
General Report Data

The following two pages have been prepared to simplify the entering of general report data, such as the report title and QA records, that may appear in several locations within the report. Users need only input the data once. This page may be deleted after reading, but the second page containing the Data Input Table must remain as part of the 'WORD' file. Both pages must be omitted from the bound printed report.

The data are recorded in 'Bookmarks' in the column headed 'X' of the Data Input Table, and 'Bookmark References' display the data in the column headed 'Record of input' and in appropriate locations in the report. The Data Input Table also gives the names of the 'Bookmarks'. Do not delete a 'Bookmark' or a 'Bookmark Reference'.

Users enter the data for any particular 'Bookmark' by right clicking at the centre of the particular cell in the column headed 'X'. Then choose 'Update Field' from the menu. This produces a text box into which users enter the data. However, the latest data are not displayed in the report until the 'Bookmark References' are updated. A convenient way of updating all the references simultaneously is to change the 'View' from 'Normal' to 'Page layout' and back again.

Guidance on entering specific data is as follows:

- Some of the 'Bookmarks', namely T2, T3, HL2 and HR2 may not be relevant to a particular report. For such 'Bookmarks', enter a couple of blank spaces. Do not input a void, otherwise the 'Bookmark' gives an error message.
- The report title, comprising up to three lines in bold LucidaSans¹ font, is displayed on pages i and ii. Users must change the font size so that the longest of the three lines fills the horizontal space made available for the title on page i. However, the font size must not exceed 26 points and should preferably be at least 22 points. The same font size is also used for the title lines on page ii.

Do not insert 'Carriage Returns' to split 'Bookmark References' in the report titles on pages i and ii, otherwise the title may not display correctly. Where a title line is too long, shorten it by changing the appropriate 'Bookmark' entry.

- When preparing revisions B, C, etc of a report, users must update the Issue and Revision Record on page ii. The table row programmed with the 'bookmark references' contains the date and the revision letter for the latest revision and must be at the bottom of the table. To create a record for another revision, users must insert a row immediately above the bottom row. Users then enter the data for the superseded revision directly into this row. The date and the revision letter for the new revision (in the bottom row) is updated through the Data Input Table using the method previously described.

¹ The spelling of LucidaSans differs between computers. On some computers, the name comprises two words that is Lucida Sans (which is the correct version), on others the words are combined. In this template, the name is one word, which seems to be the normal case. Thus, on computers having the name in two words, the font in the main title of the report on pages i and ii must be selected and renewed to display properly.

Data Input Table – Do Not Delete

Item	Location	Bookmark name	X ^{1,2}	Record of input ^{3,4}
Report Title – first line	Pages i and ii	T1		Wolverhampton Cordon Survey
Report Title – second line	Pages i and ii	T2		Survey
Report Title – third line	Pages i and ii	T3		2002
Report Title or Heading – first line	Left aligned in headers	HL1		Wolverhampton Cordon Survey 2002
Report Title or Heading – second line	Left aligned in headers	HL2		
Group Name	Right aligned in headers – first line	HR1		jdt
Client/Associate (where applicable)	Right aligned in headers – second line	HR2		
Project Number	Footers	PRJNR		200533/CA10
Report Number	Footers	RPTNR		01
Revision Letter	Issue and Revision Record on page ii and footers	REV		A
Date of issue or report	Page i, Issue and Revision Record on page ii and footers	DATE		February 2003
Initials of word processor	Footers	INI		DMK

Notes ¹ This column contains the 'Bookmarks'. Do not enter data directly into this column or any other column in the table. Similarly, do not delete data in the columns.

To enter data, right click at the centre of the particular cell in column 'X' and choose 'Update Field' from the menu to enter data through the dialogue box. Do not enter a void in any of the dialogue boxes, otherwise an error message will be displayed. Enter a couple of blank spaces instead.

² If you delete a 'Bookmark', you will need to recreate it in the same place with the same name using 'Insert + Fields + Mail Merge + Ask'.

³ This column and the appropriate locations in the report contain the 'Bookmark References'. These references can be updated by changing the 'View' from 'Normal' to 'Page Layout' and back again.

⁴ If you delete a 'Bookmark Reference', you will need to recreate it in the same place with the same name using 'Insert + Fields + Links and References + Ref'. The help locate a reference (or any other 'Field Code') highlight the codes using 'Tools + Options + Field shading + Always'.

⁵ Do not insert 'Carriage Returns' to split 'Bookmark references' in the report titles on pages i and ii, otherwise the title will not display correctly. Where a title line is too long, shorten it by changing the appropriate 'Bookmark' entry.

Wolverhampton MBC
Heantun House
Salop Street
Wolverhampton WV3 0SQ

Wolverhampton Cordon Survey 2002

February 2003

Mott MacDonald
Canterbury House
85 Newhall Street
Birmingham B3 1LZ
Tel 0121 237 4002
Fax 0121 237 4003

Wolverhampton Cordon Survey 2002

Issue and Revision Record

Rev	Date	Originator (Print) (Signature)	Checker (Print) (Signature)	Approver (Print) (Signature)	Description
		D. King	C. Mitchell	B. Storey	
A	February 2003				First Issue

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Mott MacDonald being obtained. Mott MacDonald accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person using or relying on the document for such other purpose agrees, and will by such use or reliance be taken to confirm his agreement to indemnify Mott MacDonald for all loss or damage resulting therefrom. Mott MacDonald accepts no responsibility or liability for this document to any party other than the person by whom it was commissioned.

List of Contents

Summary	S-1
----------------	-----

Chapters and Appendices

1	Introduction	1
2	Methodology	1
3	Background	1
4	Diary and Quality of Data Collection	1
5	Results	2
	5.1 Occupancy Levels	6
	5.2 Daily and Hourly Variations	6
	5.3 Patterns of Travel	10
	5.4 Mode of Travel	10
6	Appendix 1 Position of Cordon Sites	14
7	Appendix 2 Comparison of Manual and Automatic Counts	16
8	Appendix 3 Estimates of Vehicle Type from Passage Count Data	18
9	Appendix 4 Estimates of Persons From Occupancy Data	20

Tables

Table 1	No. of Vehicles Crossing the Cordon Line in the Morning Peak Period (0730 - 0930).....	2
Table 2	No. of Vehicles Crossing the Cordon Line in the Off-Peak Period (1000 – 1200).	2
Table 3	Total Vehicles by Time Period on an Average Weekday, 1998 - 2002	3
Table 4	Variations in Traffic Flow by Time of Day, 2002	6
Table 5	Net Loss/Gain and Accumulation in Vehicles, by Hour 2002.....	9
Table 6	Net Loss/Gain in Vehicles on an Average Weekday, by Site.....	10
Table 7	Summary of inbound modal data from manual surveys	11
Table 8	Estimated inbound mode of transport figures	11
Table 9	Summary of outbound modal data from manual surveys	12
Table 10	Estimated outbound mode of transport figures	13

Figures

Figure 1 Inbound Morning Peak: Vehicle Volumes by Quarter Hour 4

Figure 2 Outbound Evening Peak: Vehicle Volumes by Quarter Hour 4

Figure 3 Inbound 24 Hour Variations in Total Traffic 5

Figure 4 Outbound 24 Hour Variations in Total Traffic..... 5

Figure 5 Estimate of Numbers of Persons Travelling Inbound - Morning Peak 6

Figure 6 Net Loss/gain in Vehicles Inside the Cordon, by Hour. 8

Figure 7 Net Accumulation of Vehicles Inside Cordon Area, by Hour..... 8

Figure 8 Estimated inbound mode of transport figures 12

Figure 9 Estimated outbound mode of transport figures 13

Figure 10 Location of Wolverhampton ATC Sites..... 15

Summary

The following is a summary of the information contained in this report. Estimates of people have only been calculated for the inbound and outbound morning peak periods. The estimates are calculated using manual surveys. The extent of these surveys defines the extent of information available. For details on methodology and a breakdown of the time periods, see the main report.

0730-0930 inbound

total vehicles	26,324
estimated pedal cycles	156
estimated bus	826
estimated light vehicles	23,635
estimated goods vehicles	1,706
estimated people	30,942

0730-0930 outbound

total vehicles	19,321
estimated pedal cycles	106
estimated bus	751
estimated light vehicles	16,996
estimated goods vehicles	1,468
estimated people	21,301

1000-1200 inbound

total vehicles	18,986
estimated pedal cycles	68
estimated bus	636
estimated light vehicles	16,431
estimated goods vehicles	1,850

1000-1200 outbound

total vehicles	17,685
estimated pedal cycles	74
estimated bus	669
estimated light vehicles	15,145
estimated goods vehicles	1,797

1630-1830 inbound

total vehicles	21,771
estimated pedal cycles	170
estimated bus	678
estimated light vehicles	20,271
estimated goods vehicles	652

1630-1830 outbound

total vehicles	26,453
estimated pedal cycles	309
estimated bus	843
estimated light vehicles	24,409
estimated goods vehicles	892

1 Introduction

This report is being undertaken as part of the Local Transport Plan monitoring process. The purpose of the report is to give an indication of the level of vehicular activity in the town centre, to indicate existing and future levels of transport demand and to monitor the effects of transport policy. The surveys and analysis have been undertaken by the **jdt**.

2 Methodology

Counts of vehicles crossing a cordon around Wolverhampton Town Centre are undertaken every two years using Automatic Traffic Counters (ATC) installed on all major and most minor roads crossing the cordon. The counts record vehicles continuously, by direction, for a seven day period. The location of the sites is shown in figure 10.

Four sites are also surveyed manually by Wolverhampton M.B.C. staff. This data is used to estimate the modal split of the automatic data and also to estimate the number of people travelling into the town centre by vehicle. This year the occupancy surveys grouped all categories together, normally the light vehicles and heavy vehicles are grouped separately to provide different factors for each grouping. Because of the lack of separation the **overall** occupancy factor has been used in all calculations.

A complementary bus cordon survey is also undertaken by **jdt**, on behalf of Centro.

3 Background

The 2002 Wolverhampton Cordon ATC survey was undertaken in the week beginning 14th October. Care was taken to avoid school holidays and the Christmas shopping seasons. In future, every effort will be made to keep the cordon survey to the same week in October.

The exact position of the automatic counts can be seen in Appendix 1.

4 Diary and Quality of Data Collection

ATC and Manual survey data were compared. The results of this comparison can be seen in Appendix 2.

5 Results

In the table below the figures for the number of vehicles crossing the cordon line in both directions during the morning peak period are presented. The period considered to be the morning peak has been taken as 0730 - 0930, in order to provide consistency with previous years, and allowing trends in vehicles entering and leaving Wolverhampton Town Centre to be analysed.

Table 1 No. of Vehicles Crossing the Cordon Line in the Morning Peak Period (0730 - 0930)

	1990	1992	1994	1996	1998	2000	2002
Inbound Total	30,004	29,058	29,099	26,930	29,023	25,807	26,324
Outbound Total	17,834	17,212	19,673	17,866	18,926	19,334	19,321

From these figures, the total number of vehicles crossing the cordon towards the town centre during this time period shows a slight increase on 2000 figures. Outbound figures remained the same.

Data prior to 1994 is based on manual surveys collected at each site for one day of the week. Data from 1994 onwards has been collected in the same way via automatic counters.

The figures for the 1000-1200 time period are given in Table 2. Again, this time period has been considered as it is the off-peak time period that has been surveyed in previous years.

Table 2 No. of Vehicles Crossing the Cordon Line in the Off-Peak Period (1000 – 1200).

	1990	1992	1994	1996	1998	2000	2002
Inbound Total	19,452	19,602	20,465	21,118	19,853	19,025	18,986
Outbound Total	17,577	17,779	19,258	18,303	18,372	17,944	17,685

From these figures, the off-peak vehicles remained at the same level during 2002 in the inbound direction, with the outbound direction decreasing by approximately 1.5%.

Table 3 Total Vehicles by Time Period on an Average Weekday, 1998 - 2002

	0730 - 0930	1000- 1200	1600- 1800	0700- 1900 (12 hr)	24 hour
1998					
Inbound 1998	29,023	19,853	22,261	132,658	165,384
% of 24 hr	17.54	12.0	13.46	80.21	100.00
Outbound 1998	18,926	18,372	28,747	128,274	162,946
% of 24 hr	11.61	11.27	17.64	78.72	100.00
Net 1998(Inbound Minus Outbound)	10,097	1,481	-6,486	4,384	2,438
2000					
Inbound 2000	25,807	19,025	22,674	126,417	158,273
% of 24 hr	16.3	12.0	14.3	79.9	100
Outbound 2000	19,334	17,944	26,783	124,481	158,092
% of 24 hr	12.2	11.4	16.9	78.7	100
Net 2000(Inbound minus Outbound)	6473	1081	-4109	1936	181
2002					
Inbound 2002	26,324	18,986	22,426	127,511	159,781
% of 24 hr	16.5	11.9	14.0	79.8	100
Outbound 2002	19,321	17,685	26,768	124,170	158,245
% of 24 hr	12.2	11.4	16.9	78.5	100
Net 2002(Inbound minus Outbound)	7,003	1,301	-4,342	3,341	1,536

The figures in Table 3 show that 16.5% of traffic flowing into the town centre on a typical day is crossing the cordon line between the hours of 7.30am and 9.30am. This corresponds with the figures for the outbound traffic between 4pm and 6pm which account for 16.9% of a daily outbound flow.

The off-peak time period considered (1000-1200) shows 11.9% of the daily traffic travelling into the town centre with 11.4% travelling out from the centre .

Around 80% of an average day's traffic is crossing the cordon during the main 12-hr day.

The net figure of 7,003 for the morning peak period gives some idea of the amount of the journey to work traffic to the town centre. Full figures for the net vehicles in the town centre are given in Table 5 by hour and Table 6 by station.

The time periods considered have been kept consistent with the time periods surveyed in previous years but, in future, any time period could be considered.

Figure 1 and 2 give a pictorial view of traffic flow in the two peak time periods, by quarter-hour periods.

Figure 1 Inbound Morning Peak: Vehicle Volumes by Quarter Hour

As expected, the graph shows the number of vehicles entering the town centre gradually increasing from 7am, with the peak number between 8.30 – 8.45am.

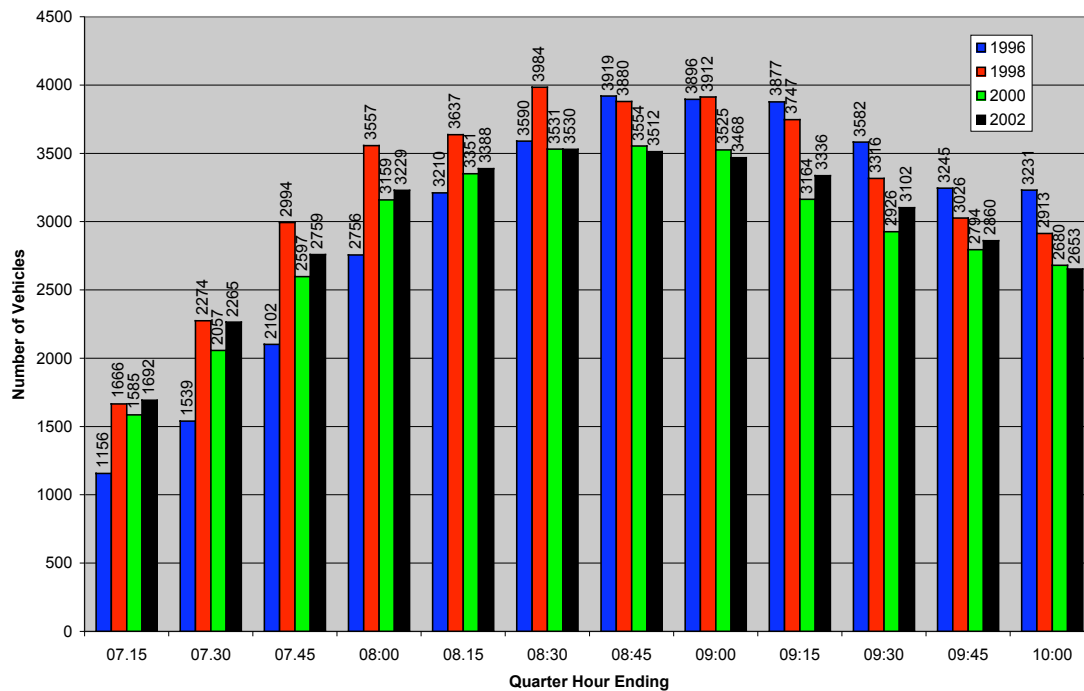
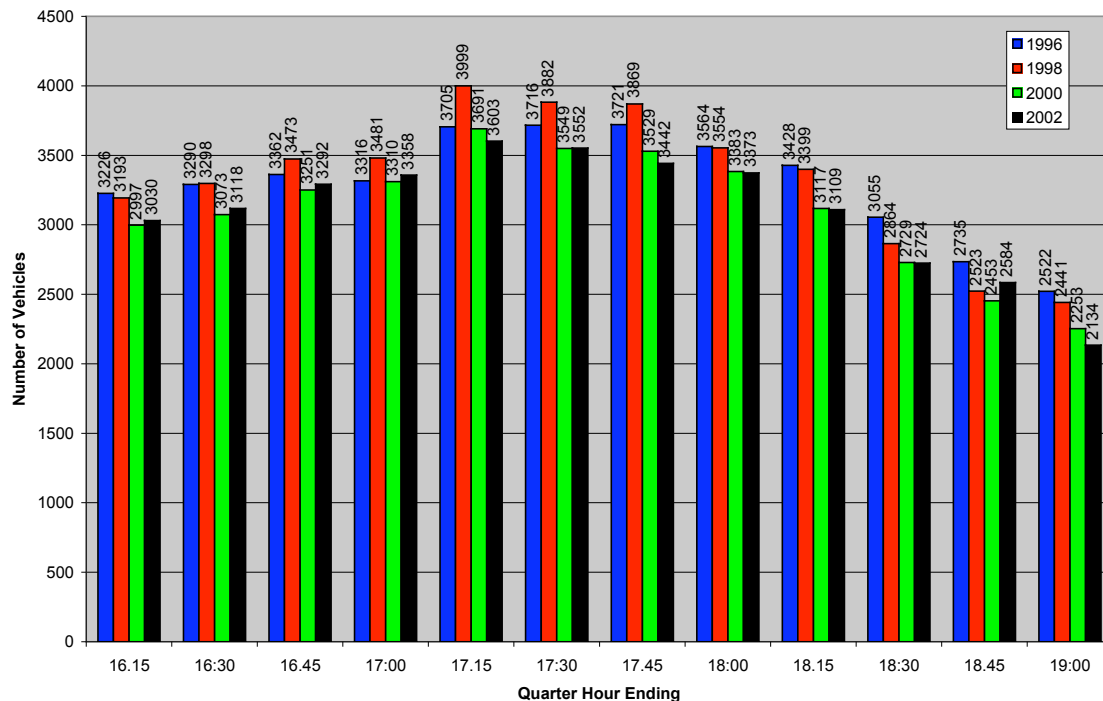


Figure 2 Outbound Evening Peak: Vehicle Volumes by Quarter Hour



The evening peak hour for vehicles leaving the town centre is from 5-6pm with the highest quarter hour period being 17.00-17.15.

The following Figure 3 and Figure 4 present the 24 hour variations in Total Traffic for the inbound and outbound data.

Figure 3 Inbound 24 Hour Variations in Total Traffic

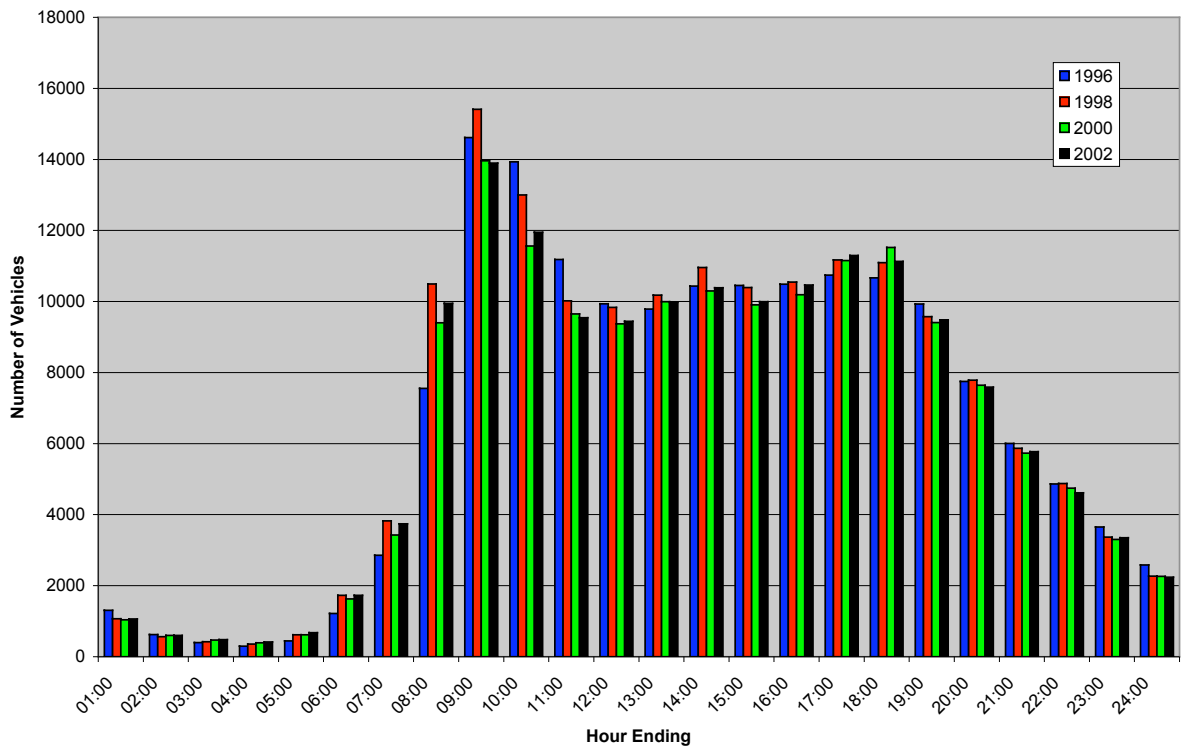
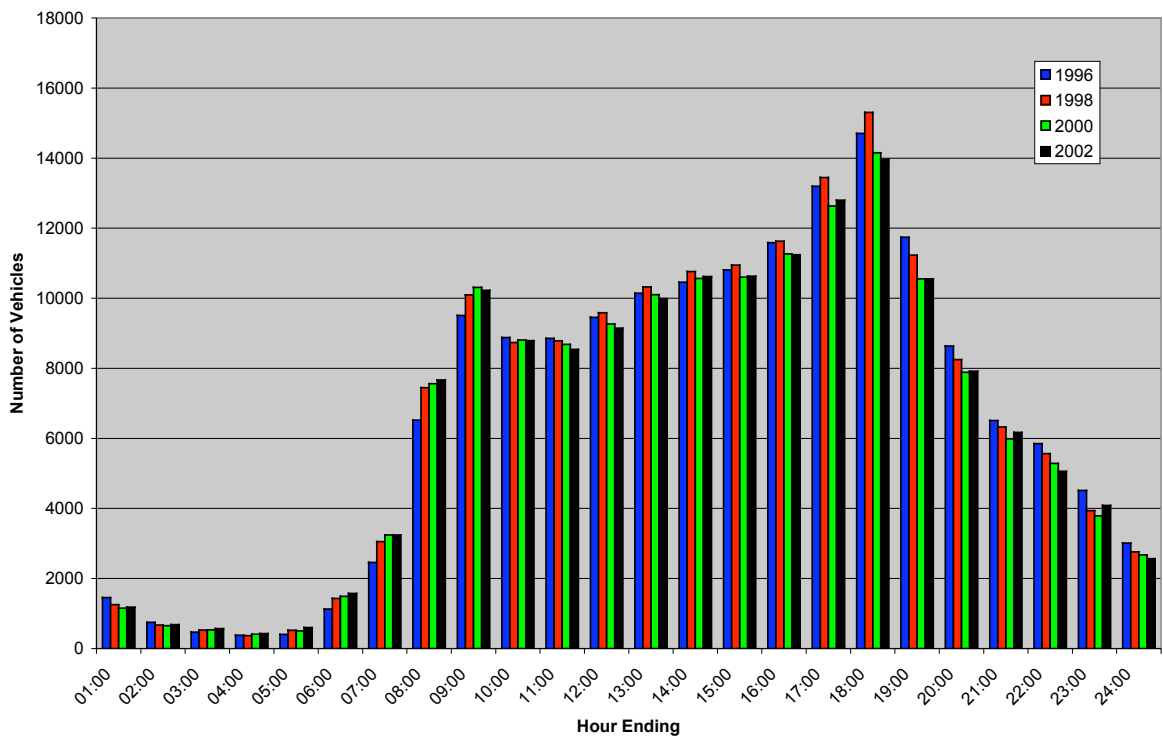


Figure 4 Outbound 24 Hour Variations in Total Traffic



5.1 Occupancy Levels

Figure 5 Estimate of Numbers of Persons Travelling Inbound - Morning Peak

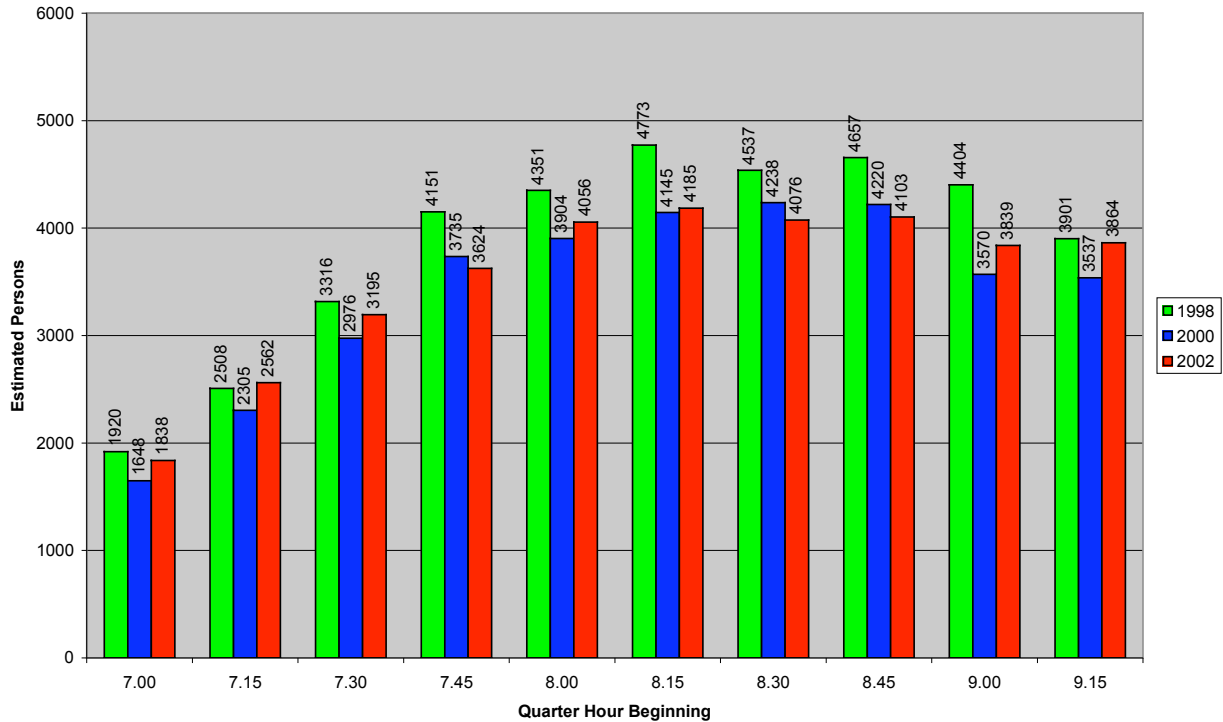


Figure 5 shows the estimated numbers of persons crossing the cordon calculated from the occupancy counts at the four manual sites and the number of vehicles counted automatically per time period.

5.2 Daily and Hourly Variations

Table 4 Variations in Traffic Flow by Time of Day, 2002

	MON	TUE	WED	THUR	FRI	SAT	SUN
Inbound							
0730-0930	0.963	0.991	1.025	1.015	1.007	0.486	1.016
1000-1200	0.995	1.010	0.995	0.975	1.026	1.089	0.769
1600-1800	1.021	0.993	0.989	1.013	0.985	0.731	0.607
0700-1900	0.991	0.993	0.990	0.999	1.027	0.822	0.596
0000-2400	0.979	0.984	0.979	1.008	1.051	0.874	0.652
Outbound							
0730-0930	1.012	0.983	1.000	1.003	1.003	0.471	0.207
1000-1200	1.020	0.984	0.989	0.971	1.036	1.028	0.764
1600-1800	0.986	0.999	0.996	1.018	1.000	0.780	0.553
0700-1900	0.992	0.985	0.992	0.991	1.041	0.834	0.622
0000-2400	0.981	0.976	0.982	1.006	1.005	0.881	0.674

The figures in Table 4 give the proportions that each day contributes to an average week day (Mon - Fri), for each of the popular time periods. These figures can be used to factor a count taken on any day to an average week day's count. The figures also show which days have the heaviest flows during each time period.

Figure 6 Net Loss/gain in Vehicles Inside the Cordon, by Hour.

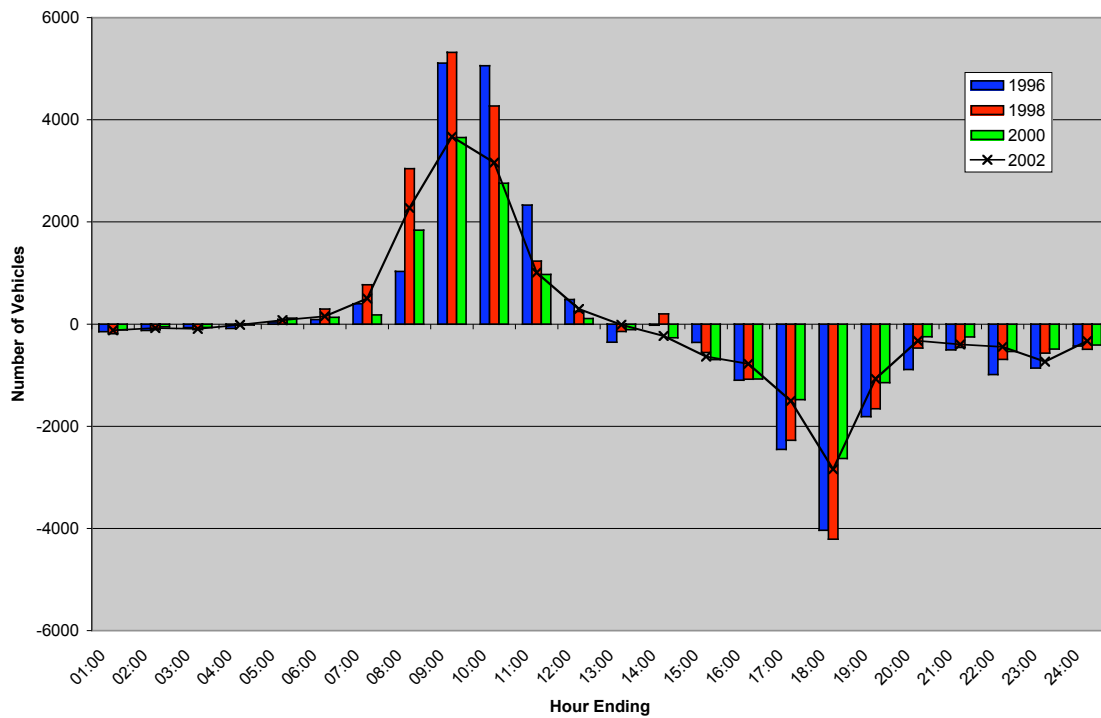


Figure 7 Net Accumulation of Vehicles Inside Cordon Area, by Hour.

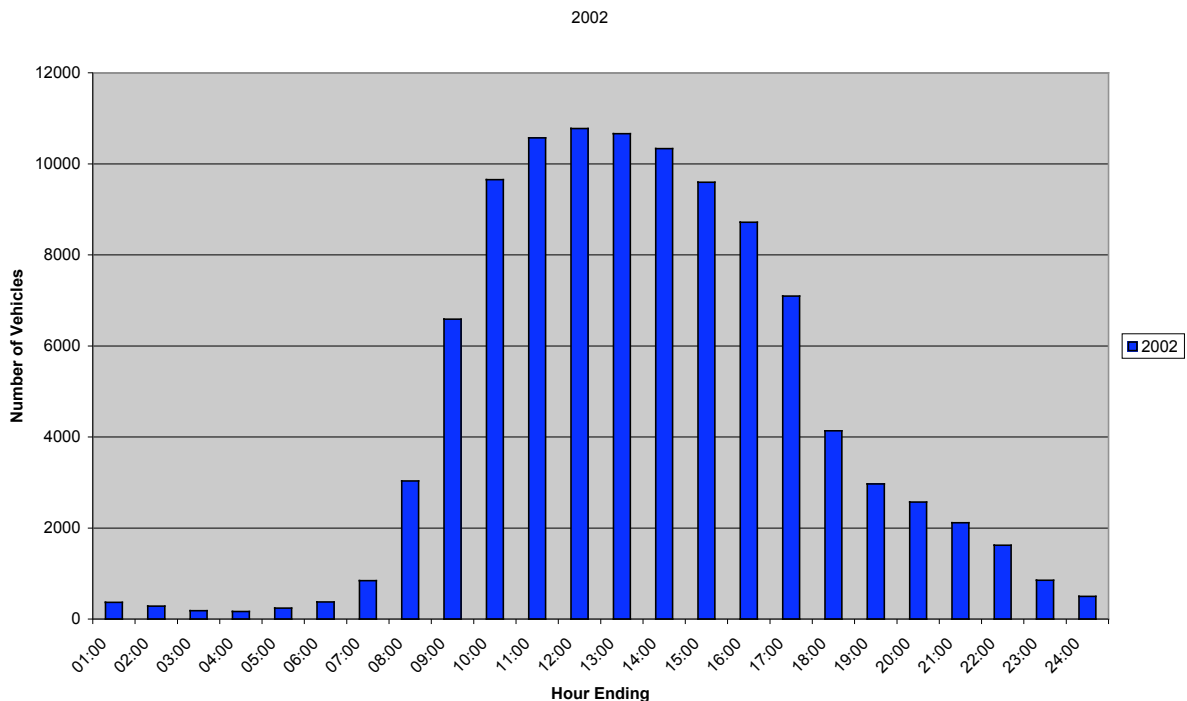


Figure 6 shows the net loss or gain to the town centre of vehicles throughout an average weekday. Stationary vehicles are not taken into account, only the movement of vehicles across the cordon line. Figure 7 shows the net accumulation of vehicles inside the cordon area by hour. The figures used for Figure 6 and Figure 7 are given in Table 5.

Table 5 Net Loss/Gain and Accumulation in Vehicles, by Hour 2002.

Hour Ending	Inbound	Outbound	Net Loss/Gain	Accumulation
1.00	1061	1182	-121	368
2.00	601	680	-79	283
3.00	479	572	-93	185
4.00	417	430	-13	168
5.00	677	599	78	240
6.00	1727	1574	153	377
7.00	3744	3242	502	845
8.00	9945	7669	2276	3036
9.00	13898	10228	3670	6590
10.00	11951	8790	3161	9650
11.00	9544	8537	1007	10570
12.00	9442	9148	294	10774
13.00	9977	9991	-14	10664
14.00	10388	10618	-230	10332
15.00	9992	10628	-636	9597
16.00	10466	11242	-776	8716
17.00	11295	12798	-1503	7097
18.00	11131	13970	-2839	4136
19.00	9482	10551	-1069	2970
20.00	7592	7918	-326	2570
21.00	5772	6168	-396	2116
22.00	4612	5058	-446	1623
23.00	3351	4084	-733	854
24.00	2237	2568	-331	500

N.B. In calculating accumulation of vehicles the ratio of inbound to outbound vehicles was balanced and a nominal 500 vehicles were added in as an estimate of vehicles remaining inside the cordon overnight.

5.3 Patterns of Travel

The figures in Table 6 show the number of vehicles travelling into the town centre and out of the town centre by each individual site on an average weekday. By examining these figures, it is possible to determine some patterns of behaviour in the traffic. For example, people may prefer to use one road to enter the town centre in the mornings and another to leave the town at night.

Table 6 Net Loss/Gain in Vehicles on an Average Weekday, by Site

Site	Location	2000		Net	2002		Net
		inbound	outbound		inbound	outbound	
WV01	Tettenhall Road	10085	9701	384	10751	9819	932
WV02	New Hampton Road West	8064	6891	1173	9031	7705	1326
WV03	Dunstall Road	3747	3821	-74	3651	3870	-219
WV04	Stafford Road	19557	18534	1023	21044	19146	1898
WV05	Cannock Road	12594	11344	1250	11765	10502	1263
WV06	Hilton Street	1463	1301	162	1118	1121	-3
WV07	Wednesfield Road	15144	13082	2062	13310	13780	-470
WV08	Willenhall Road	15028	16121	-1093	14340	12116	2224
WV09	Bilston Road*	8278	10627	-2349	9285	11401	-2116
WV10	Steelhouse Lane	3623	3178	445	4431	3642	789
WV11	Vicarage Road	1582	1447	135	2125	1758	367
WV12	Birmingham Road	11204	11260	-56	8982	12860	-3878
WV13	Dudley Road	11043	9788	1255	11204	9578	1626
WV14	Penn Road	15886	16979	-1093	15779	16255	-476
WV15	Gt. Brickkiln Street	3058	3747	-689	2940	3681	-741
WV16	Merridale Road	9833	11822	-1989	11630	11329	301
WV17	Compton Road	8085	8445	-360	8692	9505	-813

*Roadworks during 2000 surveys

5.4 Mode of Travel

The four manual surveys give us an indication of the mode of travel.

Table 7 shows a summary of the data collected from the four manually surveyed sites. For the purpose of this table, light vehicles includes motorcycles, cars & taxis, and Goods Vehicles less than 1.5 tonnes. The heavy vehicle category includes all vehicles greater than 1.5 tonnes.

In Table 7 the percentage the vehicle category contributes to the total vehicles in that hour is given in brackets. In Tables 8 and 10 we have multiplied these percentages by the number of vehicles counted automatically, giving an indication of the number of each type of vehicle.

Table 7 Summary of inbound modal data from manual surveys

Time Starting	Total Vehs	Pedal Cycles	Bus & Coach	Total Light Vehicles	Total Heavy Vehicles
07:00	2310	23(1.00%)	110(4.76%)	1994(86.32%)	183(7.92%)
08:00	3133	19(0.61%)	86(2.74%)	2848(90.90%)	180(5.75%)
09:00	2852	8(0.28%)	96(3.37%)	2519(88.32%)	229(8.03%)
10:00	2355	11(0.47%)	84(3.57%)	2044(86.79%)	216(9.17%)
11:00	2392	6(0.25%)	75(3.14%)	2064(86.29%)	247(10.33%)
12:00	2436	14(0.57%)	76(3.12%)	2117(86.90%)	229(9.40%)
13:00	2607	20(0.77%)	89(3.41%)	2323(89.11%)	175(6.71%)
14:00	2469	9(0.36%)	103(4.17%)	2163(87.61%)	194(7.86%)
15:00	2561	9(0.35%)	85(3.32%)	2250(87.86%)	217(8.47%)
16:00	2750	17(0.62%)	105(3.82%)	2485(90.36%)	143(5.20%)
17:00	2607	29(1.11%)	82(3.15%)	2427(93.10%)	69(2.65%)
18:00	2311	10(0.43%)	59(2.55%)	2188(94.68%)	54(2.34%)
Total	30783	175(0.57%)	1050(3.41%)	27422(89.08%)	2136(6.94%)

Table 8 Estimated inbound mode of transport figures

Time Starting	No. Vehs counted automatically	estimated ped cyc	estimated bus	estimated light vehs	estimated heavy vehs
07:00	9398	99	474	8585	788
08:00	13961	84	381	12634	798
09:00	11564	34	402	10556	960
10:00	9653	45	340	8284	875
11:00	9372	24	296	8147	975
12:00	9992	57	311	8670	938
13:00	10299	80	355	9256	697
14:00	9906	36	417	8754	785
15:00	10191	37	347	9195	887
16:00	11153	70	431	10207	587
17:00	11521	124	350	10362	295
18:00	9407	41	242	8977	222
Total	126417	730	4347	113627	8807

Figure 8 Estimated inbound mode of transport figures

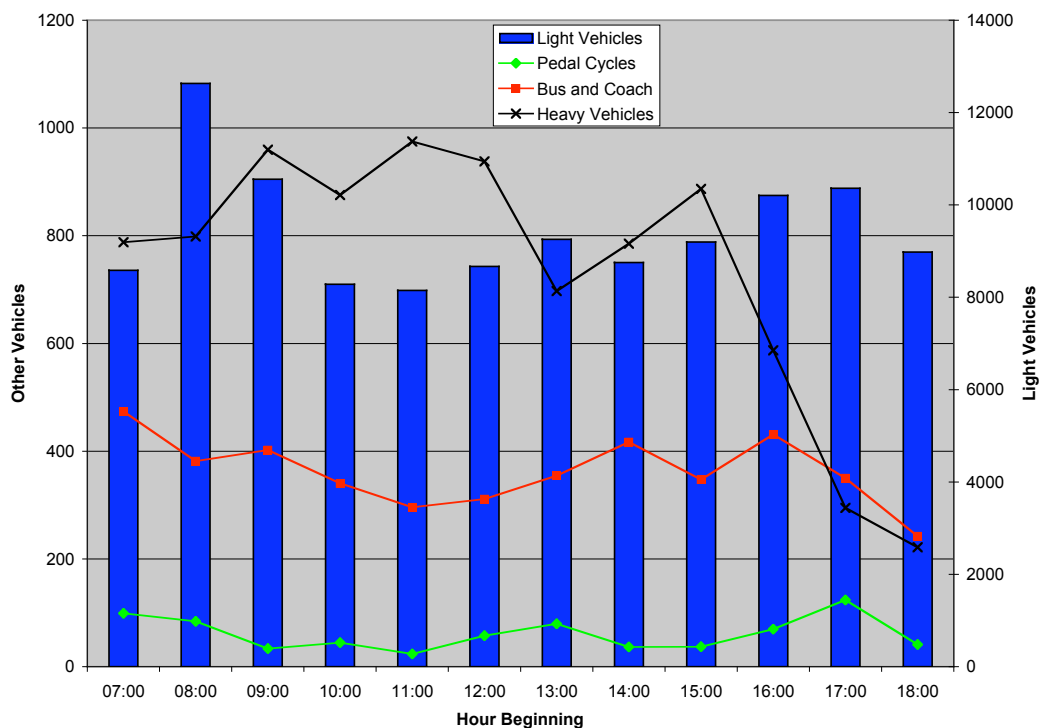


Figure 8 graphically illustrates the figures in Table 8. The lines in the graph are to be read from the left hand axis and the bar (light vehicles) from the right hand axis. The corresponding figures for manually counted outbound vehicles are given in Table 9, and estimated figures in Table 10 and Figure 9.

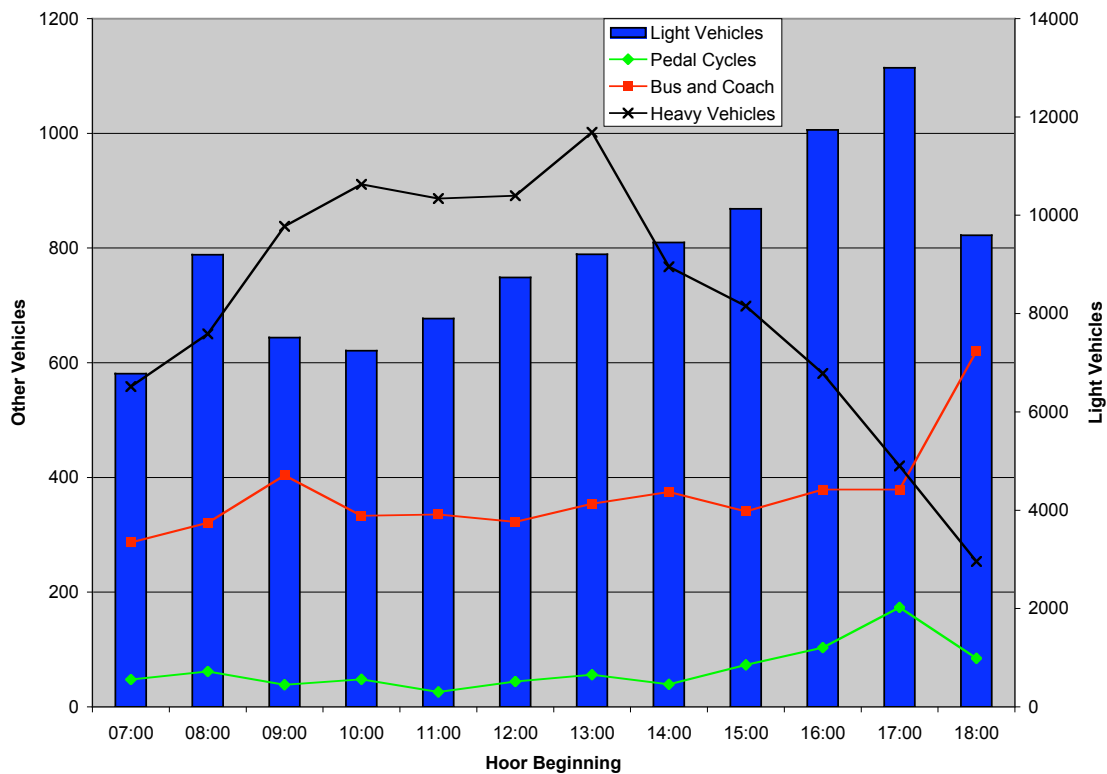
Table 9 Summary of outbound modal data from manual surveys

Time Starting	Total Vehs	Pedal Cycles	Bus & Coach	Total Light Vehicles	Total Heavy Vehicles
07:00	2088	13(0.62%)	78(3.74%)	1845(88.36%)	152(7.28%)
08:00	2485	15(0.60%)	78(3.14%)	2234(89.90%)	158(6.36%)
09:00	2046	9(0.44%)	94(4.59%)	1748(85.43%)	195(9.53%)
10:00	2127	12(0.56%)	83(3.90%)	1805(84.86%)	227(10.67%)
11:00	2126	6(0.28%)	78(3.67%)	1836(86.36%)	206(9.69%)
12:00	2478	11(0.44%)	80(3.23%)	2166(87.41%)	221(8.92%)
13:00	2459	13(0.53%)	82(3.33%)	2132(86.70%)	232(9.43%)
14:00	2438	9(0.37%)	86(3.53%)	2167(88.88%)	176(7.22%)
15:00	2606	17(0.65%)	79(3.03%)	2348(90.10%)	162(6.22%)
16:00	2972	24(0.81%)	88(2.96%)	2725(91.69%)	135(4.54%)
17:00	3059	38(1.24%)	83(2.71%)	2846(93.04%)	92(3.01%)
18:00	2246	18(0.80%)	132(5.88%)	2042(90.92%)	54(2.40%)
Total	29130	185(0.64%)	1041(3.57%)	25894(88.89%)	2010(6.90%)

Table 10 Estimated outbound mode of transport figures

Time Starting	No. Vehs counted automatically	estimated ped cyc	estimated bus	estimated light vehs	estimated heavy vehs
07:00	7669	48	286	6776	558
08:00	10228	62	321	9195	650
09:00	8790	39	404	7510	838
10:00	8537	48	333	7245	911
11:00	9148	26	336	7900	886
12:00	9991	44	323	8733	891
13:00	10618	56	354	9206	1002
14:00	10628	39	375	9447	767
15:00	11242	73	341	10129	699
16:00	12798	103	379	11734	581
17:00	13970	174	379	12997	420
18:00	10551	85	620	9593	254
Total	124170	797	4451	110465	8458

Figure 9 Estimated outbound mode of transport figures



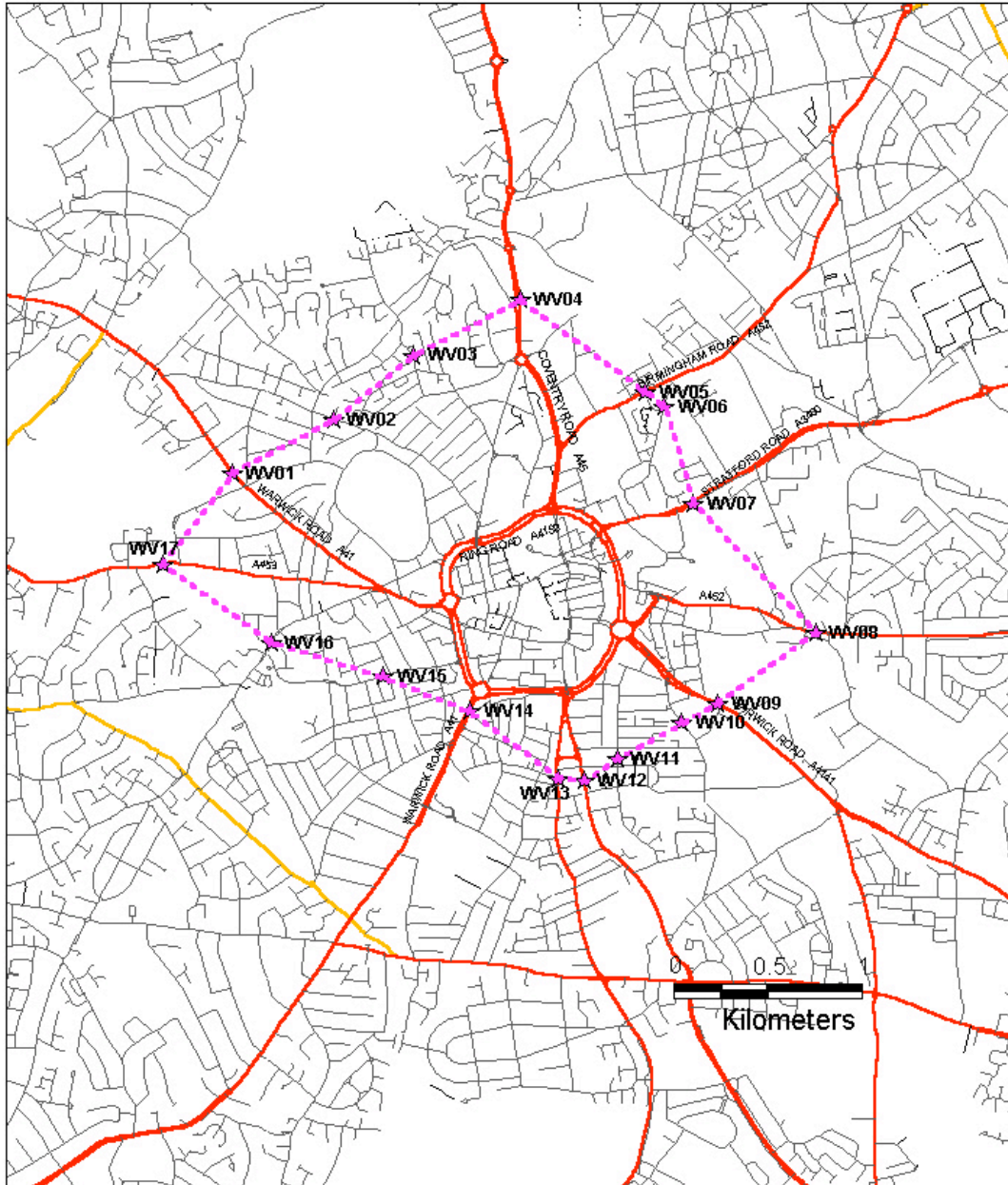
6 Appendix 1 Position of Cordon Sites

The sites were chosen so as to create a closed cordon. The sites remain in the same position as those carried out manually in previous years. The map overleaf shows roughly where the sites were positioned, a description of the exact locations are given below.


Table A1. 1 Description of the Position of the Cordon Sites

Site	Name of Road	Exact Position
WV01	Tettenhall Road	Between Paget Road and St. Jude's Road West
WV02	New Hampton Rd West	Between Hunter St and Evans St.
WV03	Dunstall Road	Between Lowe Street and Evans Street
WV05	Cannock Road	Between Cambridge Street and Prole Street
WV04	Stafford Road	Between Gorsebrook Rd and Fiveways
WV06	Hilton Street	Between Springfield Rd and Yarwell Close
WV07	Wednesfield Road	Between Sun Street and Lincoln Street
WV08	Willenhall Road	Between Colliery Rd and Hickman Ave.
WV09	Bilston Road	Between Jenner Street and Steelhouse Lane
WV10	Steelhouse Lane	Between Gordon Street and Eagle Street
WV11	Vicarage Road	Between All Saints Rd and Bowdler Rd.
WV12	Birmingham Road	Between Derry St and Cartwright St
WV13	Dudley Road	Between Cartwright St and Drayton St.
WV14	Penn Road	Between Ablow St and Ring Road
WV15	Gt. Brickkiln St	Between Ashland St and Cherry St
WV16	Merridale Road	Between Merridale Ln and Aspen Way
WV17	Compton Road	Between Clark Rd and Richmond Rd

Figure 10 Location of Wolverhampton ATC Sites



Reproduced from Ordnance Survey mapping with permission of the Controller of HMSO
 (c) Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings
 jdt Licence number LA08946L. 2000
 Wbdc0147995/monitoring/Wolverhampton cordon 2000/sites.wor

Title Location of Wolverhampton ATC Cordon sites					 Mott MacDonald Limited Canterbury House 85 Newhall Street, Birmingham, B3 1LZ Telephone 0121-237-4002 Fax 0121-237-4003	
Date	Drawn	Checked	Approved	Status	Drawing no.	Rev.
23/11/00	JS	JTB/DMK	BWS	Final	47995/BA15/02	A

7 Appendix 2 Comparison of Manual and Automatic Counts

Four of the automatic sites were manually surveyed for the 12 hour period (0700 - 1900)

The figures presented here compare the results of the manual surveys with the results of the automatic surveys for certain time periods. The surveys were not carried out at the same time, the ATC's were carried out in October and the manuals in November, so comparisons are not really accurate

Table A2. 1 WV05 Cannock Road (Tuesday)

	INBOUND		OUTBOUND	
	Manual	Automatic	Manual	Automatic
Time Period				
07.30 - 09.30	1,722	1,754	1,131	1,180
16.30 - 18.30	1,615	1,586	1,624	1,628
07.00 - 19.00	9,211	9,200	7,658	7,886

Table A2. 2 WV06 Hilton Road (Monday)

	INBOUND		OUTBOUND	
	Manual	Automatic	Manual	Automatic
Time Period				
07.30 - 09.30	157	191	100	113
16.30 - 18.30	122	159	153	183
07.00 - 19.00	738	901	754	855

Table A2.3 WV07 Wednesfield Road (Friday)

	INBOUND		OUTBOUND	
	Manual	Automatic	Manual	Automatic
Time Period				
07.30 - 09.30	2,006	2,053	1,831	1,893
16.30 - 18.30	1,524	1,591	2,138	2,214
07.00 - 1900	10,077	10,482	10,885	11,131

Table A2.4 WV08 Willenhall Road (Thursday)

	INBOUND		OUTBOUND	
	Manual	Automatic	Manual	Automatic
Time Period				
07.30 - 09.30	2,038	2,156	1,628	1,559
16.30 - 18.30	1,976	2,006	1,865	1,749
07.00 - 1900	10,757	11,551	9,833	9,474