	14.5	5	20	87
511	359	510L	64	5.6	9.3	0.6 +	0.3	(13.2)	57	(6.7)	7	(0.0)*	19.9	5	20	87
520	555	1900S	83	5.6	7.8	0.1 +	1.1	(17.2)	11	(1.9)	15	(1.3)*	160.6	5	20	87
521	639<	520L	83	5.6	16.4	1.6 +	1.3	(41.4)	76	(16.1)	15	(1.3)*	191.4	5	20	87
610	402	4000S	26	4.2	0.6	0.0 +	0.1	(1.0)	1	(0.1)	0		1.0			
620	622	610L	26	4.2	0.6	0.0 +	0.1	(1.5)	1	(0.1)	0		1.6			
690	1478	2278	110	15.0	197.3	6.5 +	74.5	(999.9)	216	(102.6)	146	+	1253.0			
710	1122<	6000S	29	6.1	0.4	0.0 +	0.1	(1.9)	0	(0.2)	0		2.0			
720	611	710L	29	6.1	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1			
790	616	2300	92	15.0	28.1	0.0 +	4.8	(68.4)	78	(15.4)	6		83.8			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1991.7	207.2	9.6	44.1	121.5	(2351.0) + (380.6)	+ (451.1)	= 3182.7	TOTALS	

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	190.4	+	148.3	=	445.0

NO. OF ENTRIES TO SUBPT = 10
NO. OF LINKS RECALCULATED= 286

.

90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	39	13								
3	2	77	39								
5	2	13	87								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END (SECONDS)
101	266	1900	57	7.6	38.9	2.2 +	0.7	(40.8)	93	(8.0)	7		48.8	1	18	39
102	324	1900	70	15.0	43.6	2.8 +	1.1	(55.7)	100	(10.4)	8		66.1	1	18	39
103	324	1900	70	16.7	43.6	2.8 +	1.1	(55.7)	100	(8.4)	8		64.1	1	18	39
110	189	1900S	40	9.0	10.3	0.4 +	0.1	(7.7)	46	(2.8)	6	(0.0)*	10.5	1	46	13
111	297	110L	40	9.0	11.6	0.8 +	0.2	(13.6)	49	(4.8)	6	(0.0)*	18.4	1	46	13
120	308	1900S	68	9.0	14.2	0.8 +	0.4	(17.3)	62	(6.1)	14	(0.0)*	27.7	1	46	13
121	519<	120L	68	9.0	13.7	1.3 +	0.7	(28.1)	56	(10.3)	14	(0.0)*	42.6	1	46	13
199	10	10000	0	7.2	5.4	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	1	44	13
210	648	6000S	26	4.7	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1			

220	903<	210L	26	4.7	0.4	0.0	+	0.1	(1.4)	0	(0.1)	0		1.6									
290	662	1874	104	15.0	128.5	2.9	+	20.7	(335.4)	184	(39.1)	49	+	374.6									
301	612	1950	83	15.0	39.3	4.3	+	2.4	(94.9)	100	(19.7)	16		114.6	3	44	77						
302	555	1900	77	15.0	35.4	3.8	+	1.7	(77.6)	94	(16.8)	14		94.4	3	44	77						
310	321	1950S	60	6.6	23.4	1.7	+	0.4	(29.6)	49	(5.1)	9	(0.0)*	55.3	3	84	39						
311	277<	310L	60	6.6	19.4	1.1	+	0.3	(21.2)	67	(6.3)	9	(0.0)*	27.7	3	84	39						
320	324	1900S	79	6.6	27.8	1.7	+	0.8	(35.6)	54	(5.6)	14	(0.9)*	150.7	3	84	39						
321	447<	320L	79	6.6	25.2	2.0	+	1.1	(44.4)	75	(11.3)	14	(0.9)*	142.7	3	84	39						
399	10	10000	0	7.2	10.4	0.0	+	0.0	(0.4)	47	(0.0)	0		0.4	3	82	39						
410	1161	6000S	42	4.9	0.5	0.0	+	0.2	(2.4)	1	(0.2)	0		2.6									
420	1362<	410L	42	4.9	0.5	0.0	+	0.2	(2.8)	1	(0.3)	0		3.0									
490	10	1281	9	15.0	28.0	0.0	+	0.0	(1.1)	122	(0.4)	0		1.5									
501	211	1900	83	15.0	76.5	2.2	+	2.3	(63.6)	132	(8.9)	7		72.6	5	2	13						
502	185	1900	73	15.0	62.8	1.9	+	1.3	(45.8)	118	(7.0)	6		52.9	5	2	13						
503	217	1900	86	15.0	81.5	2.3	+	2.6	(69.7)	136	(9.5)	8		79.2	5	2	13						
510	555	1900S	64	5.6	4.0	0.1	+	0.5	(8.7)	7	(1.2)	7	(0.0)*	14.5	5	20	87						
511	359	510L	64	5.6	9.3	0.6	+	0.3	(13.2)	57	(6.7)	7	(0.0)*	19.9	5	20	87						
520	555	1900S	83	5.6	7.8	0.1	+	1.1	(17.2)	11	(1.9)	15	(1.3)*	160.6	5	20	87						
521	639<	520L	83	5.6	16.4	1.6	+	1.3	(41.4)	76	(16.1)	15	(1.3)*	191.4	5	20	87						
610	402	4000S	26	4.2	0.6	0.0	+	0.1	(1.0)	1	(0.1)	0		1.0									
620	622	610L	26	4.2	0.6	0.0	+	0.1	(1.5)	1	(0.1)	0		1.6									
690	1478	2278	110	15.0	197.3	6.5	+	74.5	(999.9)	216	(102.6)	146	+	1253.0									
710	1122<	6000S	29	6.1	0.4	0.0	+	0.1	(1.9)	0	(0.2)	0		2.0									
720	611	710L	29	6.1	0.4	0.0	+	0.1	(1.0)	0	(0.1)	0		1.1									
790	616	2300	92	15.0	28.1	0.0	+	4.8	(68.4)	78	(15.4)	6		83.8									

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1991.7	207.2	9.6	44.1	121.4	(2350.7)	+ (380.5)	+ (451.2)	= 3182.4	TOTALS

.

90 SECOND CYCLE 90 STEPS

	CRUISE		DELAY		STOPS		TOTALS
	LITRES PER HOUR		LITRES PER HOUR		LITRES PER HOUR		LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	190.4	+	148.3	=	444.9

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 210

.

90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	38	10								
3	2	75	41								
5	2	13	86								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE	DELAY	UNIFORM DELAY	RANDOM+ OVERSAT	COST OF DELAY	MEAN STOPS /PCU	COST OF STOPS	MEAN MAX. QUEUE	AVERAGE EXCESS	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START END 1ST	GREEN TIMES START END 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)	(PCU-H/H)	(U+R+O=MEAN Q)	($/H)	(%)	($/H)	(PCU)	(PCU)	($/H)		(SECONDS)	
101	266	1900	52	7.6	35.6	2.1	+ 0.6	(37.3)	89	(7.6)	6		45.0	1	15 38	
102	324	1900	64	15.0	38.9	2.6	+ 0.9	(49.8)	95	(9.8)	8		59.6	1	15 38	
103	324	1900	64	16.7	38.9	2.6	+ 0.9	(49.8)	95	(7.9)	8		57.7	1	15 38	
110	188	1900S	41	9.0	11.5	0.5	+ 0.1	(8.5)	50	(3.0)	7	(0.0)*	11.5	1	45 10	
111	297	110L	41	9.0	12.9	0.9	+ 0.2	(15.1)	52	(5.1)	7	(0.0)*	20.2	1	45 10	
120	308	1900S	70	9.0	16.0	0.9	+ 0.4	(19.4)	66	(6.5)	15	(0.1)*	36.9	1	45 10	
121	519<	120L	70	9.0	15.3	1.5	+ 0.7	(31.3)	60	(11.1)	15	(0.1)*	53.3	1	45 10	
199	10	10000	0	7.2	6.1	0.0	+ 0.0	(0.2)	36	(0.0)	0		0.2	1	43 10	
210	648	6000S	26	4.7	0.4	0.0	+ 0.1	(1.0)	0	(0.1)	0		1.1			
220	903<	210L	26	4.7	0.4	0.0	+ 0.1	(1.4)	0	(0.1)	0		1.6			
290	662	1874	105	15.0	143.3	3.0	+ 23.3	(374.2)	192	(40.8)	47	+	415.0			
301	612	1950	94	15.0	65.0	5.0	+ 6.1	(156.9)	128	(25.2)	21		182.1	3	46 75	
302	555	1900	88	15.0	49.5	4.4	+ 3.3	(108.3)	111	(19.8)	16		128.1	3	46 75	
310	321	1950S	55	6.6	10.5	0.6	+ 0.3	(13.3)	22	(2.3)	6	(0.0)*	24.8	3	82 41	
311	275<	310L	55	6.6	16.3	1.0	+ 0.3	(17.7)	61	(5.7)	6	(0.0)*	23.3	3	82 41	
320	324	1900S	73	6.6	13.1	0.6	+ 0.6	(16.8)	25	(2.6)	10	(0.0)*	33.7	3	82 41	
321	443<	320L	73	6.6	20.5	1.8	+ 0.8	(35.8)	63	(9.4)	10	(0.0)*	49.2	3	82 41	
399	10	10000	0	7.2	8.5	0.0	+ 0.0	(0.3)	42	(0.0)	0		0.3	3	80 41	
410	1161	6000S	42	4.9	0.5	0.0	+ 0.2	(2.4)	1	(0.2)	0		2.6			
420	1357<	410L	42	4.9	0.5	0.0	+ 0.2	(2.8)	1	(0.2)	0		3.0			
490	10	1281	8	15.0	25.0	0.0	+ 0.0	(1.0)	112	(0.4)	0		1.3			
501	211	1900	77	15.0	64.1	2.2	+ 1.6	(53.3)	120	(8.1)	7		61.5	5	1 13	
502	185	1900	67	15.0	56.2	1.9	+ 1.0	(41.0)	112	(6.6)	5		47.6	5	1 13	
503	217	1900	79	15.0	66.7	2.2	+ 1.8	(57.1)	123	(8.5)	7		65.6	5	1 13	
510	555	1900S	65	5.6	4.2	0.1	+ 0.6	(9.2)	7	(1.2)	6	(0.0)*	15.3	5	20 86	
511	357	510L	65	5.6	9.7	0.6	+ 0.4	(13.6)	50	(5.9)	6	(0.0)*	19.5	5	20 86	
520	555	1900S	84	5.6	8.5	0.1	+ 1.2	(18.6)	12	(2.1)	13	(0.8)*	106.8	5	20 86	
521	637<	520L	84	5.6	16.1	1.5	+ 1.4	(40.5)	64	(13.4)	13	(0.8)*	131.7	5	20 86	
610	402	4000S	26	4.2	0.6	0.0	+ 0.1	(1.0)	1	(0.1)	0		1.0			
620	621	610L	26	4.2	0.6	0.0	+ 0.1	(1.5)	1	(0.1)	0		1.6			
690	1478	2278	110	15.0	198.1	6.2	+ 75.1	(999.9)	216	(102.7)	147	+	1257.8			
710	1121<	6000S	29	6.1	0.4	0.0	+ 0.1	(1.9)	0	(0.2)	0		2.0			
720	611	710L	29	6.1	0.4	0.0	+ 0.1	(1.0)	0	(0.1)	0		1.1			
790	616	2300	92	15.0	27.5	0.0	+ 4.7	(66.9)	77	(15.2)	6		82.1			

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1991.7	211.0	9.4	42.2	127.1	(2404.0)	+ (355.0)	+ (185.4)	= 2944.4	TOTALS

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90 SECOND CYCLE 90 STEPS

	CRUISE		DELAY		STOPS		TOTALS
	LITRES PER HOUR		LITRES PER HOUR		LITRES PER HOUR		LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	194.7	+	146.8	=	447.7

NO. OF ENTRIES TO SUBPT = 18
NO. OF LINKS RECALCULATED= 458

.

90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	38	10								
3	2	75	41								
5	2	13	86								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF DELAY ($/H)	STOPS MEAN STOPS /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	266	1900	52	7.6	35.6	2.1 +	0.6	(37.3)	89	(7.6)	6		45.0	1			15	38
102	324	1900	64	15.0	38.9	2.6 +	0.9	(49.8)	95	(9.8)	8		59.6	1			15	38
103	324	1900	64	16.7	38.9	2.6 +	0.9	(49.8)	95	(7.9)	8		57.7	1			15	38
110	188	1900S	41	9.0	11.5	0.5 +	0.1	(8.5)	50	(3.0)	7	(0.0)*	11.5	1			45	10
111	297	110L	41	9.0	12.9	0.9 +	0.2	(15.1)	52	(5.1)	7	(0.0)*	20.2	1			45	10
120	308	1900S	70	9.0	16.0	0.9 +	0.4	(19.4)	66	(6.5)	15	(0.1)*	36.9	1			45	10
121	519<	120L	70	9.0	15.3	1.5 +	0.7	(31.3)	60	(11.1)	15	(0.1)*	53.3	1			45	10
199	10	10000	0	7.2	6.1	0.0 +	0.0	(0.2)	36	(0.0)	0		0.2	1			43	10
210	648	6000S	26	4.7	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1					
220	903<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.6					
290	662	1874	105	15.0	143.3	3.0 +	23.3	(374.2)	192	(40.8)	47	+	414.9					
301	612	1950	94	15.0	65.0	5.0 +	6.1	(156.9)	128	(25.2)	21		182.1	3			46	75
302	555	1900	88	15.0	49.5	4.4 +	3.3	(108.3)	111	(19.8)	16		128.1	3			46	75
310	321	1950S	55	6.6	10.5	0.6 +	0.3	(13.3)	22	(2.3)	6	(0.0)*	24.8	3			82	41
311	275<	310L	55	6.6	16.3	1.0 +	0.3	(17.7)	61	(5.7)	6	(0.0)*	23.3	3			82	41
320	324	1900S	73	6.6	13.1	0.6 +	0.6	(16.8)	25	(2.6)	10	(0.0)*	33.7	3			82	41
321	443<	320L	73	6.6	20.5	1.8 +	0.8	(35.8)	63	(9.4)	10	(0.0)*	49.2	3			82	41
399	10	10000	0	7.2	8.5	0.0 +	0.0	(0.3)	42	(0.0)	0		0.3	3			80	41
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6					
420	1357<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.2)	0		3.0					
490	10	1281	8	15.0	25.0	0.0 +	0.0	(1.0)	112	(0.4)	0		1.3					
501	211	1900	77	15.0	64.1	2.2 +	1.6	(53.3)	120	(8.1)	7		61.5	5			1	13
502	185	1900	67	15.0	56.2	1.9 +	1.0	(41.0)	112	(6.6)	5		47.6	5			1	13
503	217	1900	79	15.0	66.7	2.2 +	1.8	(57.1)	123	(8.5)	7		65.6	5			1	13
510	555	1900S	65	5.6	4.2	0.1 +	0.6	(9.2)	7	(1.2)	6	(0.0)*	15.3	5			20	86
511	357	510L	65	5.6	9.7	0.6 +	0.4	(13.6)	50	(5.9)	6	(0.0)*	19.5	5			20	86
520	555	1900S	84	5.6	8.5	0.1 +	1.2	(18.6)	12	(2.1)	13	(0.8)*	106.8	5			20	86
521	637<	520L	84	5.6	16.1	1.5 +	1.4	(40.5)	64	(13.4)	13	(0.8)*	131.7	5			20	86
610	402	4000S	26	4.2	0.6	0.0 +	0.1	(1.0)	1	(0.1)	0		1.0					
620	621	610L	26	4.2	0.6	0.0 +	0.1	(1.5)	1	(0.1)	0		1.6					
690	1478	2278	110	15.0	198.1	6.2 +	75.1	(999.9)	216	(102.7)	147	+	1257.8					
710	1121<	6000S	29	6.1	0.4	0.0 +	0.1	(1.9)	0	(0.2)	0		2.0					
720	611	710L	29	6.1	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1					
790	616	2300	92	15.0	27.5	0.0 +	4.7	(66.9)	77	(15.2)	6		82.1					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1991.7	211.0	9.4	42.2	127.1	(2404.0) + (355.0)	+ (185.4)	= 2944.3		TOTALS

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90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	194.7	+	146.8	=	447.7

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 262

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13 36
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	38	10								
3	2	75	41								
5	2	13	86								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF DELAY ($/H)	STOPS MEAN STOPS /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	266	1900	52	7.6	35.6	2.1 +	0.6	(37.3)	89	(7.6)	6		45.0	1			15	38
102	324	1900	64	15.0	38.9	2.6 +	0.9	(49.8)	95	(9.8)	8		59.6	1			15	38
103	324	1900	64	16.7	38.9	2.6 +	0.9	(49.8)	95	(7.9)	8		57.7	1			15	38
110	188	1900S	41	9.0	11.5	0.5 +	0.1	(8.5)	50	(3.0)	7	(0.0)*	11.5	1			45	10
111	297	110L	41	9.0	12.9	0.9 +	0.2	(15.1)	52	(5.1)	7	(0.0)*	20.2	1			45	10
120	308	1900S	70	9.0	16.0	0.9 +	0.4	(19.4)	66	(6.5)	15	(0.1)*	36.9	1			45	10
121	519<	120L	70	9.0	15.3	1.5 +	0.7	(31.3)	60	(11.1)	15	(0.1)*	53.3	1			45	10
199	10	10000	0	7.2	6.1	0.0 +	0.0	(0.2)	36	(0.0)	0		0.2	1			43	10
210	648	6000S	26	4.7	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1					
220	903<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.6					
290	662	1874	105	15.0	143.4	3.1 +	23.3	(374.5)	192	(40.8)	47	+	415.3					
301	612	1950	94	15.0	65.0	5.0 +	6.1	(156.9)	128	(25.2)	21		182.1	3			46	75
302	555	1900	88	15.0	49.5	4.4 +	3.3	(108.3)	111	(19.8)	16		128.1	3			46	75
310	321	1950S	55	6.6	10.5	0.6 +	0.3	(13.3)	22	(2.3)	6	(0.0)*	24.8	3			82	41
311	275<	310L	55	6.6	16.3	1.0 +	0.3	(17.7)	61	(5.7)	6	(0.0)*	23.3	3			82	41
320	324	1900S	73	6.6	13.1	0.6 +	0.6	(16.8)	25	(2.6)	10	(0.0)*	33.7	3			82	41
321	443<	320L	73	6.6	20.5	1.8 +	0.8	(35.8)	63	(9.4)	10	(0.0)*	49.2	3			82	41
399	10	10000	0	7.2	8.5	0.0 +	0.0	(0.3)	42	(0.0)	0		0.3	3			80	41
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6					
420	1357<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.2)	0		3.0					
490	10	1281	8	15.0	25.0	0.0 +	0.0	(1.0)	112	(0.4)	0		1.3					
501	211	1900	77	15.0	64.1	2.2 +	1.6	(53.3)	120	(8.1)	7		61.5	5			1	13
502	185	1900	67	15.0	56.2	1.9 +	1.0	(41.0)	112	(6.6)	5		47.6	5			1	13
503	217	1900	79	15.0	66.7	2.2 +	1.8	(57.1)	123	(8.5)	7		65.6	5			1	13
510	555	1900S	65	5.6	4.2	0.1 +	0.6	(9.2)	7	(1.2)	6	(0.0)*	15.3	5			20	86
511	357	510L	65	5.6	9.7	0.6 +	0.4	(13.6)	50	(5.9)	6	(0.0)*	19.5	5			20	86
520	555	1900S	84	5.6	8.5	0.1 +	1.2	(18.6)	12	(2.1)	13	(0.8)*	106.8	5			20	86
521	637<	520L	84	5.6	16.1	1.5 +	1.4	(40.5)	64	(13.4)	13	(0.8)*	131.7	5			20	86
610	402	4000S	26	4.2	0.6	0.0 +	0.1	(1.0)	1	(0.1)	0		1.0					
620	621	610L	26	4.2	0.6	0.0 +	0.1	(1.5)	1	(0.1)	0		1.6					
690	1478	2278	110	15.0	198.1	6.2 +	75.1	(999.9)	216	(102.7)	147	+	1257.8					
710	1121<	6000S	29	6.1	0.4	0.0 +	0.1	(1.9)	0	(0.2)	0		2.0					
720	611	710L	29	6.1	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1					

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	CRUISE (SEC)	DELAY (SEC)	UNIFORM (PCU-H/H)	RANDOM+ OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. QUEUE (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX ($/H)	EXIT NODE	GREEN 1ST	GREEN 2ND
790	616	2300	92	15.0	27.5	0.0 +	4.7	(66.9)	77	(15.2)	6		82.1			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1991.7	211.0	9.4	42.2	127.1	(2404.3) +	(355.0) +	(185.4) =	2944.7	TOTALS

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90 SECOND CYCLE 90 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	194.7	+	146.8	=	447.7

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 329

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13 36 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	36	8								
3	2	77	43								
5	2	13	86								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (PCU-H/H)	RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST (SECONDS)	START END 2ND
101	266	1900	52	7.6	35.6	2.1 +	0.6	(37.3)	89	(7.6)	6		45.0	1	13	36
102	324	1900	64	15.0	38.9	2.6 +	0.9	(49.8)	95	(9.8)	8		59.6	1	13	36
103	324	1900	64	16.7	38.9	2.6 +	0.9	(49.8)	95	(7.9)	8		57.7	1	13	36
110	188	1900S	41	9.0	11.5	0.5 +	0.1	(8.5)	50	(3.0)	7	(0.0)*	11.6	1	43	8
111	297	110L	41	9.0	13.2	0.9 +	0.2	(15.4)	54	(5.3)	7	(0.0)*	20.7	1	43	8
120	308	1900S	70	9.0	15.8	0.9 +	0.4	(19.2)	65	(6.4)	15	(0.1)*	31.7	1	43	8
121	519<	120L	70	9.0	14.6	1.4 +	0.7	(29.9)	57	(10.5)	15	(0.1)*	46.4	1	43	8
199	10	10000	0	7.2	6.1	0.0 +	0.0	(0.2)	36	(0.0)	0		0.2	1	41	8
210	648	6000S	26	4.7	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1			
220	903<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.6			
290	662	1874	105	15.0	145.3	3.1 +	23.7	(379.5)	193	(41.0)	48	+	420.5			
301	612	1950	94	15.0	65.0	5.0 +	6.1	(156.9)	128	(25.2)	21		182.1	3	48	77
302	555	1900	88	15.0	49.5	4.4 +	3.3	(108.3)	111	(19.8)	16		128.1	3	48	77
310	321	1950S	55	6.6	7.0	0.3 +	0.3	(8.9)	13	(1.3)	6	(0.0)*	15.5	3	84	43
311	275<	310L	55	6.6	16.9	1.0 +	0.3	(18.3)	62	(5.8)	6	(0.0)*	24.1	3	84	43
320	324	1900S	73	6.6	9.6	0.3 +	0.6	(12.2)	16	(1.6)	9	(0.0)*	21.0	3	84	43
321	443<	320L	73	6.6	20.2	1.7 +	0.8	(35.3)	63	(9.5)	9	(0.0)*	45.4	3	84	43
399	10	10000	0	7.2	8.5	0.0 +	0.0	(0.3)	42	(0.0)	0		0.3	3	82	43
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6			
420	1357<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.2)	0		3.0			
490	10	1281	8	15.0	25.6	0.0 +	0.0	(1.0)	115	(0.4)	0		1.4			
501	211	1900	77	15.0	64.1	2.2 +	1.6	(53.3)	120	(8.1)	7		61.5	5	1	13
502	185	1900	67	15.0	56.2	1.9 +	1.0	(41.0)	112	(6.6)	5		47.6	5	1	13
503	217	1900	79	15.0	66.7	2.2 +	1.8	(57.1)	123	(8.5)	7		65.6	5	1	13
510	555	1900S	64	5.6	4.8	0.2 +	0.6	(10.6)	10	(1.7)	6	(0.0)*	19.3	5	20	86
511	357	510L	64	5.6	8.9	0.5 +	0.4	(12.6)	46	(5.4)	6	(0.0)*	18.0	5	20	86
520	555	1900S	84	5.6	9.1	0.2 +	1.2	(20.0)	14	(2.6)	13	(0.8)*	109.6	5	20	86
521	637<	520L	84	5.6	15.0	1.3 +	1.4	(37.7)	60	(12.7)	13	(0.8)*	127.0	5	20	86
610	402	4000S	26	4.2	0.6	0.0 +	0.1	(1.0)	1	(0.1)	0		1.0			
620	621	610L	26	4.2	0.6	0.0 +	0.1	(1.5)	1	(0.1)	0		1.6			
690	1478	2278	110	15.0	197.7	6.2 +	75.0	(999.9)	216	(102.7)	146	+	1255.3			
710	1121<	6000S	29	6.1	0.4	0.0 +	0.1	(1.9)	0	(0.2)	0		2.0			
720	611	710L	29	6.1	0.4	0.0 +	0.1	(1.0)	0	(0.1)	0		1.1			
790	616	2300	92	15.0	27.6	0.0 +	4.7	(67.1)	77	(15.3)	6		82.3			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
1991.7	210.4	9.5	41.4	127.3	(2395.7) +	(349.1) +	(166.9) =	2911.7	TOTALS

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90 SECOND CYCLE 90 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	194.0	+	145.8	=	446.0

NO. OF ENTRIES TO SUBPT = 10
NO. OF LINKS RECALCULATED= 352

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13 36 1 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	31	8								
3	2	78	43								
5	2	12	86								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (PCU-H/H)	RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST (SECONDS)	START END 2ND
101	266	1900	66	7.6	45.7	2.4 +	1.0	(48.0)	102	(8.7)	7		56.6	1	13	31
102	324	1900	81	15.0	56.0	3.0 +	2.0	(71.5)	114	(11.9)	10		83.4	1	13	31
103	324	1900	81	16.7	56.0	3.0 +	2.0	(71.5)	114	(9.5)	10		81.0	1	13	31
110	188	1900S	38	9.0	8.8	0.3 +	0.1	(6.5)	42	(2.6)	6	(0.0)*	9.1	1	38	8
111	297	110L	38	9.0	10.2	0.7 +	0.2	(11.9)	47	(4.7)	6	(0.0)*	16.6	1	38	8
120	308	1900S	64	9.0	11.6	0.7 +	0.3	(14.1)	53	(5.2)	12	(0.0)*	19.3	1	38	8
121	519<	120L	64	9.0	10.5	1.0 +	0.6	(21.5)	44	(8.1)	12	(0.0)*	29.6	1	38	8
199	10	10000	0	7.2	4.5	0.0 +	0.0	(0.2)	30	(0.0)	0		0.2	1	36	8

210	648	6000S	26	4.7	0.4	0.0	+	0.1	(1.0)	0	(0.1)	0		1.1						
220	903<	210L	26	4.7	0.4	0.0	+	0.1	(1.4)	0	(0.1)	0		1.6						
290	662	1874	103	15.0	115.7	3.1	+	18.2	(302.0)	177	(37.7)	48	+	339.7						
301	612	1950	91	15.0	54.4	4.8	+	4.5	(131.4)	117	(23.0)	19		154.4	3	48	78			
302	555	1900	85	15.0	44.5	4.2	+	2.6	(97.4)	106	(18.8)	15		116.3	3	48	78			
310	321	1950S	56	6.6	5.7	0.2	+	0.3	(7.2)	9	(0.9)	6	(0.0)*	11.7	3	85	43			
311	278<	310L	56	6.6	18.0	1.1	+	0.3	(19.7)	65	(6.1)	6	(0.0)*	25.8	3	85	43			
320	324	1900S	75	6.6	8.6	0.2	+	0.6	(11.0)	12	(1.2)	10	(0.0)*	19.0	3	85	43			
321	450<	320L	75	6.6	20.5	1.7	+	0.9	(36.3)	68	(10.2)	10	(0.0)*	48.2	3	85	43			
399	10	10000	0	7.2	9.0	0.0	+	0.0	(0.4)	43	(0.0)	0		0.4	3	83	43			
410	1161	6000S	42	4.9	0.5	0.0	+	0.2	(2.4)	1	(0.2)	0		2.6						
420	1367<	410L	42	4.9	0.5	0.0	+	0.2	(2.8)	1	(0.3)	0		3.0						
490	10	1281	8	15.0	26.4	0.0	+	0.0	(1.0)	117	(0.4)	0		1.4						
501	211	1900	83	15.0	76.5	2.2	+	2.3	(63.6)	132	(8.9)	7		72.6	5	1	12			
502	185	1900	73	15.0	62.8	1.9	+	1.3	(45.8)	118	(7.0)	6		52.9	5	1	12			
503	217	1900	86	15.0	81.5	2.3	+	2.6	(69.7)	136	(9.5)	8		79.2	5	1	12			
510	555	1900S	64	5.6	4.8	0.2	+	0.5	(10.5)	10	(1.9)	6	(0.0)*	19.7	5	19	86			
511	360	510L	64	5.6	7.9	0.4	+	0.3	(11.2)	43	(5.1)	6	(0.0)*	16.3	5	19	86			
520	555	1900S	83	5.6	8.7	0.2	+	1.1	(19.1)	15	(2.6)	12	(0.5)*	85.9	5	19	86			
521	641<	520L	83	5.6	13.4	1.1	+	1.3	(33.8)	56	(11.7)	12	(0.5)*	99.3	5	19	86			
610	402	4000S	26	4.2	0.6	0.0	+	0.1	(1.0)	1	(0.1)	0		1.0						
620	623	610L	26	4.2	0.6	0.0	+	0.1	(1.5)	1	(0.1)	0		1.6						
690	1478	2278	110	15.0	197.5	6.2	+	74.9	(999.9)	216	(102.6)	146	+	1253.9						
710	1121<	6000S	29	6.1	0.4	0.0	+	0.1	(1.9)	0	(0.2)	0		2.0						
720	612	710L	29	6.1	0.4	0.0	+	0.1	(1.0)	0	(0.1)	0		1.1						
790	616	2300	92	15.0	28.1	0.0	+	4.8	(68.3)	78	(15.4)	6		83.7						

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1991.7	206.3	9.7	40.9	123.7	(2337.9) + (341.4)	+	(111.0)	= 2790.3	TOTALS

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	189.3	+	143.5	=	439.1

NO. OF ENTRIES TO SUBPT = 18
NO. OF LINKS RECALCULATED= 655

.

90 SECOND CYCLE 90 STEPS

FINAL SETTINGS OBTAINED WITH INCREMENTS :- 13 36 -1 13 36 1 -1 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	31	8								
3	2	78	43								
5	2	13	87								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY (U+R+O=MEAN Q) UNIFORM (PCU-H/H)	RANDOM+ OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	STOPS /PCU (%)	COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	END
101	266	1900	66	7.6	45.7	2.4	+ 1.0	(48.0)	102	(8.7)	7		56.6	1	13	31	
102	324	1900	81	15.0	56.0	3.0	+ 2.0	(71.5)	114	(11.9)	10		83.4	1	13	31	
103	324	1900	81	16.7	56.0	3.0	+ 2.0	(71.5)	114	(9.5)	10		81.0	1	13	31	
110	189	1900S	38	9.0	8.7	0.3	+ 0.1	(6.5)	42	(2.5)	6	(0.0)*	9.0	1	38	8	
111	297	110L	38	9.0	10.0	0.6	+ 0.2	(11.8)	47	(4.6)	6	(0.0)*	16.4	1	38	8	
120	308	1900S	64	9.0	11.6	0.7	+ 0.3	(14.1)	53	(5.2)	12	(0.0)*	19.4	1	38	8	
121	519<	120L	64	9.0	10.6	1.0	+ 0.6	(21.8)	45	(8.2)	12	(0.0)*	30.0	1	38	8	
199	10	10000	0	7.2	4.5	0.0	+ 0.0	(0.2)	30	(0.0)	0		0.2	1	36	8	
210	648	6000S	26	4.7	0.4	0.0	+ 0.1	(1.0)	0	(0.1)	0		1.1				
220	903<	210L	26	4.7	0.4	0.0	+ 0.1	(1.4)	0	(0.1)	0		1.6				
290	662	1874	103	15.0	115.9	3.1	+ 18.3	(302.7)	177	(37.7)	48	+	340.5				
301	612	1950	91	15.0	54.4	4.8	+ 4.5	(131.4)	117	(23.0)	19		154.4	3	48	78	
302	555	1900	85	15.0	44.5	4.2	+ 2.6	(97.4)	106	(18.8)	15		116.3	3	48	78	
310	321	1950S	56	6.6	5.7	0.2	+ 0.3	(7.2)	9	(0.9)	6	(0.0)*	11.7	3	85	43	
311	278<	310L	56	6.6	18.0	1.1	+ 0.3	(19.7)	65	(6.1)	6	(0.0)*	25.8	3	85	43	
320	324	1900S	75	6.6	8.6	0.2	+ 0.6	(11.0)	12	(1.2)	10	(0.0)*	19.0	3	85	43	
321	450<	320L	75	6.6	20.4	1.7	+ 0.9	(36.3)	68	(10.2)	10	(0.0)*	48.2	3	85	43	
399	10	10000	0	7.2	9.0	0.0	+ 0.0	(0.4)	43	(0.0)	0		0.4	3	83	43	
410	1161	6000S	42	4.9	0.5	0.0	+ 0.2	(2.4)	1	(0.2)	0		2.6				
420	1367<	410L	42	4.9	0.5	0.0	+ 0.2	(2.8)	1	(0.3)	0		3.0				
490	10	1281	8	15.0	26.4	0.0	+ 0.0	(1.0)	117	(0.4)	0		1.4				
501	211	1900	83	15.0	76.5	2.2	+ 2.3	(63.6)	132	(8.9)	7		72.6	5	2	13	
502	185	1900	73	15.0	62.8	1.9	+ 1.3	(45.8)	118	(7.0)	6		52.9	5	2	13	
503	217	1900	86	15.0	81.5	2.3	+ 2.6	(69.7)	136	(9.5)	8		79.2	5	2	13	
510	555	1900S	64	5.6	4.4	0.2	+ 0.5	(9.7)	9	(1.5)	6	(0.0)*	17.4	5	20	87	
511	360	510L	64	5.6	8.1	0.5	+ 0.3	(11.5)	44	(5.2)	6	(0.0)*	16.7	5	20	87	
520	555	1900S	83	5.6	8.3	0.2	+ 1.1	(18.3)	13	(2.3)	12	(0.5)*	82.7	5	20	87	
521	641<	520L	83	5.6	13.7	1.1	+ 1.3	(34.6)	57	(12.0)	12	(0.5)*	99.5	5	20	87	
610	402	4000S	26	4.2	0.6	0.0	+ 0.1	(1.0)	1	(0.1)	0		1.0				
620	623	610L	26	4.2	0.6	0.0	+ 0.1	(1.5)	1	(0.1)	0		1.6				
690	1478	2278	110	15.0	197.6	6.2	+ 74.9	(999.9)	216	(102.6)	146	+	1254.4				
710	1121<	6000S	29	6.1	0.4	0.0	+ 0.1	(1.9)	0	(0.2)	0		2.0				
720	612	710L	29	6.1	0.4	0.0	+ 0.1	(1.0)	0	(0.1)	0		1.1				
790	616	2300	92	15.0	28.1	0.0	+ 4.8	(68.2)	78	(15.4)	6		83.6				

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
1991.7	206.4	9.7	40.9	123.8	(2338.7) + (338.8)	+	(109.3)	= 2786.8	TOTALS

ROUTE

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	106.2	+	189.4	+	143.4	=	439.1

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 282

________________ T R A N S Y T 12 ________________

Traffic Network Study Tool

Analysis Program Release 6 (February 2007)

For sales and distribution information,
program advice and maintenance, contact:

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Run with file:- "UPPER BOAT PROPOSED 2028 PM + DEV.DAT" at 08:39 on 20150327

TRANSYT 12.0

Upper Boat Proposed Layout 2028PM + Dev

PARAMETERS CONTROLLING DIMENSIONS OF PROBLEM :

NUMBER OF NODES	=	3
NUMBER OF LINKS	=	34
NUMBER OF OPTIMISED NODES	=	3
MAXIMUM NUMBER OF GRAPHIC PLOTS	=	8
NUMBER OF STEPS IN CYCLE	=	90
MAXIMUM NUMBER OF SHARED STOPLINES	=	2
MAXIMUM NUMBER OF TIMING POINTS	=	2
MAXIMUM LINKS AT ANY NODE	=	7

CORE REQUESTED = 10399 WORDS
CORE AVAILABLE = 72000 WORDS

.

DATA INPUT :-

CARD NO. | CARD TYPE

(1)= **TITLE:- Upper Boat Proposed Layout 2028PM + Dev**

CARD NO.	CARD TYPE	CYCLE TIME (SEC)	NO. OF STEPS PER CYCLE	TIME PERIOD 1-1200 MINS.	EFFECTIVE-GREEN DISPLACEMENTS START (SEC)	END (SEC)	EQUISAT SETTINGS 0=NO 1=YES	0=UNEQUAL CYCLE 1=EQUAL CYCLE	FLOW SCALE 10-200 %	CRUISE-SPEEDS SCALE 50-200 %	CARD32 0=TIMES 1=SPEEDS	OPTIMISE 0=NONE 1=O/SET 2=FULL	EXTRA COPIES FINAL OUTPUT	HILL-CLIMB OUTPUT 1=FULL	DELAY VALUE P PER PCU-H	STOP VALUE P PER 100
2)=	1	90	90	60	2	3	1	0	0	0	1	2	0	1	1420	260

LIST OF NODES TO BE OPTIMISED

CARD NO.	CARD TYPE															
3)=	2	1	3	5	0	0	0	0	0	0	0	0	0	0	0	0

LINKS HAVING SHARED STOPLINES

CARD NO.	CARD TYPE	FIRST SET........................					SECOND SET.......................					THIRD SET........................				
4)=	7	110	111	0	0	0	120	121	0	0	0	210	220	0	0	0
5)=	7	310	311	0	0	0	320	321	0	0	0	410	420	0	0	0
6)=	7	510	511	0	0	0	520	521	0	0	0	610	620	0	0	0
7)=	7	710	720	0	0	0	0	0	0	0	0	0	0	0	0	0

NODE CARDS: MINIMUM STAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
8)=	10	1	7	7								
9)=	10	3	7	7								
10)=	10	5	7	7								

NODE CARDS: PRECEDING INTERSTAGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
11)=	11	1	7	5								
12)=	11	3	7	5								
13)=	11	5	7	5								

NODE CARDS: STAGE CHANGE TIMES (WORKING)

CARD NO.	CARD TYPE	NODE NO.	Sgl/Dbl Cycled	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
14)=	12	1	1	0	64								
15)=	12	3	1	0	51								
16)=	12	5	1	0	70								

LINK CARDS: GIVEWAY DATA

CARD NO.	CARD TYPE	LINK NO.	PRIORITY LINKS LINK1 NO.	LINK2 NO.	ONLY % FLOW	LINK1 GIVEWAY COEFFS. A1 X100	A2 X100					LINK LENGTH	STOP WT.X100	MAX FLOW	DELAY WT.X100	DISPSN X100
17)=	30	290	210	220	0	48	48	0	0	0	0	200	0	1874	0	0
18)=	30	490	410	420	0	49	49	0	0	0	0	200	0	1281	0	0
19)=	30	690	610	620	0	52	52	0	0	0	0	200	0	2278	0	0
20)=	30	790	710	720	0	47	47	0	0	0	0	200	0	2300	0	0

LINK CARDS: FIXED DATA

CARD NO.	CARD TYPE	LINK NO.	EXIT NODE	FIRST GREEN START STAGE	LAG	END STAGE	LAG	SECOND GREEN START STAGE	LAG	END STAGE	LAG	LINK LENGTH	STOP WT.X100	SAT FLOW	DELAY WT.X100	DISPSN X100
21)=	31	101	1	2	5	1	0	0	0	0	0	102	0	1900	0	0
22)=	31	102	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
23)=	31	103	1	2	5	1	0	0	0	0	0	200	0	1900	0	0
24)=	31	110	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
25)=	31	111	1	1	0	1	0	0	0	0	0	120	0	0	0	0
26)=	31	120	1	1	7	2	0	0	0	0	0	120	0	1900	0	0
27)=	31	121	1	1	0	1	0	0	0	0	0	120	0	0	0	0
28)=	31	199	1	1	5	2	0	0	0	0	0	10	0	10000	0	0
29)=	31	210	0	0	0	0	0	0	0	0	0	63	0	6000	0	0
30)=	31	220	0	0	0	0	0	0	0	0	0	63	0	0	0	0
31)=	31	290	0	0	0	0	0	0	0	0	0	200	0	1874	0	0
32)=	31	301	3	2	5	1	0	0	0	0	0	200	0	1950	0	0
33)=	31	302	3	2	5	1	0	0	0	0	0	200	0	1900	0	0
34)=	31	310	3	1	7	2	0	0	0	0	0	88	500	1950	0	0
35)=	31	311	3	1	0	1	0	0	0	0	0	88	0	0	0	0
36)=	31	320	3	1	7	2	0	0	0	0	0	88	500	1900	0	0
37)=	31	321	3	1	0	1	0	0	0	0	0	88	0	0	0	0
38)=	31	399	3	1	5	2	0	0	0	0	0	10	0	10000	0	0
39)=	31	410	0	0	0	0	0	0	0	0	0	65	0	6000	0	0

```
 40)=  31     420       0       0       0       0       0       0       0       0       0      65       0       0       0       0
 41)=  31     490       0       0       0       0       0       0       0       0       0     200       0    1281       0       0
 42)=  31     501       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 43)=  31     502       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 44)=  31     503       5       2       5       1       0       0       0       0       0     200       0    1900       0       0
 45)=  31     510       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 46)=  31     511       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 47)=  31     520       5       1       7       2       0       0       0       0       0      75     500    1900       0       0
 48)=  31     521       5       1       0       1       0       0       0       0       0      75       0       0       0       0
 49)=  31     610       0       0       0       0       0       0       0       0       0      56       0    4000       0       0
 50)=  31     620       0       0       0       0       0       0       0       0       0      56       0       0       0       0
 51)=  31     690       0       0       0       0       0       0       0       0       0     200       0    2278       0       0
 52)=  31     710       0       0       0       0       0       0       0       0       0      82       0    6000       0       0
 53)=  31     720       0       0       0       0       0       0       0       0       0      82       0       0       0       0
 54)=  31     790       0       0       0       0       0       0       0       0       0     200       0    2300       0       0
```

LINK CARDS: FLOW DATA

```
                                    ENTRY 1 ............    ENTRY 2 ............    ENTRY 3 ............    ENTRY 4 ............
CARD   CARD   LINK   TOTAL  UNIFORM  LINK          CRUISE  LINK          CRUISE  LINK          CRUISE  LINK          CRUISE
 NO.   TYPE    NO.   FLOW    FLOW     NO.   FLOW   SPEED   NO.   FLOW   SPEED   NO.   FLOW   SPEED   NO.   FLOW   SPEED
 55)=  32     101    266       0       0      0      48      0      0       0      0      0       0      0      0       0
 56)=  32     102    330       0       0      0      48      0      0       0      0      0       0      0      0       0
 57)=  32     103    324       0       0      0      43      0      0       0      0      0       0      0      0       0
 58)=  32     110    189       0     790    189      48      0      0       0      0      0       0      0      0       0
 59)=  32     111    328       0     720    239      48    710     89      48      0      0       0      0      0       0
 60)=  32     120    310       0     790    310      48      0      0       0      0      0       0      0      0       0
 61)=  32     121    578       0     710    566      48    720     12      48      0      0       0      0      0       0
 62)=  32     199     10       0       0      0       5      0      0       0      0      0       0      0      0       0
 63)=  32     210    664       0     102    330      48    101     10      48    103    324      48      0      0       0
 64)=  32     220    974       0     111     10      48    121    578      48    110     76      48    120    310      48
 65)=  32     290    664       0       0      0      48      0      0       0      0      0       0      0      0       0
 66)=  32     301    622       0       0      0      48      0      0       0      0      0       0      0      0       0
 67)=  32     302    555       0       0      0      48      0      0       0      0      0       0      0      0       0
 68)=  32     310    328       0     210    328      48      0      0       0      0      0       0      0      0       0
 69)=  32     311    300       0     290    127      48    220    173      48      0      0       0      0      0       0
 70)=  32     320    324       0     210    324      48      0      0       0      0      0       0      0      0       0
 71)=  32     321    466       0     290    331      48    220    135      48      0      0       0      0      0       0
 72)=  32     399     10       0       0      0       5      0      0       0      0      0       0      0      0       0
 73)=  32     410   1161       0     301    606      48    302    555      48      0      0       0      0      0       0
 74)=  32     420   1409       0     310    328      48    320    324      48    311    291      48    321    466      48
 75)=  32     490     10       0       0      0      48      0      0       0      0      0       0      0      0       0
 76)=  32     501    275       0       0      0      48      0      0       0      0      0       0      0      0       0
 77)=  32     502    258       0       0      0      48      0      0       0      0      0       0      0      0       0
 78)=  32     503    300       0       0      0      48      0      0       0      0      0       0      0      0       0
 79)=  32     510    554       0     410    554      48      0      0       0      0      0       0      0      0       0
 80)=  32     511    374       0     420    364      48    490     10      48      0      0       0      0      0       0
 81)=  32     520    555       0     410    555      48      0      0       0      0      0       0      0      0       0
 82)=  32     521    656       0     420    655      48    490     10      48      0      0       0      0      0       0

 83)=  32     610    558       0     502    258      48    503    300      48      0      0       0      0      0       0
 84)=  32     620    628       0     521    262      48    520    366      48      0      0       0      0      0       0
 85)=  32     690   1483       0       0      0      48      0      0       0      0      0       0      0      0       0
 86)=  32     710   1244       0     690   1244      48      0      0       0      0      0       0      0      0       0
 87)=  32     720    698       0     620    398      48    610    300      48      0      0       0      0      0       0
 88)=  32     790    618       0       0      0      48      0      0       0      0      0       0      0      0       0
```

GRAPH PLOT CARDS

```
CARD   CARD   LINK    LINK    LINK    LINK    LINK    LINK    LINK    LINK
 NO.   TYPE    NO.     NO.     NO.     NO.     NO.     NO.     NO.     NO.
 89)=  35     302     520     102     320       0       0       0       0       0       0       0       0       0       0
```

LINK DATA: QUEUE CONSTRAINTS

```
CARD   CARD   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE   LINK    LIMIT   QUEUE
 NO.   TYPE    NO.    QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT    NO.   QUEUE  WEIGHT
 90)=  38     110      13    9999     111      13    9999     120      13    9999     121      13    9999     310       9    9999
 91)=  38     311       9    9999     320       9    9999     321       9    9999     510       8    9999     511       8    9999
 92)=  38     520       8    9999     521       8    9999       0       0       0       0       0       0       0       0       0
```

*****END OF SUBROUTINE TINPUT*****

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90 SECOND CYCLE 90 STEPS

INITIAL SETTINGS
- (SECONDS)

```
  NODE   NUMBER   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE   STAGE
   NO   OF STAGES   1       2       3       4       5       6       7       8       9      10

    1       2       0      64
    3       2       0      51
    5       2       0      70
```

```
 LINK    FLOW   SAT   DEGREE  MEAN TIMES  -------DELAY--------   ----STOPS----   ----QUEUE----  PERFORMANCE   EXIT   GREEN TIMES
NUMBER   INTO   FLOW    OF     PER PCU    UNIFORM RANDOM+ COST    MEAN   COST    MEAN              INDEX.      NODE   START  START
         LINK          SAT    CRUISE              OVERSAT  OF    STOPS   OF     MAX.  AVERAGE  WEIGHTED SUM            END    END
                              DELAY  (U+R+O=MEAN Q) DELAY  /PCU  STOPS          EXCESS  OF ( ) VALUES           1ST    2ND
       (PCU/H) (PCU/H)  (%)  (SEC) (SEC)   (PCU-H/H)   ($/H)   (%)  ($/H)   (PCU) (PCU)     ($/H)                (SECONDS)

  101     266   1900    57   7.6  38.9    2.2 +  0.7  ( 40.8)   93  (  8.0)     7              48.8      1     69   0
  102     330   1900    71  15.0  44.2    2.9 +  1.2  ( 57.6)  101  ( 10.7)     9              68.3      1     69   0
  103     324   1900    70  16.7  43.6    2.8 +  1.1  ( 55.7)  100  (  8.4)     8              64.1      1     69   0
  110     189   1900S   41   9.0   9.8    0.4 +  0.1  (  7.3)   45  (  2.7)     7  ( 0.0)*     10.1      1      7  64
  111    312<    110L   41   9.0   8.9    0.6 +  0.2  ( 11.0)   45  (  4.7)     7  ( 0.0)*     15.7      1      7  64
  120     310   1900S   65   9.0  14.2    0.9 +  0.4  ( 17.4)   59  (  5.9)    13  ( 0.0)*     23.4      1      7  64
  121    484<    120L   65   9.0  15.5    1.5 +  0.6  ( 29.6)   51  (  9.4)    13  ( 0.0)*     39.2      1      7  64
  199      10  10000     0   7.2   5.4    0.0 +  0.0  (  0.2)   33  (  0.0)     0               0.2      1      5  64
  210     664   6000S   26   4.7   0.4    0.0 +  0.1  (  1.1)    0  (  0.1)     0               1.2
  220    880<    210L   26   4.7   0.4    0.0 +  0.1  (  1.4)    0  (  0.1)     0               1.5
  290     664   1874   101  15.0  93.1    2.3 + 14.9  (243.8)  162  ( 34.4)    34             278.3
  301     622   1950    82  15.0  37.5    4.3 +  2.2  ( 91.9)   98  ( 19.6)    16             111.5      3     56   0
  302     555   1900    75  15.0  33.4    3.7 +  1.5  ( 73.1)   92  ( 16.3)    13              89.4      3     56   0
  310     328   1950S   63   6.6  24.3    1.8 +  0.4  ( 31.5)  105  ( 11.1)    14  ( 1.1)*    192.8      3      7  51
  311    283<    310L   63   6.6  21.0    1.3 +  0.4  ( 23.4)   67  (  6.4)    14  ( 1.1)*    135.7      3      7  51
  320     324   1900S   81   6.6  34.3    2.2 +  0.9  ( 43.9)  111  ( 11.5)    20  ( 3.7)*    471.7      3      7  51
  321    448<    320L   81   6.6  32.4    2.8 +  1.2  ( 57.2)   89  ( 13.3)    20  ( 3.7)*    440.7      3      7  51
  399      10  10000     0   7.2  10.9    0.0 +  0.0  (  0.4)   48  (  0.0)     0               0.4      3      5  51
  410    1161   6000S   42   4.9   0.5    0.0 +  0.2  (  2.4)    1  (  0.2)     0               2.6
  420   1375<    410L   42   4.9   0.5    0.0 +  0.2  (  2.8)    1  (  0.3)     0               3.1
  490      10   1281     6  15.0  25.3    0.0 +  0.0  (  1.0)   96  (  0.3)     0               1.3
  501     275   1900    81  15.0  62.5    2.7 +  2.1  ( 67.8)  120  ( 10.6)     9              78.4      5     75   0
  502     258   1900    76  15.0  56.9    2.5 +  1.6  ( 57.9)  114  (  9.4)     8              67.4      5     75   0
  503     300   1900    89  15.0  76.6    3.0 +  3.4  ( 90.6)  133  ( 12.9)    11             103.5      5     75   0
  510     555   1900S   68   5.6  25.7    3.3 +  0.6  ( 56.4)   93  ( 16.5)    20  ( 3.3)*    466.6      5      7  70
  511     365    510L   68   5.6   8.5    0.4 +  0.4  ( 12.2)   56  (  6.7)    20  ( 3.3)*    346.4      5      7  70
  520     555   1900S   88   5.6  32.6    3.3 +  1.7  ( 71.3)  100  ( 17.8)    31  ( 9.5)*   1106.5      5      7  70
  521    639<    520L   88   5.6  20.2    1.6 +  1.9  ( 50.8)   96  ( 20.1)    31  ( 9.5)*   1016.9      5      7  70
  610     558   4000S   29   4.2   0.6    0.0 +  0.1  (  1.4)    1  (  0.1)     0               1.5
  620     622    610L   29   4.2   0.6    0.0 +  0.1  (  1.6)    1  (  0.1)     0               1.7
  690    1483   2278   120  15.0 325.8    9.1 +125.1  (999.9)  246  (117.4)   199     +       2023.1
  710   1038<   6000S   29   6.1   0.4    0.0 +  0.1  (  1.7)    0  (  0.2)     0               1.9
  720     695    710L   29   6.1   0.4    0.0 +  0.1  (  1.2)    0  (  0.1)     0               1.3
  790     618   2300    92  15.0  28.9    0.1 +  4.9  ( 70.5)   66  ( 13.0)     9              83.5
```

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
2064.8	267.3	7.7	55.7	168.4	(3182.7) + (616.4)	+	(3499.4)	= 7298.5	TOTALS

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	257.8	+	177.0	=	544.9

NO. OF ENTRIES TO SUBPT = 1
NO. OF LINKS RECALCULATED= 82

.

90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	39	13								
3	2	26	77								
5	2	0	70								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS (%)	STOPS COST OF ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END (SECONDS)
101	266	1900	57	7.6	38.9	2.2 +	0.7	(40.8)	93	(8.0)	7		48.8	1	18	39
102	330	1900	71	15.0	44.2	2.9 +	1.2	(57.6)	101	(10.7)	9		68.3	1	18	39
103	324	1900	70	16.7	43.6	2.8 +	1.1	(55.7)	100	(8.4)	8		64.1	1	18	39
110	189	1900S	41	9.0	10.7	0.4 +	0.1	(8.0)	48	(2.9)	6	(0.0)*	10.9	1	46	13
111	312<	110L	41	9.0	10.4	0.7 +	0.2	(12.8)	44	(4.6)	6	(0.0)*	17.4	1	46	13
120	310	1900S	65	9.0	14.4	0.9 +	0.4	(17.6)	62	(6.1)	13	(0.0)*	24.0	1	46	13
121	484<	120L	65	9.0	13.6	1.3 +	0.6	(26.0)	49	(9.2)	13	(0.0)*	35.4	1	46	13
199	10	10000	0	7.2	5.4	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	1	44	13
210	664	6000S	26	4.7	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2			
220	879<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.5			
290	664	1874	101	15.0	91.4	2.6 +	14.3	(239.5)	161	(34.2)	43	+	273.7			
301	622	1950	82	15.0	37.5	4.3 +	2.2	(91.9)	98	(19.6)	16		111.5	3	82	26
302	555	1900	75	15.0	33.4	3.7 +	1.5	(73.1)	92	(16.3)	13		89.4	3	82	26
310	328	1950S	63	6.6	13.7	0.8 +	0.4	(17.7)	94	(9.9)	14	(0.7)*	134.2	3	33	77
311	283<	310L	63	6.6	21.6	1.3 +	0.4	(24.1)	67	(6.4)	14	(0.7)*	97.5	3	33	77
320	324	1900S	81	6.6	24.9	1.3 +	0.9	(31.9)	109	(11.4)	21	(3.2)*	410.4	3	33	77
321	449<	320L	81	6.6	30.5	2.6 +	1.2	(54.0)	96	(14.4)	21	(3.2)*	390.1	3	33	77
399	10	10000	0	7.2	10.9	0.0 +	0.0	(0.4)	48	(0.0)	0		0.4	3	31	77
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6			
420	1376<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.1			
490	10	1281	6	15.0	24.8	0.0 +	0.0	(1.0)	96	(0.3)	0		1.3			
501	275	1900	81	15.0	62.5	2.7 +	2.1	(67.8)	120	(10.6)	9		78.4	5	75	0
502	258	1900	76	15.0	56.9	2.5 +	1.6	(57.9)	114	(9.4)	8		67.4	5	75	0
503	300	1900	89	15.0	76.6	3.0 +	3.4	(90.6)	133	(12.9)	11		103.5	5	75	0
510	555	1900S	68	5.6	10.1	0.9 +	0.6	(22.1)	82	(14.6)	17	(1.3)*	227.4	5	7	70
511	365	510L	68	5.6	9.1	0.5 +	0.4	(13.1)	28	(3.4)	17	(1.3)*	148.6	5	7	70
520	555	1900S	88	5.6	19.9	1.4 +	1.7	(43.5)	100	(17.9)	21	(3.2)*	449.6	5	7	70
521	640<	520L	88	5.6	16.3	0.9 +	2.0	(41.1)	35	(7.3)	21	(3.2)*	365.2	5	7	70
610	558	4000S	30	4.2	0.6	0.0 +	0.1	(1.4)	1	(0.1)	0		1.5			
620	622	610L	30	4.2	0.6	0.0 +	0.1	(1.6)	1	(0.1)	0		1.7			
690	1483	2278	120	15.0	325.4	8.8 +	125.2	(999.9)	247	(117.4)	199	+	2020.7			
710	1038<	6000S	29	6.1	0.4	0.0 +	0.1	(1.7)	0	(0.2)	0		1.9			
720	695	710L	29	6.1	0.4	0.0 +	0.1	(1.2)	0	(0.1)	0		1.3			
790	618	2300	92	15.0	28.8	0.1 +	4.9	(70.2)	65	(12.9)	10		83.1			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
2064.8	259.8	7.9	48.6	168.0	(3075.4) + (585.1)	+	(1675.7)	= 5336.2	TOTALS

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	249.1	+	168.6	=	527.8

NO. OF ENTRIES TO SUBPT = 10
NO. OF LINKS RECALCULATED= 283

.

90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	39	13								
3	2	80	41								
5	2	0	70								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	DELAY COST OF ($/H)	STOPS MEAN STOPS /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND END (SECONDS)
101	266	1900	57	7.6	38.9	2.2 +	0.7	(40.8)	93	(8.0)	7		48.8	1	18	39
102	330	1900	71	15.0	44.2	2.9 +	1.2	(57.6)	101	(10.7)	9		68.3	1	18	39
103	324	1900	70	16.7	43.6	2.8 +	1.1	(55.7)	100	(8.4)	8		64.1	1	18	39
110	189	1900S	41	9.0	10.8	0.4 +	0.1	(8.0)	48	(2.9)	6	(0.0)*	11.0	1	46	13
111	312<	110L	41	9.0	10.5	0.7 +	0.2	(12.9)	43	(4.5)	6	(0.0)*	17.4	1	46	13
120	310	1900S	65	9.0	14.5	0.9 +	0.4	(17.7)	63	(6.3)	14	(0.0)*	28.1	1	46	13
121	484<	120L	65	9.0	13.9	1.3 +	0.6	(26.5)	54	(10.1)	14	(0.0)*	40.6	1	46	13
199	10	10000	0	7.2	5.4	0.0 +	0.0	(0.2)	33	(0.0)	0		0.2	1	44	13
210	664	6000S	26	4.7	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2			

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	CRUISE (SEC)	DELAY (SEC)	UNIFORM + RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX ($/H)	EXIT NODE	GREEN 1ST	GREEN 2ND
220	880<	210L	26	4.7	0.4	0.0 + 0.1	(1.4)	0	(0.1)	0		1.5			
290	664	1874	101	15.0	91.5	2.7 + 14.2	(239.6)	160	(34.2)	43	+	273.8			
301	622	1950	82	15.0	37.5	4.3 + 2.2	(91.9)	98	(19.6)	16		111.5	3	46	80
302	555	1900	75	15.0	33.4	3.7 + 1.5	(73.1)	92	(16.3)	13		89.4	3	46	80
310	328	1950S	63	6.6	18.8	1.3 + 0.4	(24.3)	37	(3.9)	9	(0.0)*	43.9	3	87	41
311	283<	310L	63	6.6	20.8	1.2 + 0.4	(23.2)	69	(6.7)	9	(0.0)*	29.9	3	87	41
320	324	1900S	81	6.6	23.9	1.3 + 0.9	(30.6)	43	(4.4)	13	(0.5)*	107.2	3	87	41
321	450<	320L	81	6.6	26.3	2.0 + 1.2	(46.7)	76	(11.3)	13	(0.5)*	112.4	3	87	41
399	10	10000	0	7.2	10.9	0.0 + 0.0	(0.4)	48	(0.0)	0		0.4	3	85	41
410	1161	6000S	42	4.9	0.5	0.0 + 0.2	(2.4)	1	(0.2)	0		2.6			
420	1376<	410L	42	4.9	0.5	0.0 + 0.2	(2.8)	1	(0.3)	0		3.1			
490	10	1281	10	15.0	30.7	0.0 + 0.1	(1.2)	129	(0.4)	0		1.6			
501	275	1900	81	15.0	62.5	2.7 + 2.1	(67.8)	120	(10.6)	9		78.4	5	75	0
502	258	1900	76	15.0	56.9	2.5 + 1.6	(57.9)	114	(9.4)	8		67.4	5	75	0
503	300	1900	89	15.0	76.6	3.0 + 3.4	(90.6)	133	(12.9)	11		103.5	5	75	0
510	555	1900S	68	5.6	17.2	2.0 + 0.6	(37.7)	58	(10.3)	13	(0.8)*	173.5	5	7	70
511	365	510L	68	5.6	8.5	0.4 + 0.4	(12.2)	49	(5.9)	13	(0.8)*	102.4	5	7	70
520	555	1900S	88	5.6	24.1	2.0 + 1.7	(52.7)	65	(11.6)	22	(4.0)*	509.8	5	7	70
521	640<	520L	88	5.6	17.8	1.2 + 2.0	(44.8)	70	(14.8)	22	(4.0)*	458.7	5	7	70
610	558	4000S	30	4.2	0.6	0.0 + 0.1	(1.4)	1	(0.1)	0		1.5			
620	622	610L	30	4.2	0.6	0.0 + 0.1	(1.6)	1	(0.1)	0		1.7			
690	1483	2278	120	15.0	324.1	8.4 +125.1	(999.9)	247	(117.4)	199	+	2013.5			
710	1038<	6000S	29	6.1	0.4	0.0 + 0.1	(1.7)	0	(0.2)	0		1.9			
720	695	710L	29	6.1	0.4	0.0 + 0.1	(1.2)	0	(0.1)	0		1.3			
790	618	2300	92	15.0	28.8	0.0 + 4.9	(70.2)	38	(7.6)	9		77.8			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)		TOTAL COST OF STOPS ($/H)		PENALTY FOR EXCESS QUEUES ($/H)		TOTAL PERFORMANCE INDEX ($/H)	
2064.8	261.1	7.9	50.0	167.9	(3094.1)	+	(470.5)	+	(1083.6)	=	4648.2	TOTALS

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90 SECOND CYCLE 90 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	250.6	+	159.2	=	519.9

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 251

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	39	10								
3	2	81	39								
5	2	88	71								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	-------DELAY-------- UNIFORM RANDOM+ OVERSAT (U+R+O=MEAN Q) (PCU-H/H)	COST OF DELAY ($/H)	----STOPS---- MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	----QUEUE---- MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST (SECONDS)	START END 2ND
101	266	1900	50	7.6	34.2	2.0 + 0.5	(35.8)	87	(7.5)	6		43.3	1	15	39
102	330	1900	63	15.0	37.4	2.6 + 0.8	(48.7)	93	(9.8)	8		58.6	1	15	39
103	324	1900	61	16.7	37.1	2.5 + 0.8	(47.4)	92	(7.7)	8		55.1	1	15	39
110	189	1900S	43	9.0	12.4	0.5 + 0.1	(9.2)	52	(3.2)	7	(0.0)*	12.4	1	46	10
111	309<	110L	43	9.0	14.2	1.0 + 0.2	(17.3)	51	(5.4)	7	(0.0)*	22.6	1	46	10
120	310	1900S	69	9.0	16.4	1.0 + 0.4	(20.1)	69	(6.9)	16	(0.2)*	42.4	1	46	10
121	496<	120L	69	9.0	15.2	1.4 + 0.7	(29.7)	60	(11.2)	16	(0.2)*	56.3	1	46	10
199	10	10000	0	7.2	6.5	0.0 + 0.0	(0.3)	37	(0.0)	0		0.3	1	44	10
210	664	6000S	26	4.7	0.4	0.0 + 0.1	(1.1)	0	(0.1)	0		1.2			
220	891<	210L	26	4.7	0.4	0.0 + 0.1	(1.4)	0	(0.1)	0		1.6			
290	664	1874	104	15.0	125.6	3.0 + 20.2	(329.0)	182	(38.9)	44	+	367.9			
301	622	1950	76	15.0	30.9	3.8 + 1.5	(75.7)	89	(17.8)	15		93.5	3	44	81
302	555	1900	69	15.0	28.4	3.3 + 1.1	(62.3)	84	(15.0)	12		77.3	3	44	81
310	328	1950S	67	6.6	18.2	1.1 + 0.5	(23.5)	34	(3.5)	9	(0.0)*	41.3	3	88	39
311	282<	310L	67	6.6	24.0	1.4 + 0.5	(26.7)	75	(7.2)	9	(0.0)*	33.9	3	88	39
320	324	1900S	86	6.6	26.6	1.1 + 1.3	(34.0)	42	(4.4)	14	(1.0)*	160.3	3	88	39
321	442<	320L	86	6.6	34.3	2.5 + 1.7	(59.9)	87	(13.0)	14	(1.0)*	177.2	3	88	39
399	10	10000	0	7.2	12.4	0.0 + 0.0	(0.5)	51	(0.0)	0		0.5	3	86	39
410	1161	6000S	42	4.9	0.5	0.0 + 0.2	(2.4)	1	(0.2)	0		2.6			
420	1367<	410L	42	4.9	0.5	0.0 + 0.2	(2.8)	1	(0.3)	0		3.0			
490	10	1281	10	15.0	34.3	0.0 + 0.1	(1.4)	118	(0.4)	0		1.7			
501	275	1900	100	15.0	149.1	3.0 + 8.4	(161.7)	187	(16.5)	15		178.2	5	76	88
502	258	1900	94	15.0	106.6	2.7 + 4.9	(108.5)	158	(13.1)	11		121.6	5	76	88
503	300	1900	109	15.0	252.5	3.9 + 17.2	(298.8)	227	(21.9)	25		320.7	5	76	88
510	555	1900S	65	5.6	12.2	1.3 + 0.6	(26.7)	46	(8.2)	10	(0.1)*	78.7	5	5	71
511	363<	510L	65	5.6	5.2	0.2 + 0.4	(7.4)	28	(3.3)	10	(0.1)*	21.6	5	5	71
520	555	1900S	84	5.6	16.5	1.3 + 1.2	(36.0)	51	(9.0)	18	(1.6)*	240.0	5	5	71
521	636<	520L	84	5.6	11.0	0.5 + 1.4	(27.5)	51	(10.8)	18	(1.6)*	197.0	5	5	71
610	532<	4000S	29	4.2	0.6	0.0 + 0.1	(1.3)	1	(0.1)	0		1.4			
620	621	610L	29	4.2	0.6	0.0 + 0.1	(1.5)	1	(0.1)	0		1.7			
690	1483	2278	117	15.0	283.9	7.3 +109.7	(999.9)	240	(114.2)	184	+	1774.7			
710	1065<	6000S	29	6.1	0.4	0.0 + 0.1	(1.8)	0	(0.2)	0		1.9			
720	680<	710L	29	6.1	0.4	0.0 + 0.1	(1.1)	0	(0.1)	0		1.2			
790	618	2300	94	15.0	34.0	0.1 + 5.8	(82.9)	75	(14.8)	10		97.7			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)		TOTAL COST OF STOPS ($/H)		PENALTY FOR EXCESS QUEUES ($/H)		TOTAL PERFORMANCE INDEX ($/H)	
2064.8	271.7	7.6	47.6	180.9	(3245.1)	+	(465.7)	+	(578.7)	=	4289.4	TOTALS

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90 SECOND CYCLE 90 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	262.8	+	166.3	=	539.2

NO. OF ENTRIES TO SUBPT = 19
NO. OF LINKS RECALCULATED= 455

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	39	10								
3	2	81	39								
5	2	11	84								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	266	1900	50	7.6	34.2	2.0 +	0.5	(35.8)	87	(7.5)	6		43.3	1			15	39
102	330	1900	63	15.0	37.4	2.6 +	0.8	(48.7)	93	(9.8)	8		58.6	1			15	39
103	324	1900	61	16.7	37.1	2.5 +	0.8	(47.4)	92	(7.7)	8		55.1	1			15	39
110	189	1900S	43	9.0	12.0	0.5 +	0.1	(9.0)	52	(3.2)	7	(0.0)*	12.1	1			46	10
111	309<	110L	43	9.0	14.5	1.0 +	0.2	(17.6)	56	(5.8)	7	(0.0)*	23.5	1			46	10
120	310	1900S	69	9.0	15.9	0.9 +	0.4	(19.4)	66	(6.5)	15	(0.1)*	31.5	1			46	10
121	496<	120L	69	9.0	14.8	1.3 +	0.7	(29.0)	55	(10.1)	15	(0.1)*	44.7	1			46	10
199	10	10000	0	7.2	6.5	0.0 +	0.0	(0.3)	37	(0.0)	0		0.3	1			44	10
210	664	6000S	26	4.7	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2					
220	891<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.6					
290	664	1874	104	15.0	129.1	2.8 +	21.0	(338.0)	184	(39.3)	44	+	377.3					
301	622	1950	76	15.0	30.9	3.8 +	1.5	(75.7)	89	(17.8)	15		93.5	3			44	81
302	555	1900	69	15.0	28.4	3.3 +	1.1	(62.3)	84	(15.0)	12		77.3	3			44	81
310	328	1950S	67	6.6	18.2	1.1 +	0.5	(23.5)	34	(3.5)	9	(0.0)*	41.2	3			88	39
311	281<	310L	67	6.6	24.0	1.4 +	0.5	(26.6)	75	(7.2)	9	(0.0)*	33.8	3			88	39
320	324	1900S	86	6.6	26.5	1.1 +	1.3	(33.9)	42	(4.4)	15	(1.1)*	169.0	3			88	39
321	441<	320L	86	6.6	34.6	2.5 +	1.7	(60.1)	89	(13.3)	15	(1.1)*	186.7	3			88	39
399	10	10000	0	7.2	12.4	0.0 +	0.0	(0.5)	51	(0.0)	0		0.5	3			86	39
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6					
420	1366<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.0					
490	10	1281	10	15.0	31.2	0.0 +	0.1	(1.2)	132	(0.4)	0		1.7					
501	275	1900	100	15.0	149.0	3.0 +	8.4	(161.7)	187	(16.5)	15		178.2	5			89	11
502	258	1900	94	15.0	106.6	2.7 +	4.9	(108.5)	158	(13.1)	11		121.6	5			89	11
503	300	1900	109	15.0	251.4	3.8 +	17.2	(297.5)	227	(21.9)	25		319.3	5			89	11
510	555	1900S	65	5.6	5.7	0.3 +	0.6	(12.4)	14	(2.6)	7	(0.0)*	25.2	5			18	84
511	362<	510L	65	5.6	7.2	0.4 +	0.4	(10.3)	44	(5.3)	7	(0.0)*	15.6	5			18	84
520	555	1900S	84	5.6	9.9	0.3 +	1.2	(21.7)	19	(3.4)	16	(1.3)*	164.0	5			18	84
521	635<	520L	84	5.6	13.9	1.1 +	1.4	(34.7)	67	(14.1)	16	(1.3)*	174.2	5			18	84
610	532<	4000S	29	4.2	0.6	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4					
620	620	610L	29	4.2	0.6	0.0 +	0.1	(1.5)	1	(0.1)	0		1.7					
690	1483	2278	117	15.0	290.2	9.9 +	109.6	(999.9)	240	(114.2)	182	+	1811.6					
710	1065<	6000S	29	6.1	0.4	0.0 +	0.1	(1.8)	0	(0.2)	0		1.9					
720	680<	710L	29	6.1	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2					
790	618	2300	94	15.0	34.0	0.1 +	5.7	(82.8)	78	(15.4)	11		98.2					

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)	TOTAL COST OF STOPS ($/H)	PENALTY FOR EXCESS QUEUES ($/H)	TOTAL PERFORMANCE INDEX ($/H)	
2064.8	273.4	7.6	48.6	181.6	(3269.3) +	(414.9) +	(488.3) =	4172.6	TOTALS

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	264.8	+	163.8	=	538.7

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 270

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13 36
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	39	10								
3	2	81	39								
5	2	11	84								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	DELAY UNIFORM (U+R+O=MEAN Q) (PCU-H/H)	DELAY RANDOM+ OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	STOPS MEAN /PCU (%)	STOPS COST OF STOPS ($/H)	QUEUE MEAN MAX. (PCU)	QUEUE AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START 1ST (SECONDS)	GREEN TIMES START 2ND (SECONDS)	GREEN TIMES END 1ST (SECONDS)	GREEN TIMES END 2ND (SECONDS)
101	266	1900	50	7.6	34.2	2.0 +	0.5	(35.8)	87	(7.5)	6		43.3	1			15	39
102	330	1900	63	15.0	37.4	2.6 +	0.8	(48.7)	93	(9.8)	8		58.6	1			15	39
103	324	1900	61	16.7	37.1	2.5 +	0.8	(47.4)	92	(7.7)	8		55.1	1			15	39
110	189	1900S	43	9.0	12.0	0.5 +	0.1	(9.0)	52	(3.2)	7	(0.0)*	12.1	1			46	10
111	309<	110L	43	9.0	14.5	1.0 +	0.2	(17.6)	56	(5.8)	7	(0.0)*	23.5	1			46	10
120	310	1900S	69	9.0	15.9	0.9 +	0.4	(19.4)	66	(6.5)	15	(0.1)*	31.5	1			46	10
121	496<	120L	69	9.0	14.8	1.3 +	0.7	(29.0)	55	(10.1)	15	(0.1)*	44.7	1			46	10
199	10	10000	0	7.2	6.5	0.0 +	0.0	(0.3)	37	(0.0)	0		0.3	1			44	10
210	664	6000S	26	4.7	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2					
220	891<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.6					
290	664	1874	104	15.0	129.0	2.8 +	21.0	(337.9)	184	(39.3)	44	+	377.2					
301	622	1950	76	15.0	30.9	3.8 +	1.5	(75.7)	89	(17.8)	15		93.5	3			44	81
302	555	1900	69	15.0	28.4	3.3 +	1.1	(62.3)	84	(15.0)	12		77.3	3			44	81
310	328	1950S	67	6.6	18.2	1.1 +	0.5	(23.5)	34	(3.5)	9	(0.0)*	41.2	3			88	39
311	281<	310L	67	6.6	24.0	1.4 +	0.5	(26.6)	75	(7.2)	9	(0.0)*	33.8	3			88	39
320	324	1900S	86	6.6	26.5	1.1 +	1.3	(33.9)	42	(4.4)	15	(1.1)*	169.1	3			88	39
321	441<	320L	86	6.6	34.6	2.5 +	1.7	(60.1)	89	(13.3)	15	(1.1)*	186.7	3			88	39
399	10	10000	0	7.2	12.4	0.0 +	0.0	(0.5)	51	(0.0)	0		0.5	3			86	39
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6					
420	1366<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.0					
490	10	1281	10	15.0	31.2	0.0 +	0.1	(1.2)	132	(0.4)	0		1.7					
501	275	1900	100	15.0	149.0	3.0 +	8.4	(161.7)	187	(16.5)	15		178.2	5			89	11
502	258	1900	94	15.0	106.6	2.7 +	4.9	(108.5)	158	(13.1)	11		121.6	5			89	11
503	300	1900	109	15.0	251.4	3.8 +	17.2	(297.5)	227	(21.9)	25		319.3	5			89	11
510	555	1900S	65	5.6	5.7	0.3 +	0.6	(12.4)	14	(2.6)	7	(0.0)*	25.2	5			18	84
511	362<	510L	65	5.6	7.2	0.4 +	0.4	(10.3)	44	(5.3)	7	(0.0)*	15.6	5			18	84
520	555	1900S	84	5.6	9.9	0.3 +	1.2	(21.7)	19	(3.4)	16	(1.3)*	164.0	5			18	84
521	635<	520L	84	5.6	13.9	1.1 +	1.4	(34.7)	67	(14.1)	16	(1.3)*	174.2	5			18	84
610	532<	4000S	29	4.2	0.6	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4					
620	620	610L	29	4.2	0.6	0.0 +	0.1	(1.5)	1	(0.1)	0		1.7					
690	1483	2278	117	15.0	290.2	9.9 +	109.6	(999.9)	240	(114.2)	182	+	1811.6					
710	1065<	6000S	29	6.1	0.4	0.0 +	0.1	(1.8)	0	(0.2)	0		1.9					
720	680<	710L	29	6.1	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2					

790	618	2300	94	15.0	34.0	0.1 +	5.7	(82.8)	78	(15.4)	11		98.2			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)		TOTAL COST OF STOPS ($/H)		PENALTY FOR EXCESS QUEUES ($/H)		TOTAL PERFORMANCE INDEX ($/H)	
2064.8	273.4	7.6	48.6	181.6	(3269.2)	+	(414.9)	+	(488.4)	=	4172.5	TOTALS

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90 SECOND CYCLE 90 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	264.8	+	163.8	=	538.6

NO. OF ENTRIES TO SUBPT = 7
NO. OF LINKS RECALCULATED= 280

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13 36 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	37	8								
3	2	86	44								
5	2	9	82								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	-------DELAY-------- UNIFORM (U+R+O=MEAN Q)	RANDOM+ OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	----STOPS---- MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	----QUEUE---- MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST (SECONDS)	START END 2ND
101	266	1900	50	7.6	34.2	2.0 +	0.5	(35.8)	87	(7.5)	6		43.3	1	13	37
102	330	1900	63	15.0	37.4	2.6 +	0.8	(48.7)	93	(9.8)	8		58.6	1	13	37
103	324	1900	61	16.7	37.1	2.5 +	0.8	(47.4)	92	(7.7)	8		55.1	1	13	37
110	189	1900S	43	9.0	12.2	0.5 +	0.1	(9.1)	52	(3.2)	8	(0.0)*	12.3	1	44	8
111	309<	110L	43	9.0	15.1	1.1 +	0.2	(18.4)	58	(6.1)	8	(0.0)*	24.4	1	44	8
120	310	1900S	69	9.0	15.6	0.9 +	0.4	(19.1)	64	(6.4)	14	(0.0)*	27.4	1	44	8
121	496<	120L	69	9.0	13.7	1.2 +	0.7	(26.8)	50	(9.3)	14	(0.0)*	38.2	1	44	8
199	10	10000	0	7.2	6.5	0.0 +	0.0	(0.3)	37	(0.0)	0		0.3	1	42	8
210	664	6000S	26	4.7	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2			
220	891<	210L	26	4.7	0.4	0.0 +	0.1	(1.4)	0	(0.1)	0		1.6			
290	664	1874	104	15.0	129.2	2.9 +	21.0	(338.5)	185	(39.4)	45	+	377.8			
301	622	1950	76	15.0	30.9	3.8 +	1.5	(75.7)	89	(17.8)	15		93.5	3	49	86
302	555	1900	69	15.0	28.4	3.3 +	1.1	(62.3)	84	(15.0)	12		77.3	3	49	86
310	328	1950S	67	6.6	9.7	0.3 +	0.5	(12.6)	15	(1.6)	7	(0.0)*	20.4	3	3	44
311	281<	310L	67	6.6	25.3	1.5 +	0.5	(28.1)	77	(7.5)	7	(0.0)*	35.5	3	3	44
320	324	1900S	86	6.6	17.9	0.3 +	1.3	(22.9)	23	(2.4)	13	(0.6)*	93.6	3	3	44
321	441<	320L	86	6.6	34.4	2.5 +	1.7	(59.9)	90	(13.5)	13	(0.6)*	131.9	3	3	44
399	10	10000	0	7.2	12.4	0.0 +	0.0	(0.5)	51	(0.0)	0		0.5	3	1	44
410	1161	6000S	42	4.9	0.5	0.0 +	0.2	(2.4)	1	(0.2)	0		2.6			
420	1366<	410L	42	4.9	0.5	0.0 +	0.2	(2.8)	1	(0.3)	0		3.0			
490	10	1281	9	15.0	32.9	0.0 +	0.0	(1.3)	112	(0.4)	0		1.7			
501	275	1900	100	15.0	149.0	3.0 +	8.4	(161.7)	187	(16.5)	15		178.2	5	87	9
502	258	1900	94	15.0	106.6	2.7 +	4.9	(108.5)	158	(13.1)	11		121.6	5	87	9
503	300	1900	109	15.0	251.5	3.8 +	17.2	(297.7)	227	(21.9)	25		319.5	5	87	9
510	555	1900S	65	5.6	7.8	0.7 +	0.6	(17.1)	26	(4.7)	7	(0.0)*	40.5	5	16	82
511	362<	510L	65	5.6	5.4	0.2 +	0.4	(7.7)	29	(3.5)	7	(0.0)*	11.3	5	16	82
520	555	1900S	84	5.6	12.1	0.7 +	1.2	(26.4)	31	(5.5)	15	(1.0)*	149.4	5	16	82
521	635<	520L	84	5.6	11.1	0.6 +	1.4	(27.7)	50	(10.6)	15	(1.0)*	133.9	5	16	82
610	532<	4000S	29	4.2	0.6	0.0 +	0.1	(1.3)	1	(0.1)	0		1.4			
620	620	610L	29	4.2	0.6	0.0 +	0.1	(1.5)	1	(0.1)	0		1.7			
690	1483	2278	117	15.0	290.0	9.9 +	109.5	(999.9)	240	(114.3)	183	+	1810.5			
710	1065<	6000S	29	6.1	0.4	0.0 +	0.1	(1.8)	0	(0.2)	0		1.9			
720	680<	710L	29	6.1	0.4	0.0 +	0.1	(1.1)	0	(0.1)	0		1.2			
790	618	2300	94	15.0	34.0	0.1 +	5.8	(82.9)	76	(15.1)	10		98.0			

TOTAL DISTANCE TRAVELLED (PCU-KM/H)	TOTAL TIME SPENT (PCU-H/H)	MEAN JOURNEY SPEED (KM/H)	TOTAL UNIFORM DELAY (PCU-H/H)	TOTAL RANDOM+ OVERSAT DELAY (PCU-H/H)	TOTAL COST OF DELAY ($/H)		TOTAL COST OF STOPS ($/H)		PENALTY FOR EXCESS QUEUES ($/H)		TOTAL PERFORMANCE INDEX ($/H)	
2064.8	271.8	7.6	47.1	181.5	(3246.6)	+	(410.4)	+	(312.1)	=	3969.2	TOTALS

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90 SECOND CYCLE 90 STEPS

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	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	262.9	+	161.2	=	534.3

NO. OF ENTRIES TO SUBPT = 15
NO. OF LINKS RECALCULATED= 473

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90 SECOND CYCLE 90 STEPS

INTERMEDIATE SETTINGS - INCREMENTS SO FAR :- 13 36 -1 13 36 1 -1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	32	9								
3	2	82	43								
5	2	10	82								

LINK NUMBER	FLOW INTO LINK (PCU/H)	SAT FLOW (PCU/H)	DEGREE OF SAT (%)	MEAN TIMES PER PCU CRUISE (SEC)	DELAY (SEC)	-------DELAY-------- UNIFORM (U+R+O=MEAN Q)	RANDOM+ OVERSAT (PCU-H/H)	COST OF DELAY ($/H)	----STOPS---- MEAN STOPS /PCU (%)	COST OF STOPS ($/H)	----QUEUE---- MEAN MAX. (PCU)	AVERAGE EXCESS (PCU)	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES ($/H)	EXIT NODE	GREEN TIMES START END 1ST (SECONDS)	START END 2ND
101	266	1900	66	7.6	45.7	2.4 +	1.0	(48.0)	102	(8.7)	7		56.6	1	14	32
102	330	1900	82	15.0	57.7	3.1 +	2.2	(75.2)	116	(12.3)	10		87.4	1	14	32
103	324	1900	81	16.7	56.0	3.0 +	2.0	(71.5)	114	(9.5)	10		81.0	1	14	32
110	189	1900S	39	9.0	8.9	0.3 +	0.1	(6.6)	43	(2.6)	7	(0.0)*	9.2	1	39	9
111	312<	110L	39	9.0	11.2	0.8 +	0.2	(13.8)	51	(5.3)	7	(0.0)*	19.1	1	39	9
120	310	1900S	62	9.0	10.6	0.6 +	0.3	(13.0)	50	(5.0)	10	(0.0)*	18.0	1	39	9
121	488<	120L	62	9.0	9.0	0.7 +	0.5	(17.3)	36	(6.6)	10	(0.0)*	24.0	1	39	9
199	10	10000	0	7.2	4.5	0.0 +	0.0	(0.2)	30	(0.0)	0		0.2	1	37	9

210	664	6000S	26	4.7	0.4	0.0	+	0.1	(1.1)	0	(0.1)	0		1.2						
220	883<	210L	26	4.7	0.4	0.0	+	0.1	(1.4)	0	(0.1)	0		1.5						
290	664	1874	100	15.0	82.8	2.5	+	12.8	(216.7)	155	(33.1)	29		249.8						
301	622	1950	82	15.0	37.5	4.3	+	2.2	(91.9)	98	(19.6)	16		111.5	3	48	82			
302	555	1900	75	15.0	33.4	3.7	+	1.5	(73.1)	92	(16.3)	13		89.4	3	48	82			
310	328	1950S	63	6.6	7.7	0.3	+	0.5	(10.0)	12	(1.2)	7	(0.0)*	16.2	3	89	43			
311	285<	310L	63	6.6	22.0	1.3	+	0.4	(24.7)	72	(6.9)	7	(0.0)*	31.6	3	89	43			
320	324	1900S	82	6.6	12.9	0.3	+	0.9	(16.5)	17	(1.8)	12	(0.3)*	53.2	3	89	43			
321	453<	320L	82	6.6	27.3	2.2	+	1.3	(48.7)	83	(12.4)	12	(0.3)*	88.8	3	89	43			
399	10	10000	0	7.2	10.9	0.0	+	0.0	(0.4)	48	(0.0)	0		0.4	3	87	43			
410	1161	6000S	42	4.9	0.5	0.0	+	0.2	(2.4)	1	(0.2)	0		2.6						
420	1381<	410L	42	4.9	0.5	0.0	+	0.2	(2.8)	1	(0.3)	0		3.1						
490	10	1281	9	15.0	29.4	0.0	+	0.1	(1.2)	127	(0.4)	0		1.6						
501	275	1900	93	15.0	98.0	2.9	+	4.6	(106.2)	151	(13.4)	11		119.6	5	87	10			
502	258	1900	87	15.0	78.5	2.7	+	3.0	(79.9)	134	(11.1)	9		91.0	5	87	10			
503	300	1900	102	15.0	157.4	3.3	+	9.8	(186.2)	192	(18.5)	17		204.7	5	87	10			
510	555	1900S	66	5.6	7.7	0.6	+	0.6	(16.8)	23	(4.0)	8	(0.0)*	37.0	5	17	82			
511	366	510L	66	5.6	7.2	0.3	+	0.4	(10.4)	40	(4.9)	8	(0.0)*	15.2	5	17	82			
520	555	1900S	86	5.6	12.8	0.6	+	1.4	(28.0)	28	(5.0)	15	(1.1)*	167.8	5	17	82			
521	642<	520L	86	5.6	14.0	0.9	+	1.6	(35.4)	58	(12.2)	15	(1.1)*	162.3	5	17	82			
610	554	4000S	29	4.2	0.6	0.0	+	0.1	(1.4)	1	(0.1)	0		1.5						
620	623	610L	29	4.2	0.6	0.0	+	0.1	(1.6)	1	(0.1)	0		1.7						
690	1483	2278	119	15.0	317.9	10.7	+	120.3	(999.9)	245	(116.5)	194	+	1976.4						
710	1046<	6000S	29	6.1	0.4	0.0	+	0.1	(1.7)	0	(0.2)	0		1.9						
720	693	710L	29	6.1	0.4	0.0	+	0.1	(1.2)	0	(0.1)	0		1.3						
790	618	2300	93	15.0	31.5	0.1	+	5.3	(76.7)	70	(13.9)	10		90.6						

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
2064.8	264.5	7.8	47.5	173.8	(3141.9) + (390.9)	+	(284.7)	= 3817.6	TOTALS

.

90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	254.4	+	156.1	=	520.6

NO. OF ENTRIES TO SUBPT = 22
NO. OF LINKS RECALCULATED= 835

.

90 SECOND CYCLE 90 STEPS

FINAL SETTINGS OBTAINED WITH INCREMENTS :- 13 36 -1 13 36 1 -1 1
- (SECONDS)

NODE NO	NUMBER OF STAGES	STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5	STAGE 6	STAGE 7	STAGE 8	STAGE 9	STAGE 10
1	2	33	10								
3	2	82	43								
5	2	12	84								

LINK NUMBER	FLOW INTO LINK	SAT FLOW	DEGREE OF SAT	MEAN TIMES PER PCU CRUISE	DELAY	DELAY (U+R+O=MEAN Q)	UNIFORM RANDOM+ OVERSAT DELAY	COST OF DELAY	MEAN STOPS /PCU	COST OF STOPS	MEAN MAX. QUEUE	AVERAGE EXCESS QUEUE	PERFORMANCE INDEX. WEIGHTED SUM OF ( ) VALUES	EXIT NODE	GREEN TIMES START 1ST	END 1ST	START 2ND	END 2ND
	(PCU/H)	(PCU/H)	(%)	(SEC)	(SEC)		(PCU-H/H)	($/H)	(%)	($/H)	(PCU)	(PCU)	($/H)		(SECONDS)			
101	266	1900	66	7.6	45.7	2.4	+ 1.0	(48.0)	102	(8.7)	7		56.6	1	15	33		
102	330	1900	82	15.0	57.7	3.1	+ 2.2	(75.2)	116	(12.3)	10		87.4	1	15	33		
103	324	1900	81	16.7	56.0	3.0	+ 2.0	(71.5)	114	(9.5)	10		81.0	1	15	33		
110	189	1900S	39	9.0	8.8	0.3	+ 0.1	(6.6)	43	(2.6)	7	(0.0)*	9.2	1	40	10		
111	312<	110L	39	9.0	11.0	0.8	+ 0.2	(13.5)	50	(5.3)	7	(0.0)*	18.8	1	40	10		
120	310	1900S	62	9.0	10.7	0.6	+ 0.3	(13.1)	50	(5.0)	11	(0.0)*	18.1	1	40	10		
121	488<	120L	62	9.0	9.3	0.8	+ 0.5	(17.9)	37	(6.8)	11	(0.0)*	24.7	1	40	10		
199	10	10000	0	7.2	4.5	0.0	+ 0.0	(0.2)	30	(0.0)	0		0.2	1	38	10		
210	664	6000S	26	4.7	0.4	0.0	+ 0.1	(1.1)	0	(0.1)	0		1.2					
220	883<	210L	26	4.7	0.4	0.0	+ 0.1	(1.4)	0	(0.1)	0		1.5					
290	664	1874	100	15.0	83.3	2.5	+ 12.9	(218.3)	155	(33.1)	29		251.4					
301	622	1950	82	15.0	37.5	4.3	+ 2.2	(91.9)	98	(19.6)	16		111.5	3	48	82		
302	555	1900	75	15.0	33.4	3.7	+ 1.5	(73.1)	92	(16.3)	13		89.4	3	48	82		
310	328	1950S	63	6.6	8.8	0.3	+ 0.5	(11.3)	14	(1.5)	7	(0.0)*	18.8	3	89	43		
311	285<	310L	63	6.6	21.8	1.3	+ 0.4	(24.5)	72	(6.9)	7	(0.0)*	31.4	3	89	43		
320	324	1900S	82	6.6	14.0	0.3	+ 0.9	(17.9)	20	(2.1)	12	(0.3)*	58.0	3	89	43		
321	453<	320L	82	6.6	27.3	2.2	+ 1.3	(48.7)	83	(12.4)	12	(0.3)*	90.9	3	89	43		
399	10	10000	0	7.2	10.9	0.0	+ 0.0	(0.4)	48	(0.0)	0		0.4	3	87	43		
410	1161	6000S	42	4.9	0.5	0.0	+ 0.2	(2.4)	1	(0.2)	0		2.6					
420	1381<	410L	42	4.9	0.5	0.0	+ 0.2	(2.8)	1	(0.3)	0		3.1					
490	10	1281	9	15.0	29.1	0.0	+ 0.1	(1.1)	127	(0.4)	0		1.6					
501	275	1900	93	15.0	98.0	2.9	+ 4.6	(106.2)	151	(13.4)	11		119.6	5	89	12		
502	258	1900	87	15.0	78.5	2.7	+ 3.0	(79.9)	134	(11.1)	9		91.0	5	89	12		
503	300	1900	102	15.0	157.3	3.3	+ 9.8	(186.2)	192	(18.5)	17		204.6	5	89	12		
510	555	1900S	66	5.6	6.7	0.4	+ 0.6	(14.6)	18	(3.2)	7	(0.0)*	30.6	5	19	84		
511	366	510L	66	5.6	7.6	0.4	+ 0.4	(10.9)	43	(5.1)	7	(0.0)*	16.1	5	19	84		
520	555	1900S	86	5.6	11.8	0.4	+ 1.4	(25.8)	23	(4.2)	15	(1.1)*	152.8	5	19	84		
521	642<	520L	86	5.6	14.5	1.0	+ 1.6	(36.7)	61	(12.8)	15	(1.1)*	155.6	5	19	84		
610	554	4000S	29	4.2	0.6	0.0	+ 0.1	(1.4)	1	(0.1)	0		1.5					
620	623	610L	29	4.2	0.6	0.0	+ 0.1	(1.6)	1	(0.1)	0		1.7					
690	1483	2278	119	15.0	317.7	10.5	+ 120.3	(999.9)	245	(116.5)	193	+	1974.8					
710	1046<	6000S	29	6.1	0.4	0.0	+ 0.1	(1.7)	0	(0.2)	0		1.9					
720	693	710L	29	6.1	0.4	0.0	+ 0.1	(1.2)	0	(0.1)	0		1.3					
790	618	2300	93	15.0	31.5	0.1	+ 5.3	(76.7)	71	(14.0)	10		90.7					

TOTAL DISTANCE TRAVELLED	TOTAL TIME SPENT	MEAN JOURNEY SPEED	TOTAL UNIFORM DELAY	TOTAL RANDOM+ OVERSAT DELAY	TOTAL COST OF DELAY	TOTAL COST OF STOPS	PENALTY FOR EXCESS QUEUES	TOTAL PERFORMANCE INDEX	
(PCU-KM/H)	(PCU-H/H)	(KM/H)	(PCU-H/H)	(PCU-H/H)	($/H)	($/H)	($/H)	($/H)	
2064.8	264.5	7.8	47.4	173.9	(3142.2) + (386.2)	+	(271.9)	= 3800.2	TOTALS

ROUTE

.

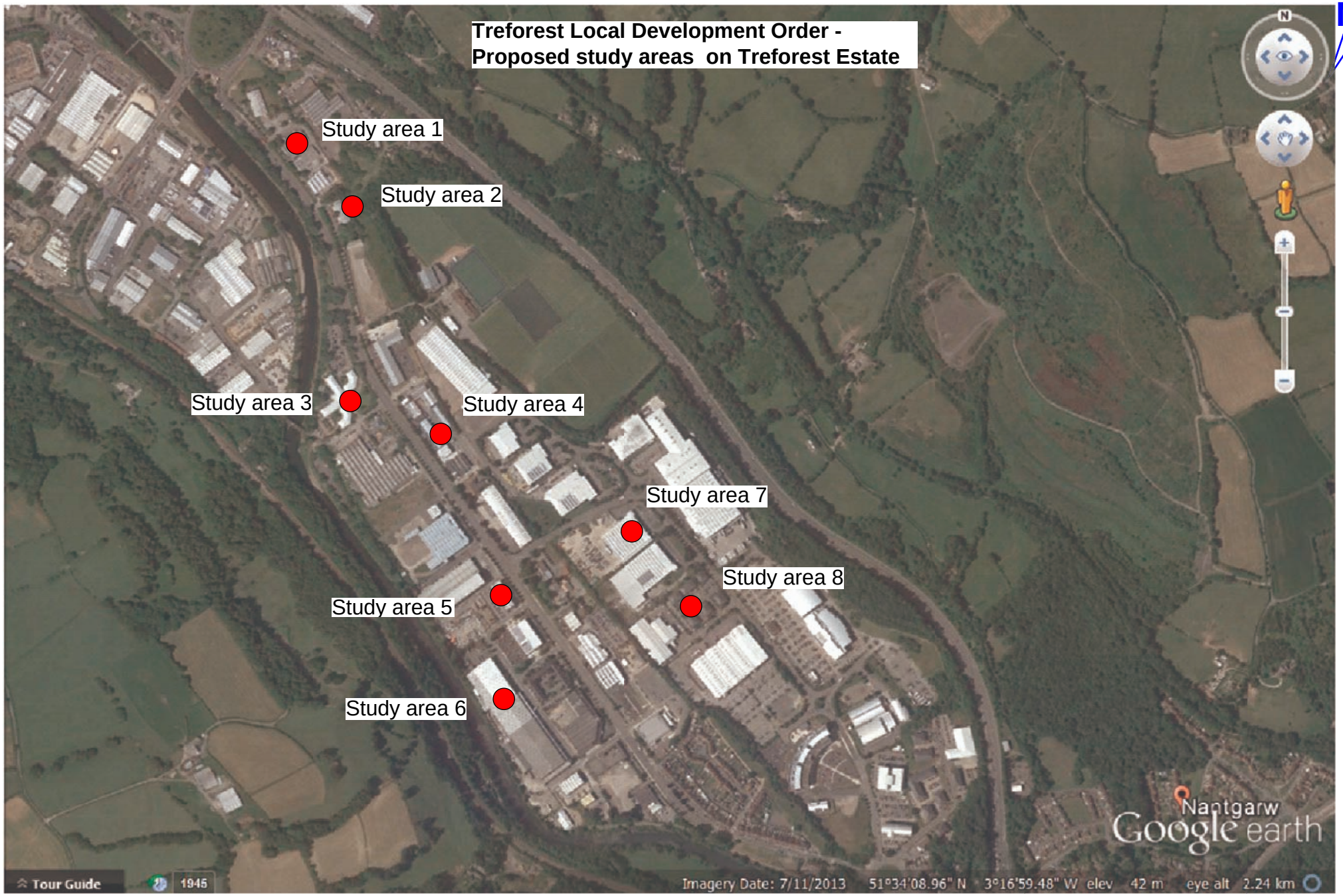
90 SECOND CYCLE 90 STEPS

	CRUISE LITRES PER HOUR		DELAY LITRES PER HOUR		STOPS LITRES PER HOUR		TOTALS LITRES PER HOUR
FUEL CONSUMPTION PREDICTIONS	110.1	+	254.5	+	156.0	=	520.6

NO. OF ENTRIES TO SUBPT = 8
NO. OF LINKS RECALCULATED= 303

Appendix H
Parking Survey Summary Results

CAPITA



CAPITA

Ty Menter, Unit G1, Main Avenue,Treforest
Industrial Estate, Treforest CF37 5YL.

Site Ref :
Drawing No : GC1970

Drawn by : GCD
Times: 10.00, 11.00, 14.00 and 15.00 hrs

Date : Thursday 5th March 2015

Treforest Local Development Order **Zone 3 - Suburban or Near Urban** **GC1970-01**

Thursday 5th March 2015

Study Area 1: B2	10:00	11:00	14:00	15:00	Average
On Street 1	7	8	5	6	7
On Street 2	4	5	3	5	4
On Street 3	6	8	5	6	6
Off Street 1	8	8	8	8	8
Off Street 2	7	6	9	6	7
Total	**32**	**35**	**30**	**31**	**32**

Study Area 2 : B1	10:00	11:00	14:00	15:00	Average
On Street 1	0	0	0	1	0
Off Street 1	8	8	7	10	8
Total	**8**	**8**	**7**	**11**	**9**

Study Area 3: B1	10:00	11:00	14:00	15:00	Average
On Street 1	12	13	11	10	12
Off Street 1	145	144	149	134	143
Off Street 2	59	57	57	49	56
Total	**216**	**214**	**217**	**193**	**210**

Study Area 4: B1	10:00	11:00	14:00	15:00	Average
On Street 1	3	4	1	0	2
On Street 2	1	2	0	0	1
On Street 3	3	2	3	3	3
Off Street 1	15	14	22	23	19
Off Street 2	48	50	50	53	50
Off Street 3	3	3	4	3	3
Off Street 4	0	0	2	3	1
Off Street 5	4	4	5	5	5
Total	**77**	**79**	**87**	**90**	**83**

Study Area 5: B1	10:00	11:00	14:00	15:00	Average
On Street 1	8	8	6	5	7
Off Street 1	42	40	37	32	38
Off Street 2	9	9	9	8	9
Total	**59**	**57**	**52**	**45**	**53**

Study Area 6: B2	10:00	11:00	14:00	15:00	Average
On Street 1	0	1	0	3	1
Off Street 1	31	30	31	29	30
Total	**31**	**31**	**31**	**32**	**31**

Study Area 7:B2	10:00	11:00	14:00	15:00	Average
On Street 1	11	9	11	5	9
Off Street 1	36	33	35	22	32
Total	**47**	**42**	**46**	**27**	**41**

Study Area 8: B1	10:00	11:00	14:00	15:00	Average
On Street 1	11	11	13	11	12
Off Street 1	42	45	44	45	44
Off Street 2	75	77	72	73	74
Total	**128**	**133**	**129**	**129**	**130**

	Minimum parking Demand
	Average Parking Demand
	Maximum parking Demand

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Study Area 1

C1
C2
C10
C11
El Sub Sta
ETL
TCB
40.7m
41.2m
41.5m
LB
HEOL TYA MAEN
1
8
10
12
13
17
20
26
1020 sqm
C5
Deritend Engineering
City Plumbing
Off street site 1
On street site 1
On street site 2
C6
HSS Hire
Afs flower supplies
1020 sqm
Dougfield Plumbers
Off street site 2
Total area = 3229 sqm
Birkemp LTD
1189 sqm
Capital tool hire
PIRTEK
On street site 3
Track
C8
TAFFS FALL ROAD
Outfall
Sloping masonry
MAIN AVENUE
Cycle Track
River Taff (Afon Taf)
ED Boy
N

CAPITA Glamorgan Consultancy	Ty Menter, Unit G1, Main Avenue,Treforest Industrial Estate, Treforest CF37 5YL.	Site Ref : Drawing No :	Drawn by : Checked by :	Scale 1: 1000 Date : 11/02/2015

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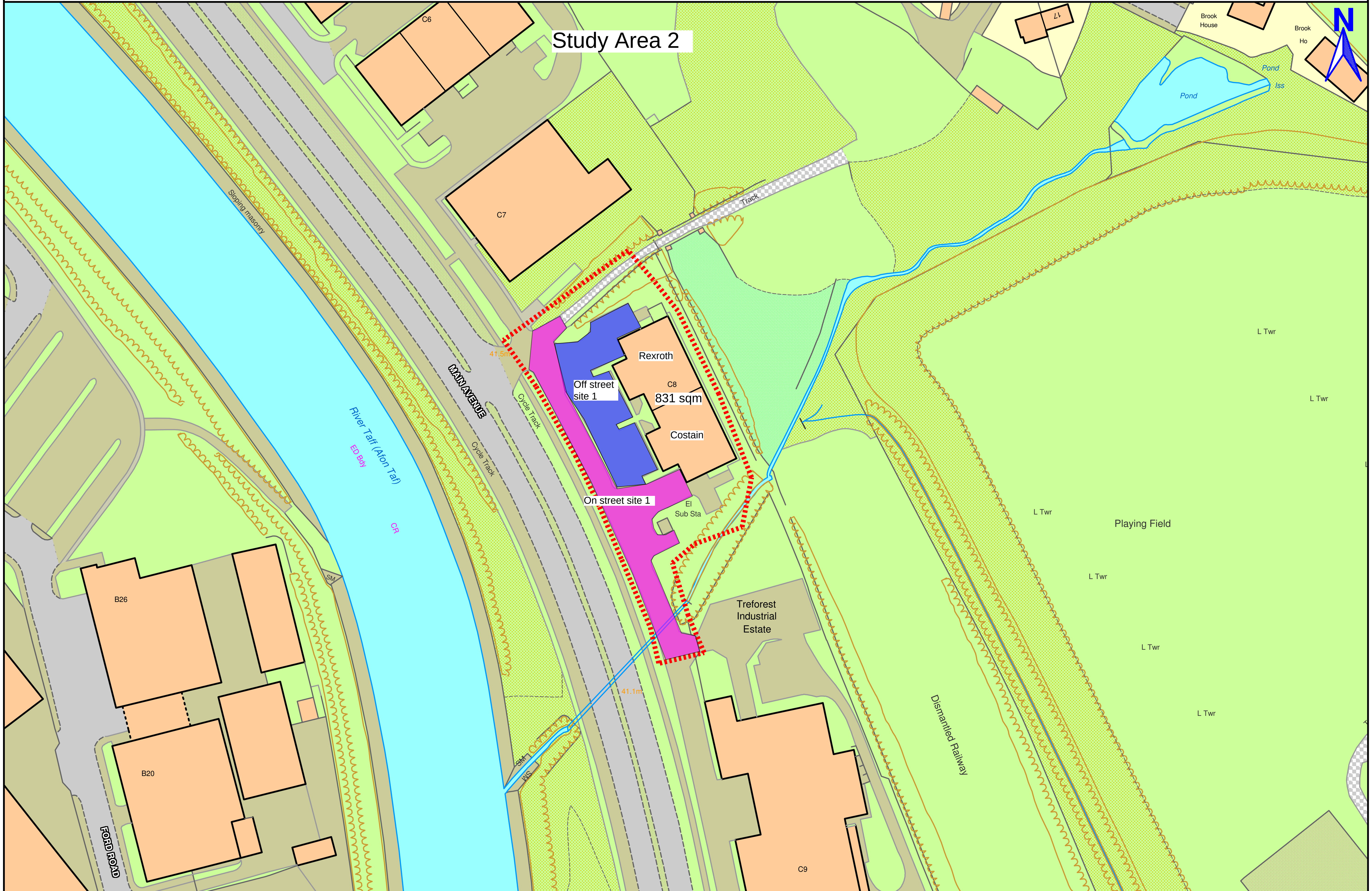

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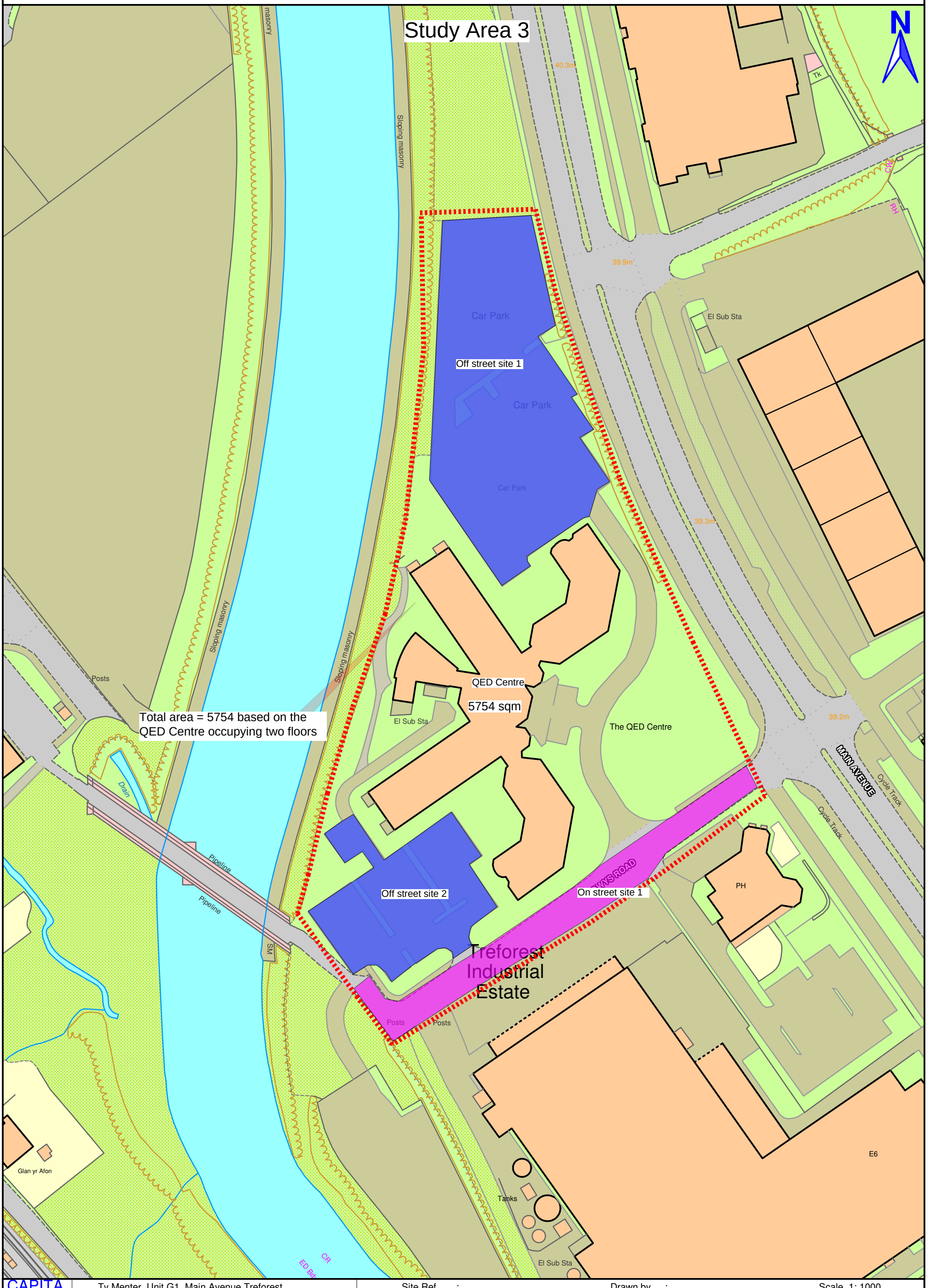
Ty Menter, Unit G1, Main Avenue,Treforest Industrial Estate, Treforest CF37 5YL.

Site Ref :
Drawing No :
Drawn by :
Checked by :
Scale 1: 1000
Date : 11/02/2015

CAPITA GLAMORGAN CONSULTANCY



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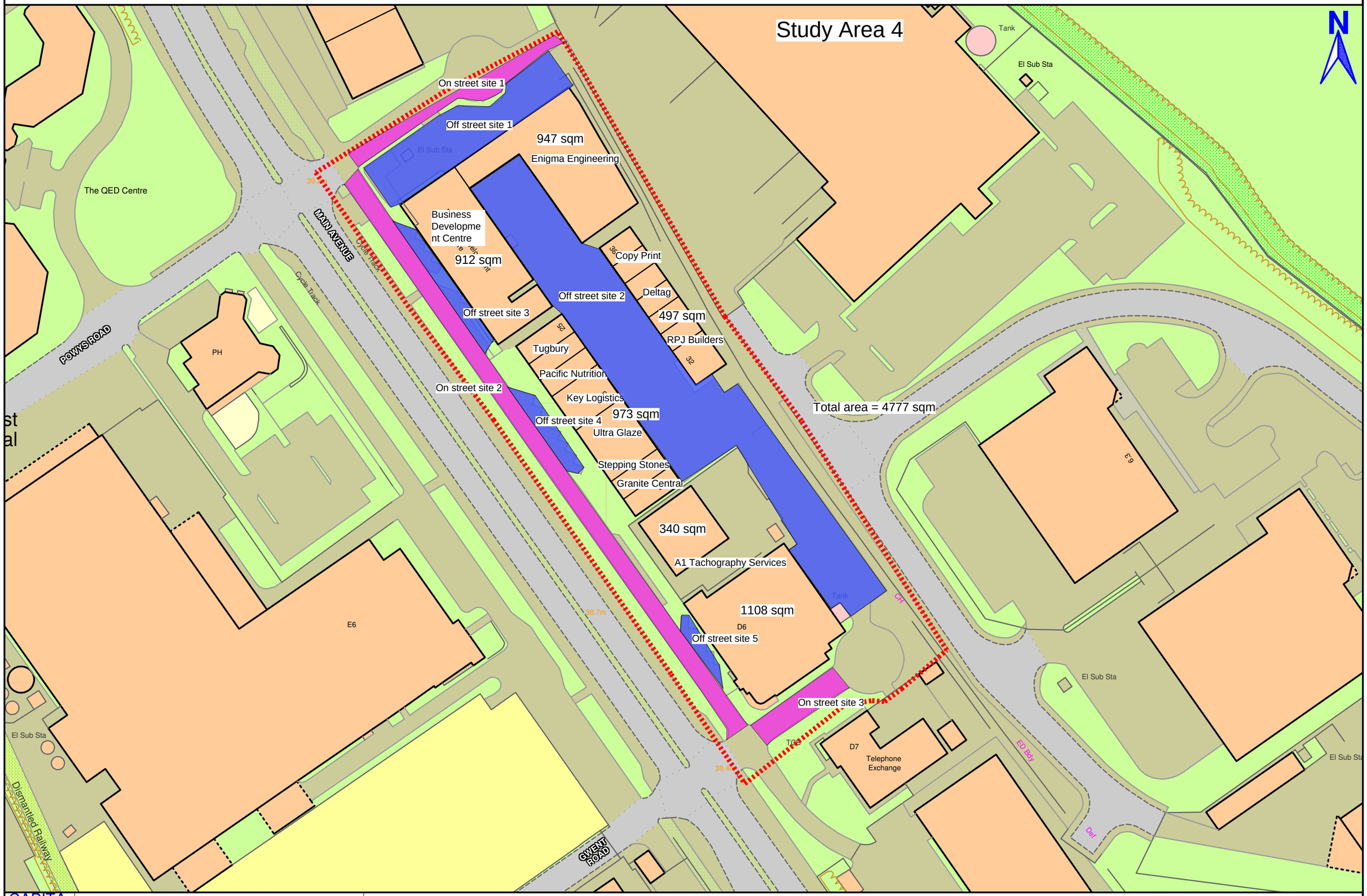

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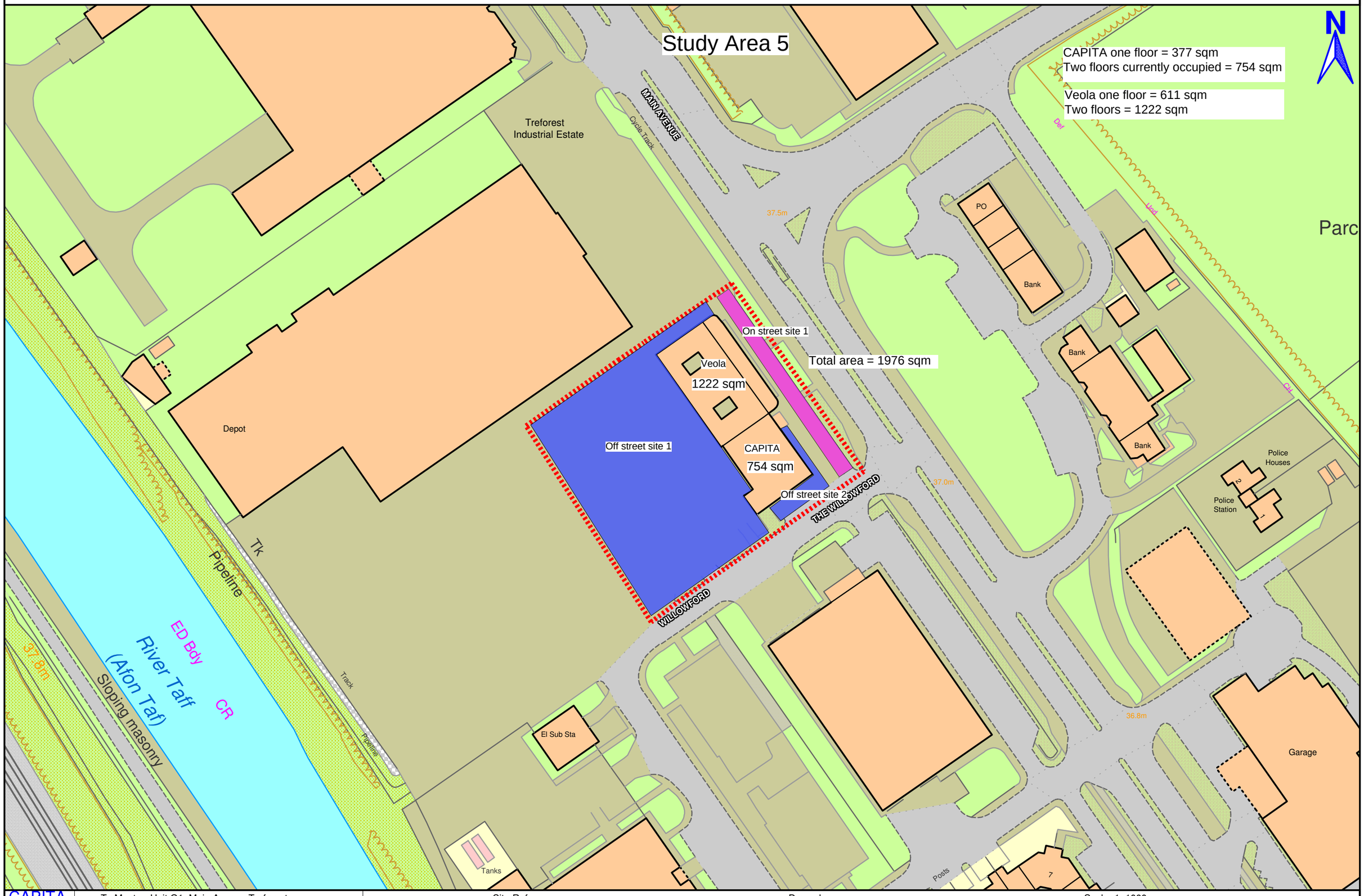

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Peco Facet one floor =1873 sqm
Two floors = 3746 sqm

A and A Insulation Services LTD one floor = 4950 sqm
Two floors = 9900 sqm

Study Area 6

N

WILLOWFORD

El Sub Sta

On street site 1

Tanks

3746 sqm

Peco Facet

G4 1to4

Vacant

Alpha House
1 to 24

9900 sqm

A and A Insulation Services LTD

G4, 5

El Sub Sta

G4, 6

Vacant

Off street site 1

Posts

7

14

Centre
Court

20

1

Total area = 13646 sqm

36.8m

Garage

Upper Boat

Garage

36.4m

MAIN AVENUE

Treforest
Industrial
Estate

Cycle Pa

WILLOWFORD

Sloping masonry

Outfall

Outfall

37.0m

Willowford

36.8m

River

CAPITA Glamorgan Consultancy	Ty Menter, Unit G1, Main Avenue,Treforest Industrial Estate, Treforest CF37 5YL.	Site Ref :	Drawn by :	Scale 1: 1000
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Study Area 8

Parc Nantgarw

El Sub Sta

Tanks

HEOL PARDOE

HEOL GROCHENDY

556 sqm
NHS Wales

826 sqm
NHS Wales

654 sqm
K3 FDS

Off street site 1

Off street site 2

Charnwood Court

Velindre Trust
700 sqm

Talk
Trading
654 sqm

Artutis
654 sqm
CFM Materials

On street site 1

HEOL BILLINGSLEY

Total area = 4044 sqm based on each building being two floors

Tank

Multi-Trade Centre

ST DAVID

Parc

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