



Solihull Cordon Survey 2011

Solihull MBC

Solihull Cordon Survey 2011

March 2012

Solihull MBC

Council House
PO Box 18
Solihull
B91 9QS

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
A	16/02/10	Majid Adeeb	Laura Magson / Paresh Shingadia	Jo Baker	The Draft Final Report

This document is issued for the party which commissioned it and for specific purposes connected with the above-captioned project only. It should not be relied upon by any other party or used for any other purpose.

We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties

This document contains confidential information and proprietary intellectual property. It should not be shown to other parties without consent from us and from the party which commissioned it.

Content

Chapter	Title	Page
1.	Solihull Cordon Survey	8
1.1	Introduction	8
1.2	Methodology	8
2.	Automatic Survey Results	10
2.1	Vehicle counts	10
2.2	Mode of travel	19

Tables

Table 2.1:	Number of vehicles crossing the cordon in the Morning Peak Period (07:30 – 09:30)	10
Table 2.2:	Number of vehicles crossing the cordon in the extended Morning Peak (07:00 – 10:00)	10
Table 2.3:	Number of vehicles crossing the cordon in the Morning Inter-Peak Period (10:00-12:00)	11
Table 2.4:	Number of vehicles crossing the cordon in the Evening Peak (16:00-18:00)	12
Table 2.5:	Total Vehicles by Time Period on an Average Day	14
Table 2.6:	Estimated number of People from Occupancy Data 2011	20

Figures

Figure 1.1:	Location of Automatic Traffic Count sites	9
Figure 2.1:	Inbound Vehicles by Quarter Hour (07:00-10:00)	11
Figure 2.2:	Inter-Peak Inbound Vehicles by Hour (10:00-12:00)	12
Figure 2.3:	Outbound Evening Peak Hour Flows (16:00-19:00)	13
Figure 2.4:	24 Hour Flows Inbound	15
Figure 2.5:	24 Hour Flows Outbound	16
Figure 2.6:	Net Loss/Gain in Vehicles Over 24 hour Period	17
Figure 2.7:	Accumulation of Vehicles in Solihull Town Centre 2003-2011	18
Figure 2.8:	Estimated number of people Travelling Inbound by Private Transport 07:00-10:00	21
Figure 2.9:	Total Inbound Person Trips by Mode (07:30- 09:30)	22

1. Solihull Cordon Survey

1.1 Introduction

This report contains the results and analysis of the traffic cordon surveys undertaken by Mott MacDonald Ltd and Solihull Borough Council, as a part of the Local Transport Plan monitoring programme. The objectives of the study are to observe, compare and monitor vehicular traffic levels in the Solihull Town Centre, so that the effects of physical engineering measures and transport policies can be assessed. The Manual Traffic Counts have been undertaken by Solihull Borough Council, while the Automatic Traffic Counts and the overall analysis has been undertaken by Mott MacDonald Ltd.

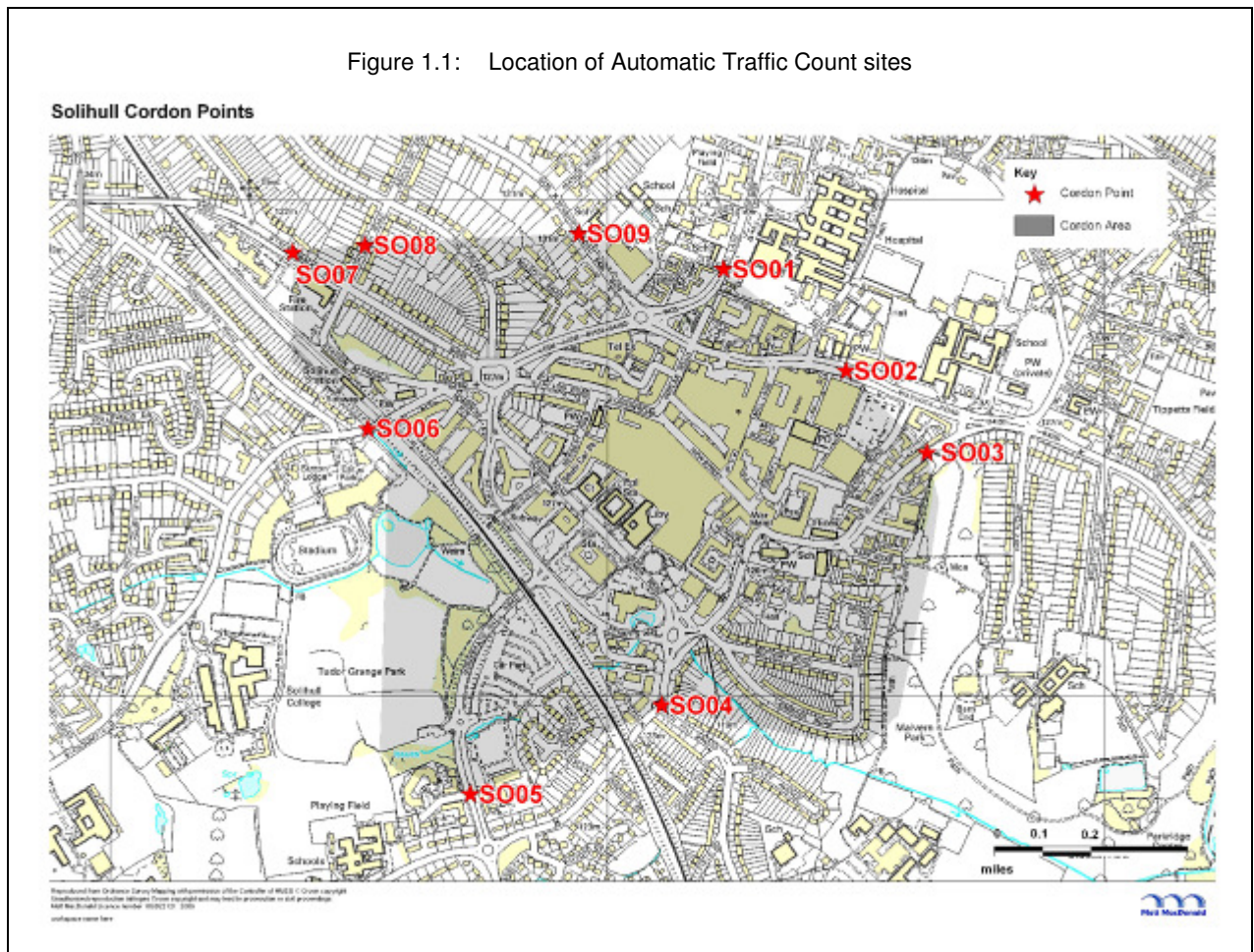
1.2 Methodology

In order to obtain data on current traffic flow levels, a cordon (shown in Figure 1.1) was marked around all major and minor roads entering Solihull Town Centre. Automatic Traffic Counts were installed on all roads to measure 24 hour traffic flows for a full week, enabling 24 hour average weekday data to be presented.

Three sites were also surveyed manually by Solihull Metropolitan Borough Council (SMBC). This data is used to estimate the modal split of the automatic traffic count data and to estimate the number of people travelling into the town centre by private vehicle. A supplementary bus and rail cordon survey was undertaken by Centro. Bus and rail trips during the morning peak are contained in Figure 2.9.

The data collection is normally conducted at the same sites biennially during the same week in September in order to avoid any bias due to seasonal variations. In 2011, the surveys were carried out during week beginning Monday 12th September.

Figure 1.1: Location of Automatic Traffic Count sites



2. Automatic Survey Results

2.1 Vehicle counts

Table 2.1: Number of vehicles crossing the cordon in the Morning Peak Period (07:30 – 09:30)

	2003	2005	2007	2009	2011
Inbound Total	14,250	14,136	14,343	14,218	13,500
Outbound Total	9,972	9,772	10,081	9,673	9,683

The level of inbound traffic between 07:30 and 09:30 has remained relatively consistent from 2003 to 2009, but dropped by 5% during 2011. Changes in the level of outbound traffic from 2009 have been minimal.

Table 2.2: Number of vehicles crossing the cordon in the extended Morning Peak (07:00 – 10:00)

	2003	2005	2007	2009	2011
Inbound Total	18,339	18,269	18,675	18,711	17,551
Outbound Total	13,160	12,895	13,260	13,057	12,765

The traffic levels for both inbound and outbound traffic during 07.00 and 10.00 have also decreased (by 6.5% and 2.2% respectively).

Figure 2.1: Inbound Vehicles by Quarter Hour (07:00-10:00)

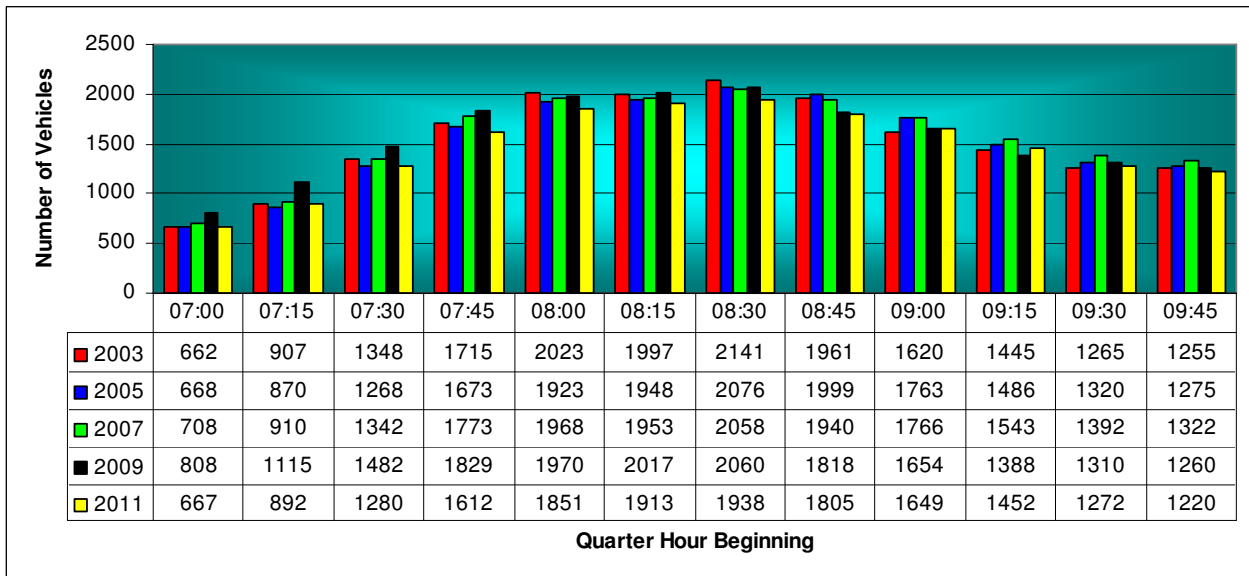


Figure 2.1 shows that there has been a decrease in the inbound traffic during the morning peak hours with the highest decrease during the period of 07:00 – 07:45.

Table 2.3: Number of vehicles crossing the cordon in the Morning Inter-Peak Period (10:00-12:00)

	2003	2005	2007	2009	2011
Inbound Total	8,971	8,950	9,267	9,175	8,751
Outbound Total	8,243	7,947	8,165	8,306	7,641

The inbound and outbound traffic levels have decreased during the inter-peak period and are at the lowest compared to the levels noted in the past 8 years.

Figure 2.2: Inter-Peak Inbound Vehicles by Hour (10:00-12:00)

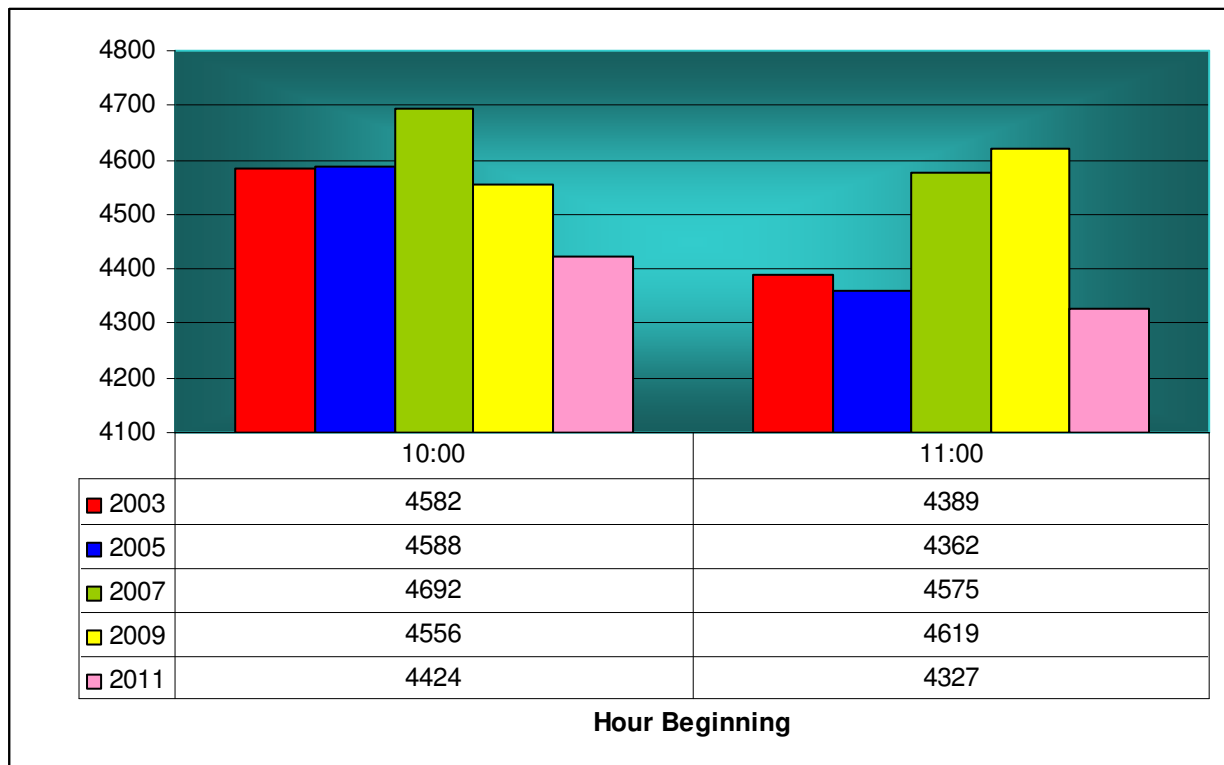


Figure 2.2 shows very little change in the volume of traffic in the inter-peak period for inbound traffic. Between the hours of 10:00 and 11:00 the figures show the lowest level of traffic over the past eight years.

Table 2.4: Number of vehicles crossing the cordon in the Evening Peak (16:00-18:00)

	2003	2005	2007	2009	2011
Inbound Total	10,982	10,702	10,772	10,675	10,119
Outbound Total	14,442	14,669	14,831	14,096	13,610

The inbound and outbound traffic levels have decreased during the inter-peak period by 5.2%, and 3.5% respectively, these are the lowest levels in the last eight years.

Figure 2.3: Outbound Evening Peak Hour Flows (16:00-19:00)

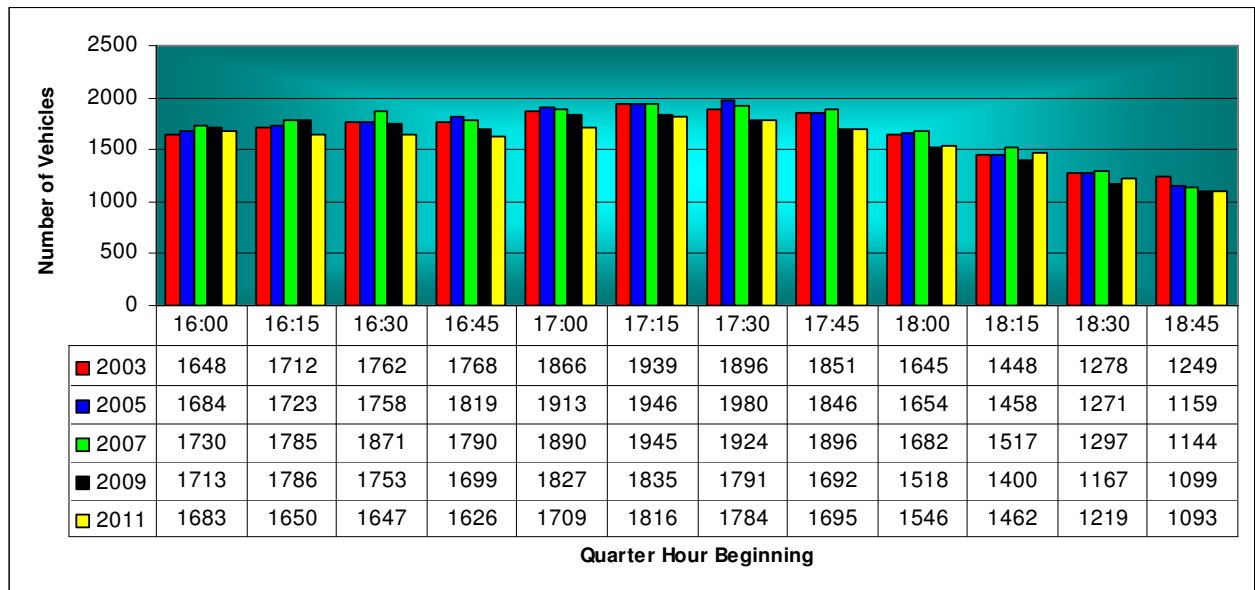


Figure 2.3 shows that there has been a decrease in the outbound traffic in the evening peak hours with higher decreases for the 15-minute periods beginning 16:00 – 17:00. In the evening peak the traffic levels are very similar to those noted during 2009.

Table 2.5: Total Vehicles by Time Period on an Average Day

	AM PEAK 07:30 – 09:30	INTER PEAK 10:00 - 12:00	PM PEAK 16:00 - 18:00	12 HOUR 07:00 - 19:00 (12 hour)	DAILY 00:00 - 24:00 (24 hour)
2003					
Inbound	14,250	8,971	10,982	61,890	75,367
% of 24hr	18.9	11.9	14.6	82.1	100
Outbound	9,972	8,243	14,442	61,565	75,700
% of 24hr	13.2	10.9	19.1	81.3	100
NET	4,278	728	-3,460	325	-333
2005					
Inbound	14,136	8,950	10,702	61,112	74,639
Percentage of 24hr	18.9%	12.0%	14.3%	81.9%	100%
Outbound	9,772	7,947	14,669	60,840	75,057
Percentage of 24hr	13.0%	10.6%	19.5%	81.1%	100%
NET	4,364	1,003	-3,967	272	-418
2007					
Inbound	14,343	9,267	10,772	62,882	75,886
Percentage of 24hr	18.9%	12.2%	14.2%	82.9%	100%
Outbound	10,081	8,165	14,831	62,538	76,175
Percentage of 24hr	13.2%	10.7%	19.5%	82.1%	100%
NET	4,262	1,102	-4,059	344	-289
2009					
Inbound	14,218	9,175	10,675	62,214	75,020
Percentage of 24hr	19.0%	12.2%	14.2%	82.9%	100%
Outbound	9,673	8,306	14,096	61,667	75,466
Percentage of 24hr	12.8%	11.0%	18.7%	81.7%	100%
NET	4,545	869	-3,421	547	-446
2011					
Inbound	13,500	8,751	10,119	59,113	71,709
Percentage of 24hr	18.8%	12.2%	14.1%	82.4%	100%
Outbound	9,683	7,641	13,610	58,797	72,219
Percentage of 24hr	13.4%	10.6%	18.8%	81.4%	100%
NET	3817	1110	-3,491	316	-510

In 2011, traffic levels were at their lowest from levels noted in the past 8 years. The traffic level for the 24 hour period, for the inbound and outbound directions has decreased by 4.5% and 4.6% compared to 2009.

Figure 2.4: 24 Hour Flows Inbound

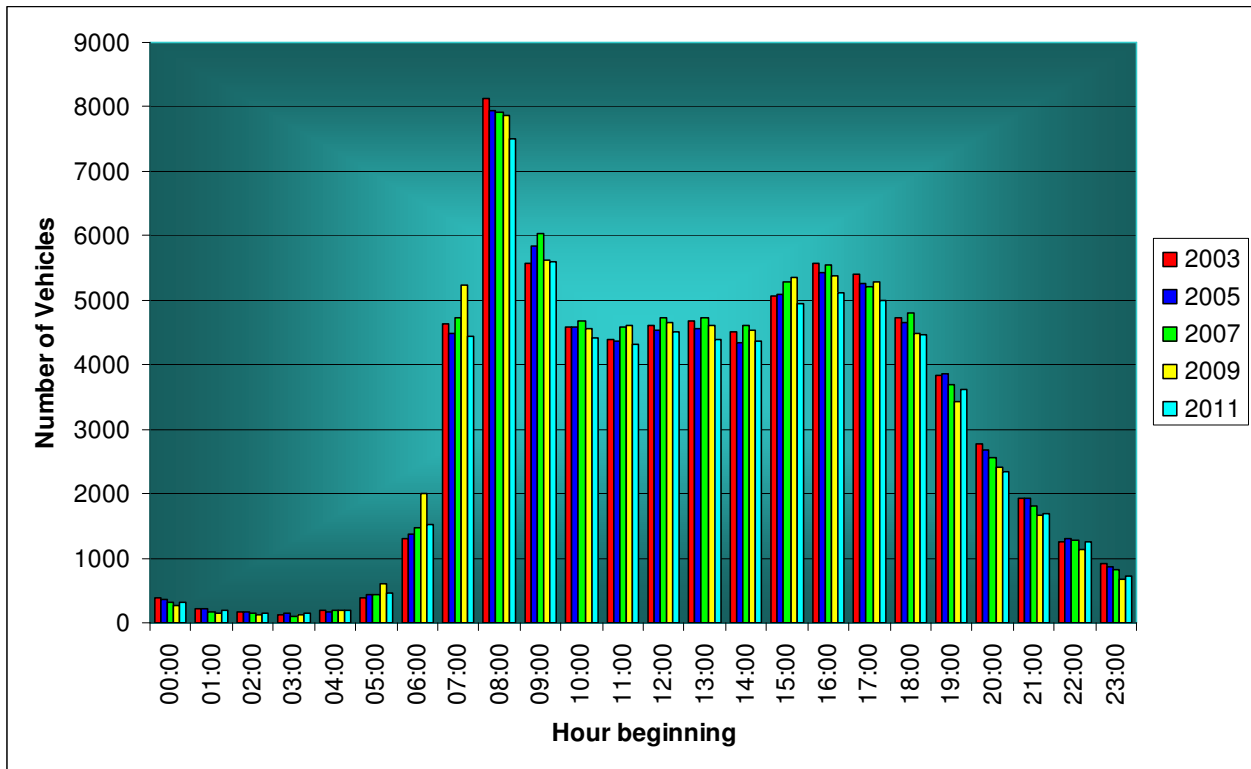
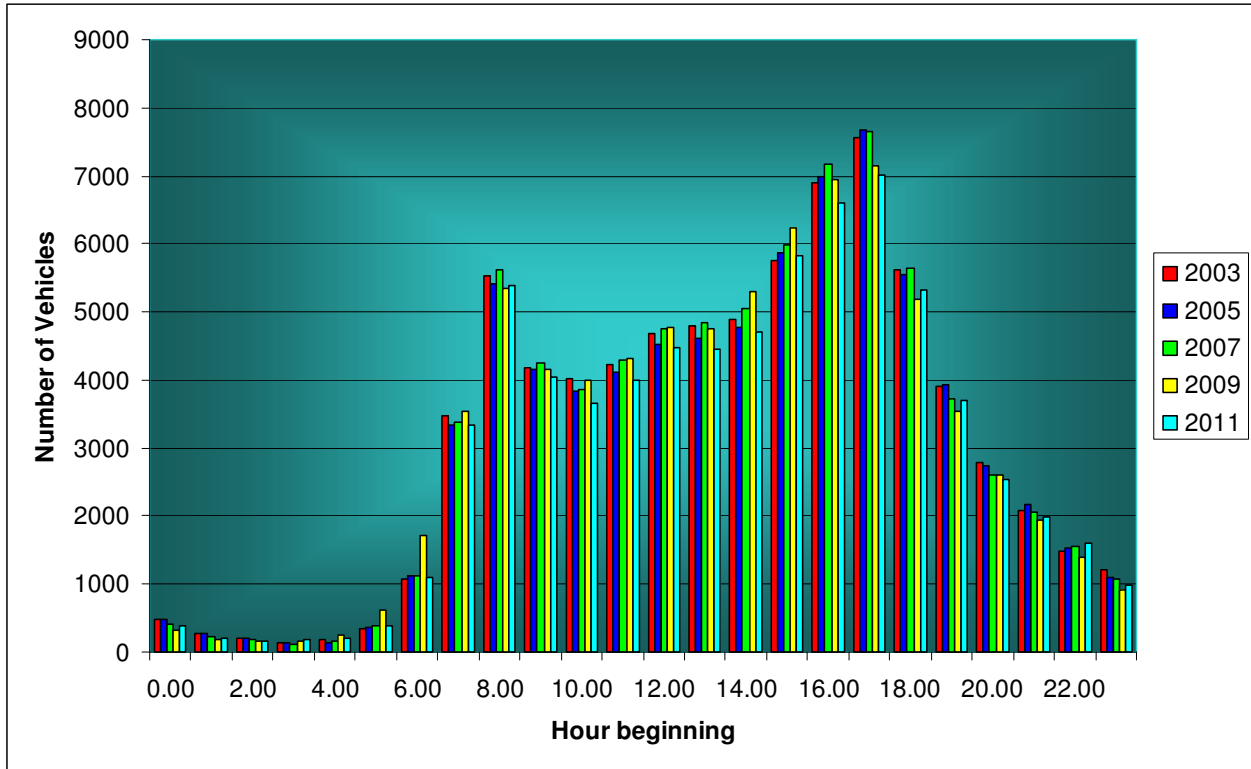


Figure 2.4 shows the distribution of weekday average vehicles entering Solihull Town Centre by hour over the day. Most hourly periods show fluctuations in traffic volume over the years.

Figure 2.5: 24 Hour Flows Outbound



The hourly traffic in the outbound direction has remained at similar levels to 2009 with slight increases in the peak hours. The period between 10:00 and 18:00 shows decrease in the outbound traffic compared to that in 2009. The largest decreases in traffic flow are in the evening peak between the hours of 15.00 and 17.00.

Figure 2.6: Net Loss/Gain in Vehicles Over 24 hour Period

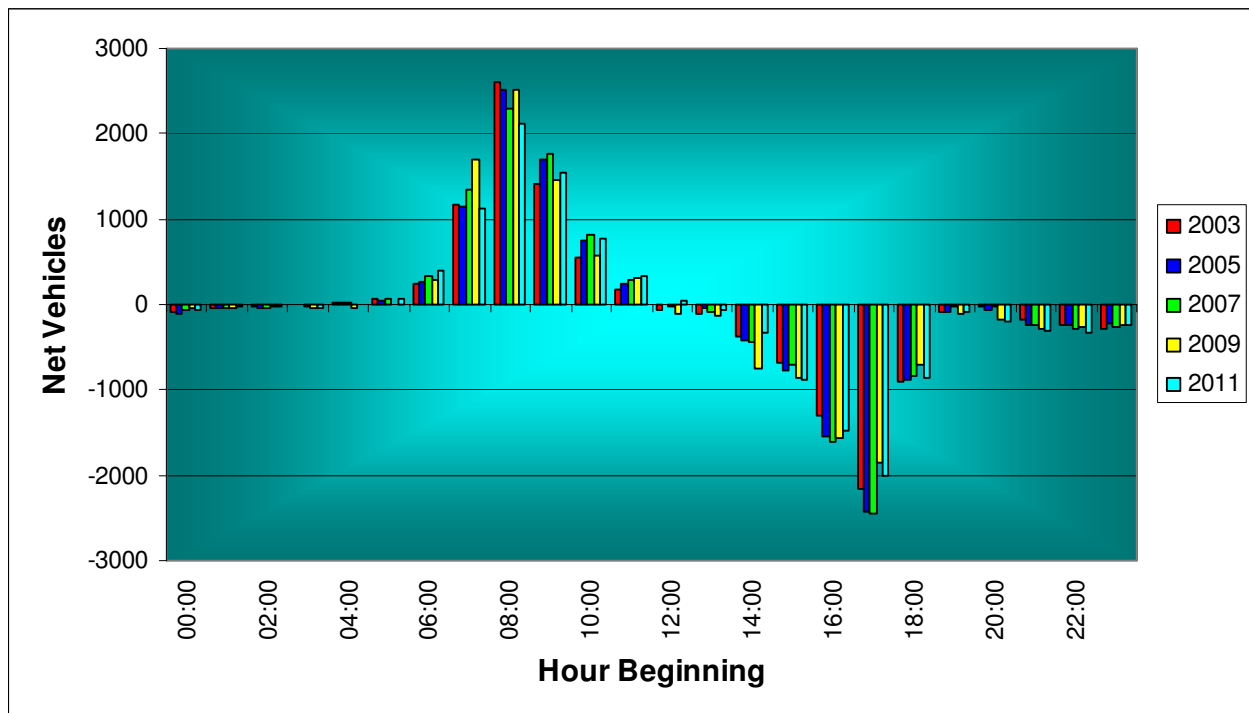


Figure 2.6 shows the net loss/gain in the number of vehicles within the cordon from 2003 to 2011. This is the difference between the number of vehicles entering the cordon and the number exiting.

Figure 2.7: Accumulation of Vehicles in Solihull Town Centre 2003-2011

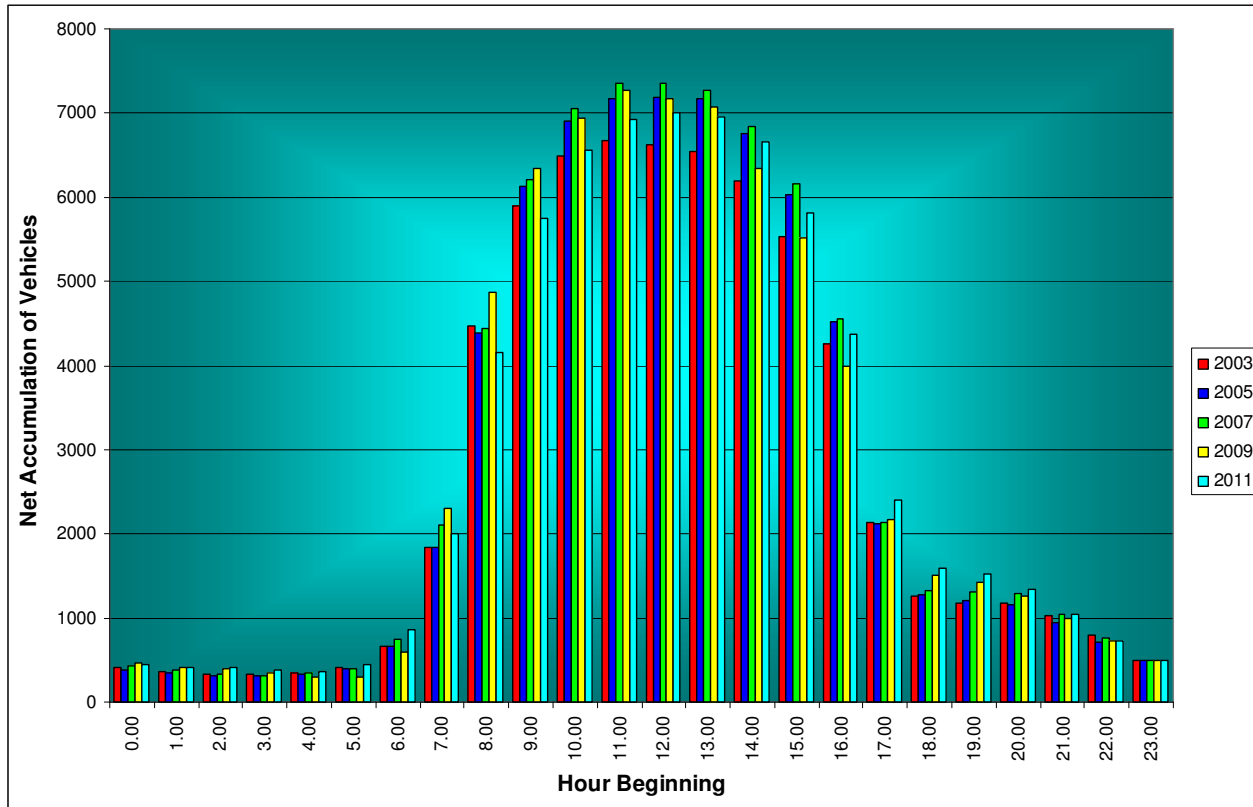


Figure 2.7 shows the accumulation of vehicles during the 24 hour period in Solihull Town Centre.

The highest number of vehicles remaining inside the town centre occurs between 11.00 and 13.00 when there were 6,960 vehicles on average during each hour period within the cordon.

Accumulation Calculation Rationale

In the calculating the 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.

2.2 Mode of travel

Figure 2.8: Estimated Inbound Vehicles by Mode 2009

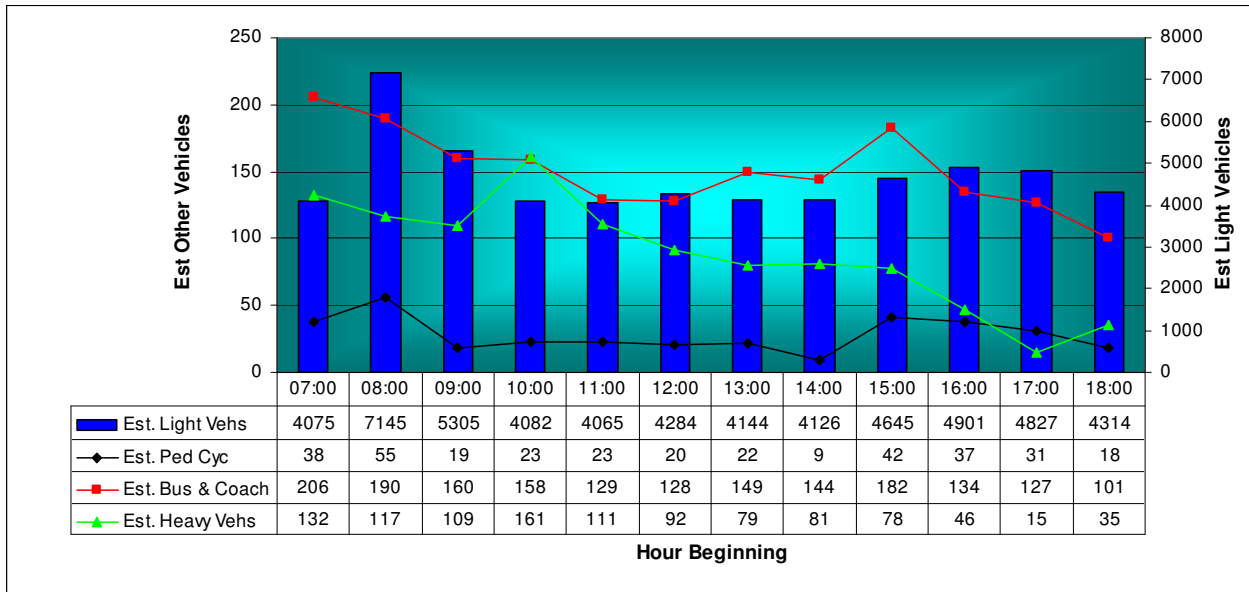


Figure 2.8 shows the estimated number of vehicles by type calculated from data taken from the three manual surveys conducted at the same time as the automatic traffic counts. This data provides information on mode of travel and modal share between public and private transport.

The peak period for light vehicles entering the cordon was the hour beginning 08:00 (estimated as 7,145 vehicles).

The highest volume (161) of Heavy Good Vehicles (HGV) in the inbound direction was noted during 10:00 and the lowest (15) during 17:00 hours.

The highest number of pedal cycles entered during the hour beginning 08:00 and lowest during the hour beginning 14:00.

Bus numbers peaked during the hours beginning 07:00 in the morning and 15.00 in the afternoon.

Table 2.6: Estimated number of People from Occupancy Data 2011

Totals from Sample Occupancy Counts				Automatically Counted Vehicles	Estimated Vehicles and Persons (Proportion derived from manual counts)							Biennial Comparison				
Time Period	Total Vehicles	Total Persons	Average Occupancy	Automatically Counted Vehicles	Estimated Number of Buses	Estimated Pedal Cycles	Estimated Light Vehicles	Estimated Persons Light Vehicles	Estimated Persons by Light Vehicles and Pedal Cycle	Estimated Heavy Vehicles	Estimated Persons by Heavy Vehicles	Estimated Persons by Light and Heavy Vehicles				
												2011	2009	2007	2005	2003
07:00	308	330	1.07	667	206	38	572	613	652	132	165	817	1018	808	768	721
07:15	394	440	1.12	892	190	55	819	915	970	117	164	1134	1377	1077	1002	980
07:30	533	628	1.18	1280	160	19	1202	1416	1435	109	109	1544	1882	1720	1564	1567
07:45	672	796	1.18	1612	158	23	1486	1761	1784	161	241	2025	2384	2304	2094	2084
08:00	666	829	1.24	1851	129	23	1768	2201	2224	111	211	2435	2763	2692	2410	2658
08:15	628	802	1.28	1913	128	20	1787	2282	2302	92	149	2451	2796	2736	2544	2607
08:30	625	798	1.28	1938	149	22	1877	2396	2418	79	93	2511	2748	2675	2610	2764
08:45	485	609	1.26	1805	144	9	1707	2143	2152	81	91	2243	2341	2365	2420	2378
09:00	459	576	1.25	1649	182	42	1568	1968	2009	78	78	2087	2078	2144	2180	1904
09:15	491	624	1.27	1452	134	37	1389	1766	1803	46	61	1864	1820	1865	1866	1734
09:30	401	526	1.16	1272	127	31	1223	1423	1454	15	20	1474	1687	1649	1710	1500
09:45	405	506	1.14	1220	101	18	1128	1289	1308	35	48	1356	1496	1599	1736	1491
07:30-09:30	4559	5662	1.24	13500	1184	194	12785	15933	16127	757	1033	17160	18812	18500	17689	17696
07:00-10:00	6067	7464	1.23	17551	1807	338	16527	20173	20510	1055	1430	21940	24390	23633	22905	22388

Table 2.6 shows the estimates of vehicles by type for each of the quarter hour periods from 07.00 – 10.00. Using the estimated numbers of light and heavy vehicles and the average occupancies from these vehicle groups, an estimate of the number of persons travelling by private transport is derived. These figures are shown in the Biennial Comparison column of the Table 2.6. The figures show that compared with 2009, persons travelling by private transport have decreased 8.8% during 07.30-09.30 and 10% during 07:00-10:00. The figures represented in Table 2.6 are shown in Figure 2.8.

Figure 2.8: Estimated number of people Travelling Inbound by Private Transport 07:00-10:00

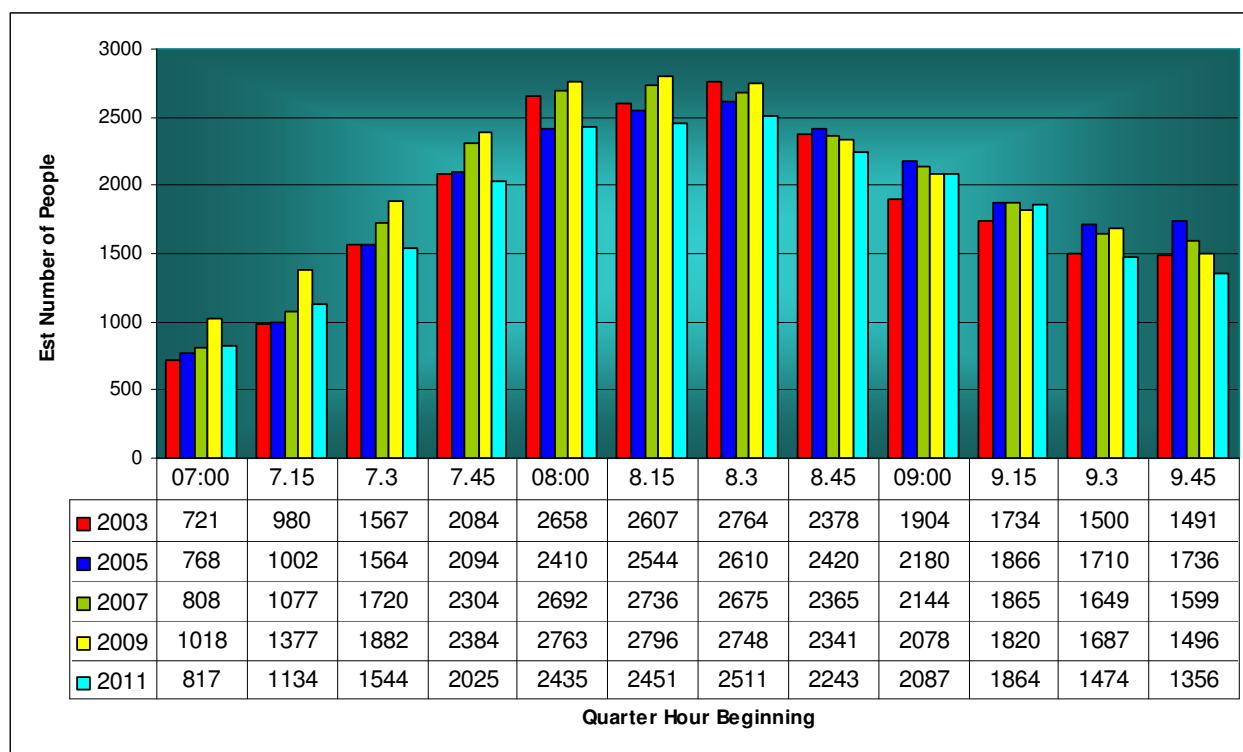
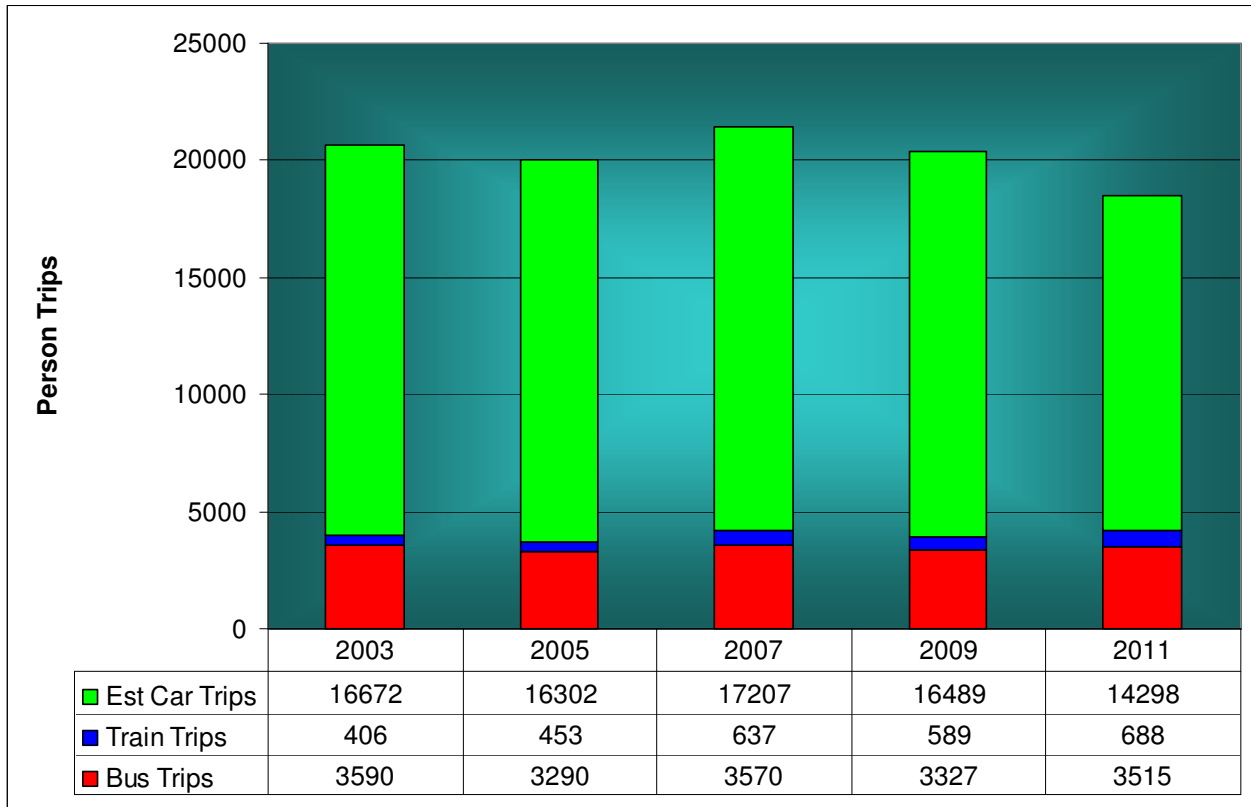


Figure 2.8 illustrates the estimated number of people travelling into Solihull Town Centre by means of private transport. This includes drivers and passengers of all vehicles except buses.

The number of persons travelling by private transport has decreased during each 15-minute period of the morning peak (07:30 - 09:30), except quarter hours beginning 09:00 and 09:15 when the figures are similar to that during the same period of 2009.

Figure 2.9: Total Inbound Person Trips by Mode (07:30- 09:30)



In 2011, the total person trips by rail and bus increased by 16.8% and 5.8% respectively, with a total increase of 4.9% than the levels noted during the morning peak period in 2009.

In 2011, during the morning peak period, the estimated person trips by car decreased by 13.3% compared to the levels noted in 2009.