



# Coventry Cordon Survey 2011

March 2012

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Coventry City Council



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# 1. Coventry Cordon Survey

## 1.1 Introduction

This report contains the analysis and results of the traffic cordon surveys undertaken by Mott MacDonald Ltd and Coventry City Council, as a part of the Local Transport monitoring programme. The objectives of the study are to observe, compare and monitor vehicular traffic levels in Coventry City Centre, so that the effects of physical engineering measures and transport policies can be assessed. The Manual Traffic Counts by vehicle classification have been undertaken by Coventry City 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 was marked around Coventry City Centre, as shown in Figure 1.1. Automatic Traffic Counts were installed on all the roads identified to measure 24 hour traffic flows for a full week, enabling 24 hour average weekday data to be presented.

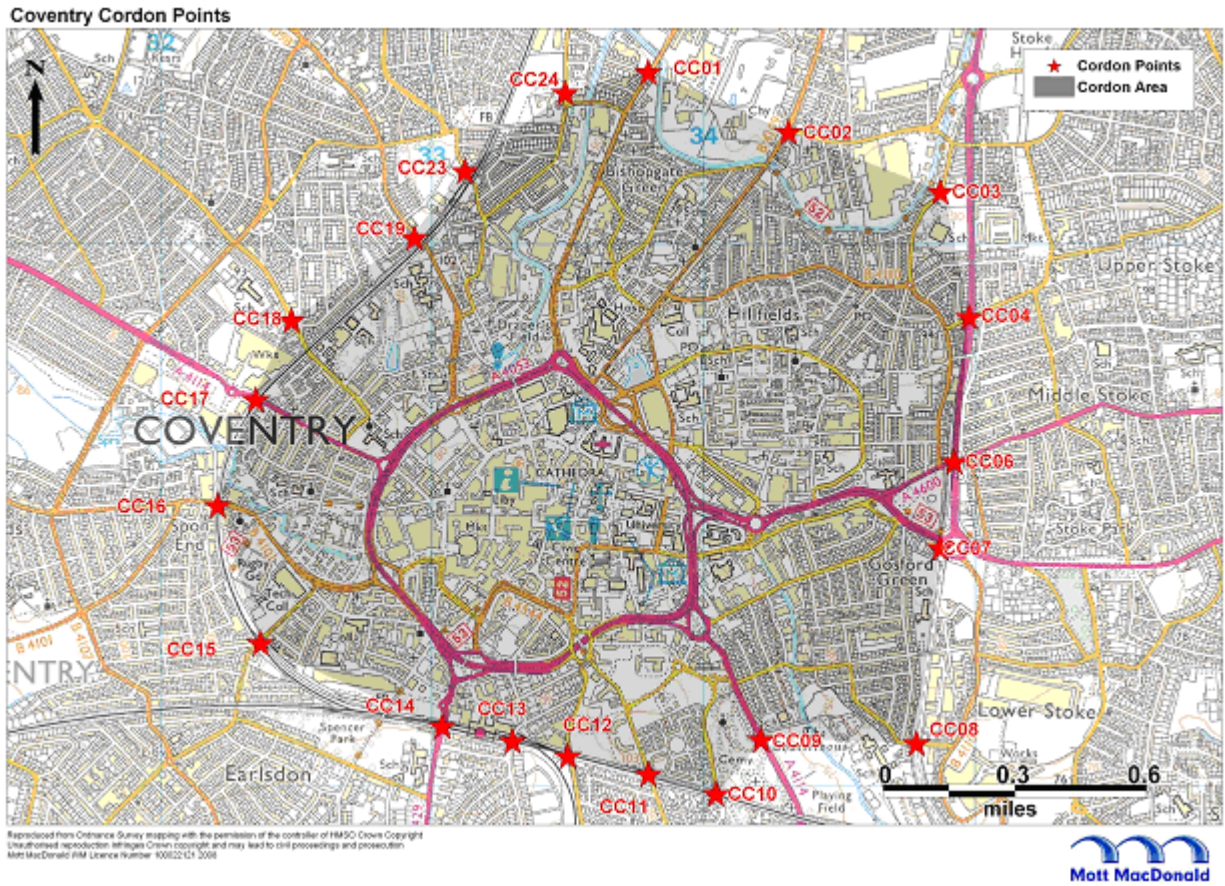
Four sites were also surveyed manually by Coventry City Council. This data is used to estimate the modal split of the automatic traffic count data and to estimate the number of people travelling into the city centre by private vehicle. A supplementary bus and rail cordon survey was undertaken by Centro. Bus and rail trips during the morning peak are presented in Figure 2.9.

In order to capture more realistically the mode share of pedal cycles, three of the manual count locations were altered during the 2011 cordon data collection.

The data collection is normally repeated at the same sites biennially during the same week in October in order to avoid any bias due to seasonal variations. In 2009, the surveys were carried out during the week beginning Monday 5<sup>th</sup> October 2009.



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	31,262	29,896	29,712	29,807	28,705
Outbound Total	20,121	19,868	20,928	19,454	19,778

In 2011, there was a small decrease (3.7%) in the level of morning peak inbound vehicles compared to 2009, however there has been very little overall change since 2005. The level of inbound vehicle traffic is still lower than 2003.

For outbound traffic there has been an increase of 1.6% between 2009 and 2011.

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	40,672	38,733	38,888	38,984	37,460
Outbound Total	26,997	26,617	27,980	26,318	26,571

For the morning peak period (07:00 and 10:00) there was a decrease of 3.9% from 2009 to 2011. The outbound traffic shows an increase of 1.0%.

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

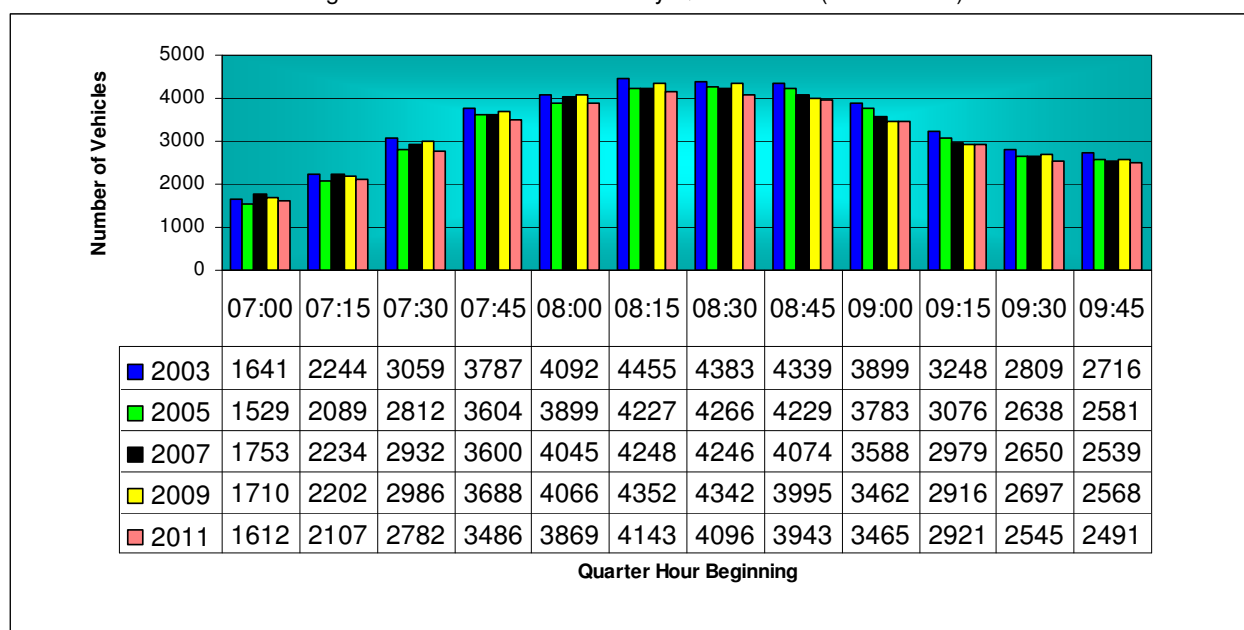


Figure 2.1 shows that there has been a decrease in traffic in most 15 minute periods between 07:00 and 10:00, with the highest decreases in the periods beginning 07:00 – 08:30.

Table 2.3: Number of vehicles crossing the cordon in the inter-peak hours (10:00 – 12:00)

	2003	2005	2007	2009	2011
Inbound Total	19,472	18,306	18,077	18,398	17,776
Outbound Total	17,788	17,083	17,270	16,948	16,337

For the inter-peak period (10:00 - 12:00) there was a slight decrease compared to 2009 in inbound vehicles (3.4%) and outbound vehicles (3.6%).

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

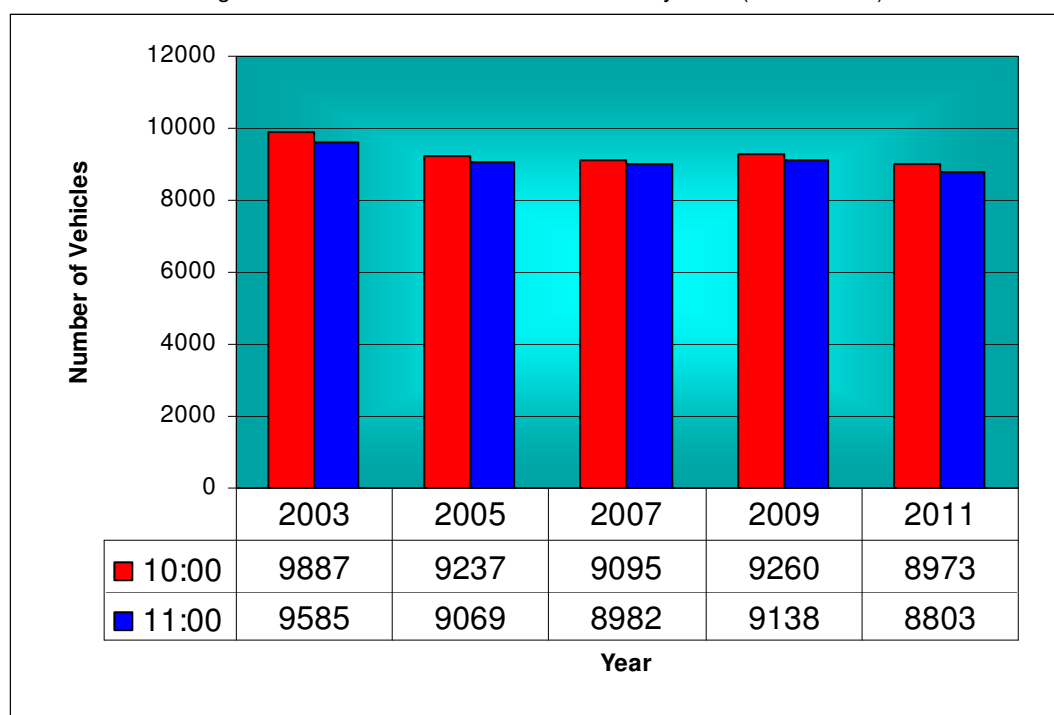


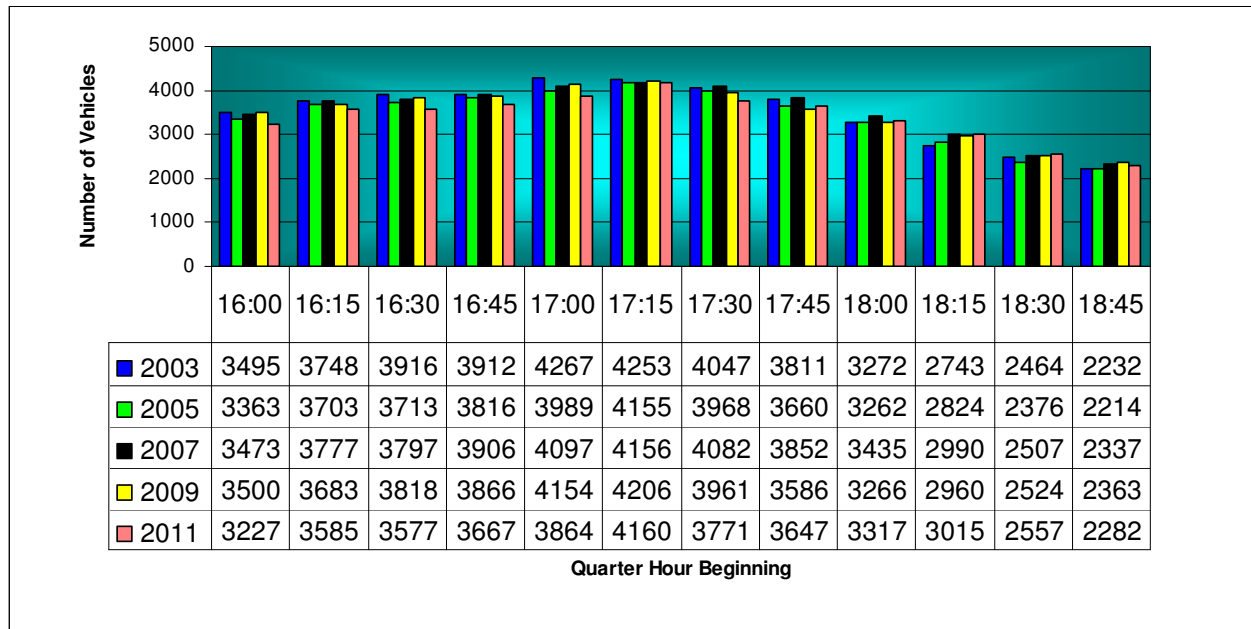
Figure 2.2 shows that there has been a decrease in the number of vehicles entering the cordon between 10:00 and 12:00 compared to 2009, with a total decrease of 4.9%.

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

	2003	2005	2007	2009	2011
Inbound Total	23,901	23,087	23,571	23,222	23,435
Outbound Total	31,449	30,367	31,140	30,774	29,498

Table 2.5 shows there has been a small increase in the level of inbound traffic whereas the outbound traffic has decreased from 2009 to 2011.

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



During the 2011, vehicular flow decreased from 16:00 until 17:45 compared to 2009, but increased during each 15-minute period beginning 17:45 - 18:45.

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)
<b>2003</b>					
Inbound	31,262	19,472	23,901	135,716	166,903
Percentage of 24hr	18.7%	11.7%	14.3%	81.3%	100%
Outbound	20,121	17,788	31,449	131,359	163,729
Percentage of 24hr	12.3%	10.9%	19.2%	80.2%	100%
NET	11,141	1,684	-7,548	4,357	3,174
<b>2005</b>					
Inbound	29,896	18,306	23,087	129,814	160,271
Percentage of 24hr	18.7%	11.4%	14.4%	81.0%	100%
Outbound	19,868	17,083	30,367	128,339	160,656
Percentage of 24hr	12.4%	10.6%	18.9%	80.0%	100%
NET	10,028	1,223	-7,280	1,475	-385
<b>2007</b>					
Inbound	29,712	18,077	23,571	130,526	161,502
Percentage of 24hr	18.4%	11.2%	14.6%	80.8	100%
Outbound	20,928	17,270	31,140	131,830	164,552
Percentage of 24hr	12.7%	10.5%	18.9%	80.1	100%
NET	8,784	807	-7,569	-1,304	-3,050
<b>2009</b>					
Inbound	29,807	18,398	23,222	131,216	161,506
Percentage of 24hr	18.5%	11.4%	14.4%	81.2%	100%
Outbound	19,454	16,948	30,774	128,993	160,591
Percentage of 24hr	12.1%	10.6%	19.2%	80.3%	100%
NET	10,353	1,450	-7,552	2,223	915
<b>2011</b>					
Inbound	28,705	17,776	23,435	127,400	157,046
Percentage of 24hr	18.3%	11.3%	14.9%	81.1%	100%
Outbound	19,778	16,337	29,498	125,546	156,946
Percentage of 24hr	12.6%	10.4%	18.8%	80.0 %	100%
NET	8,927	1,439	-6,063	1,854	100

During 2011, the overall traffic levels have been lower than in 2009, with the exceptions of the morning peak when there were 1.7% more vehicles in the outbound direction and in the afternoon peak there were 0.9% more vehicles in the inbound direction than in 2009.

Figure 2.4: 24 Hour Flows Inbound

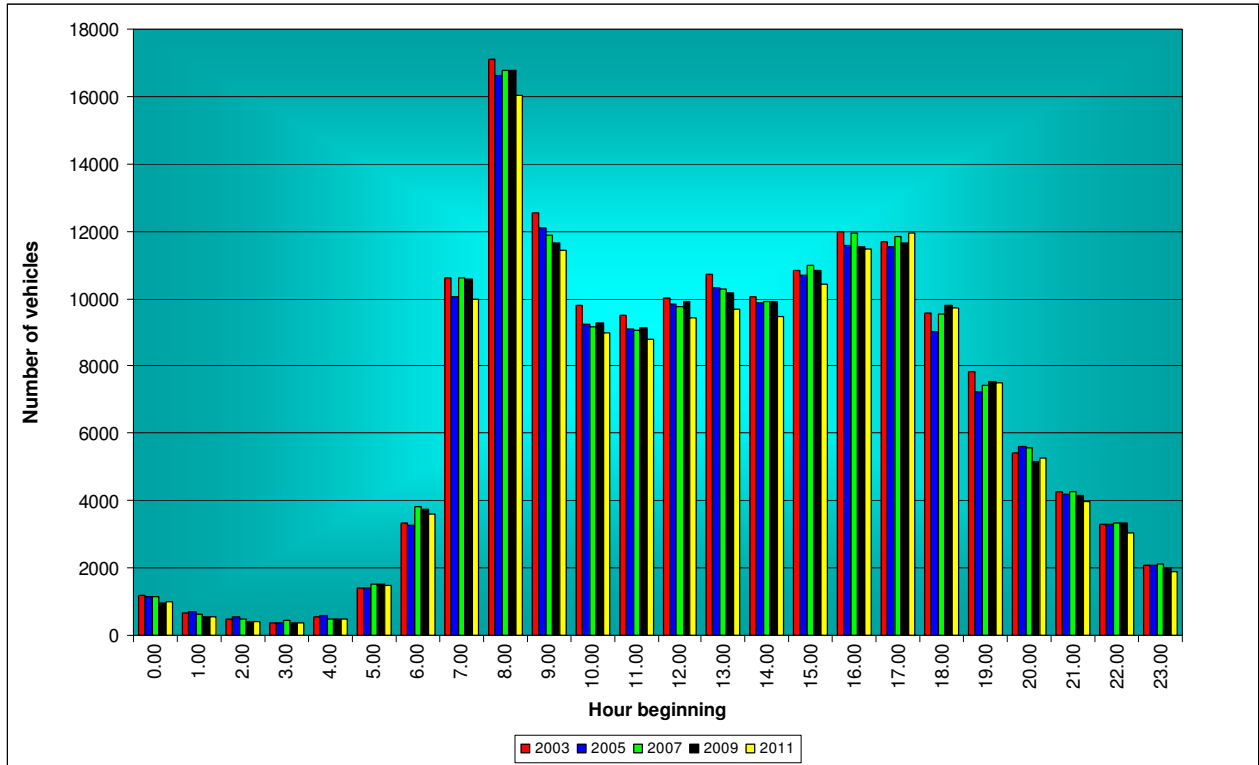


Figure 2.4 shows the average weekday hourly inbound traffic volume and distribution over 24 hours. Overall there has been a decrease in inbound traffic during all hours except the hour beginning 17:00, when there was an increase of around 300 vehicles compared to the same hour in 2009.

Figure 2.5: 24 Hour Flows Outbound

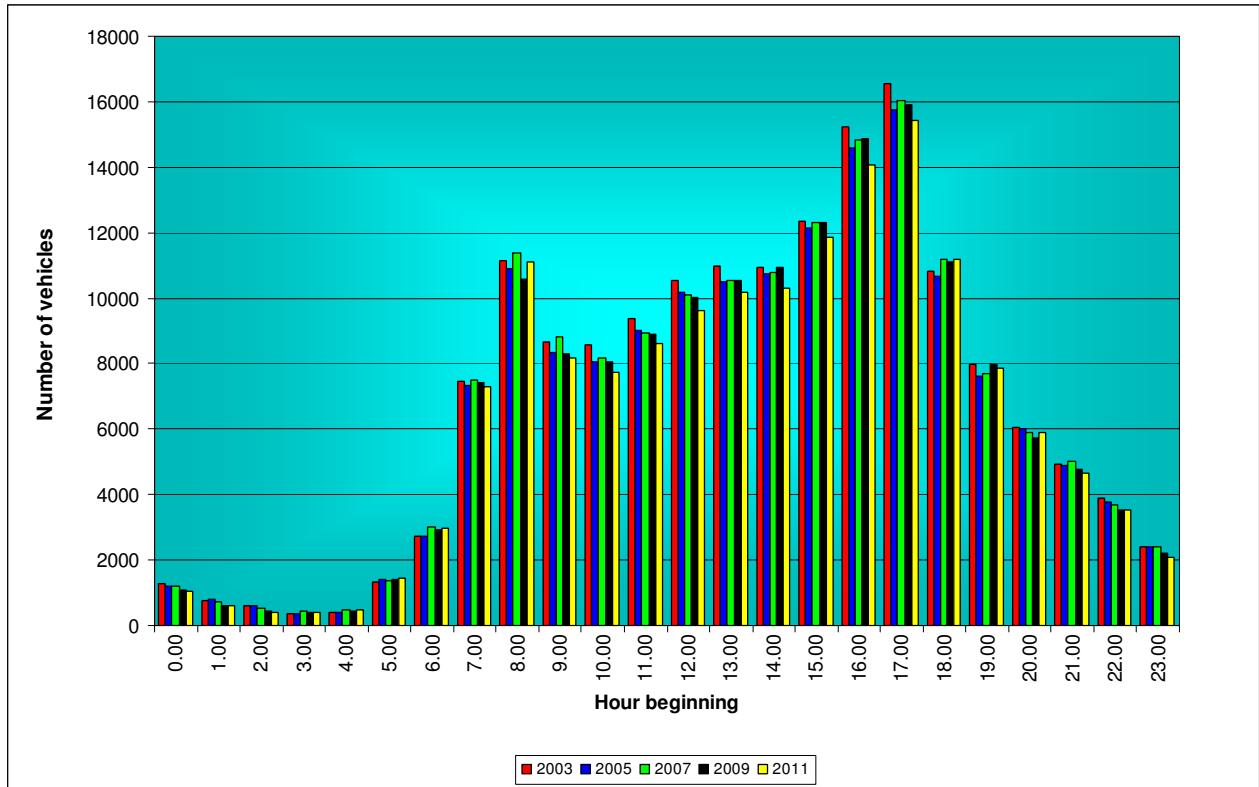


Figure 2.5 shows that there has been an overall decrease in the outbound traffic volumes during most hours with the exception of the hour beginning 08:00, when around 500 more vehicles left Coventry City Centre compared to the same period in 2009.

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

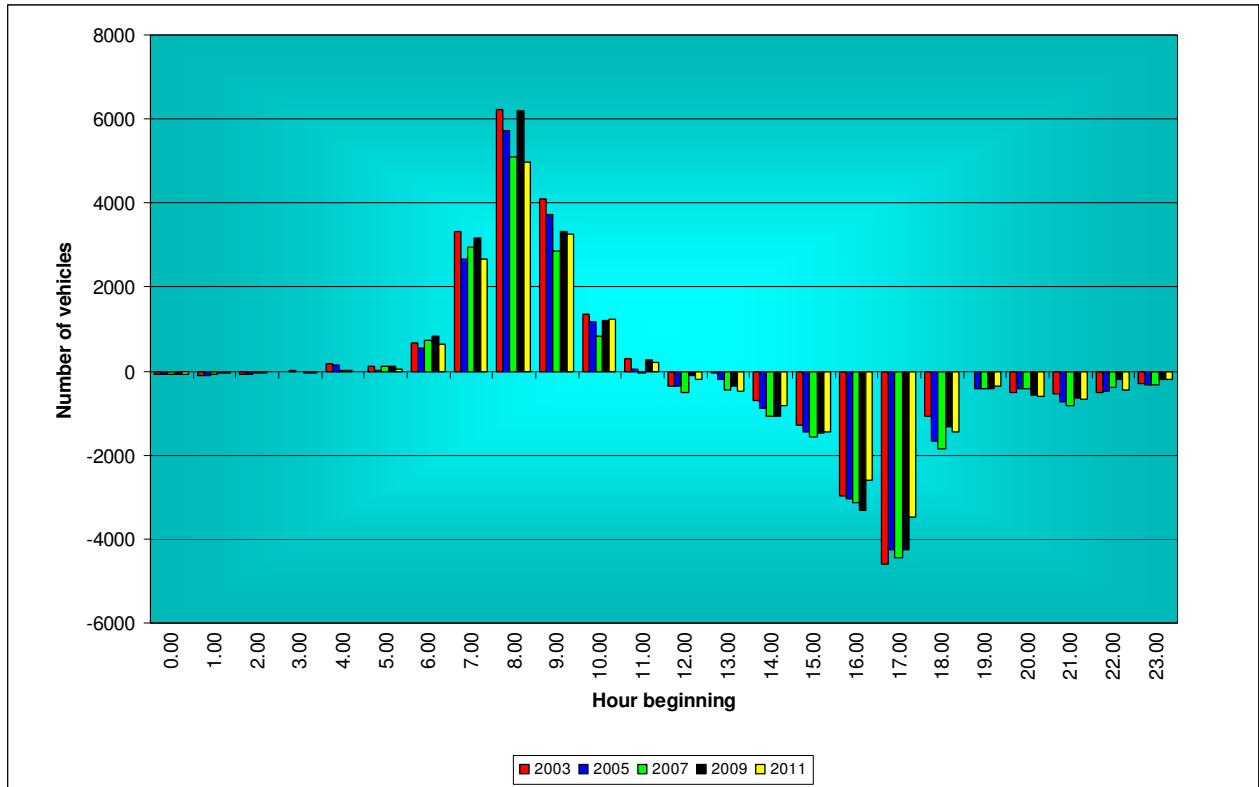


Figure 2.6 shows the net gain in the number of vehicles within the cordon from the years 2003 to 2011. In 2011, during all hours up to 17:00 hours, a decrease is noted in the difference between the number of vehicles leaving and entering compared to 2009. From the hour of 18:00 onwards there is an increase in the difference between the number of vehicles leaving and entering.



Figure 2.7: Accumulation of Vehicles in Coventry City Centre 2003-2011

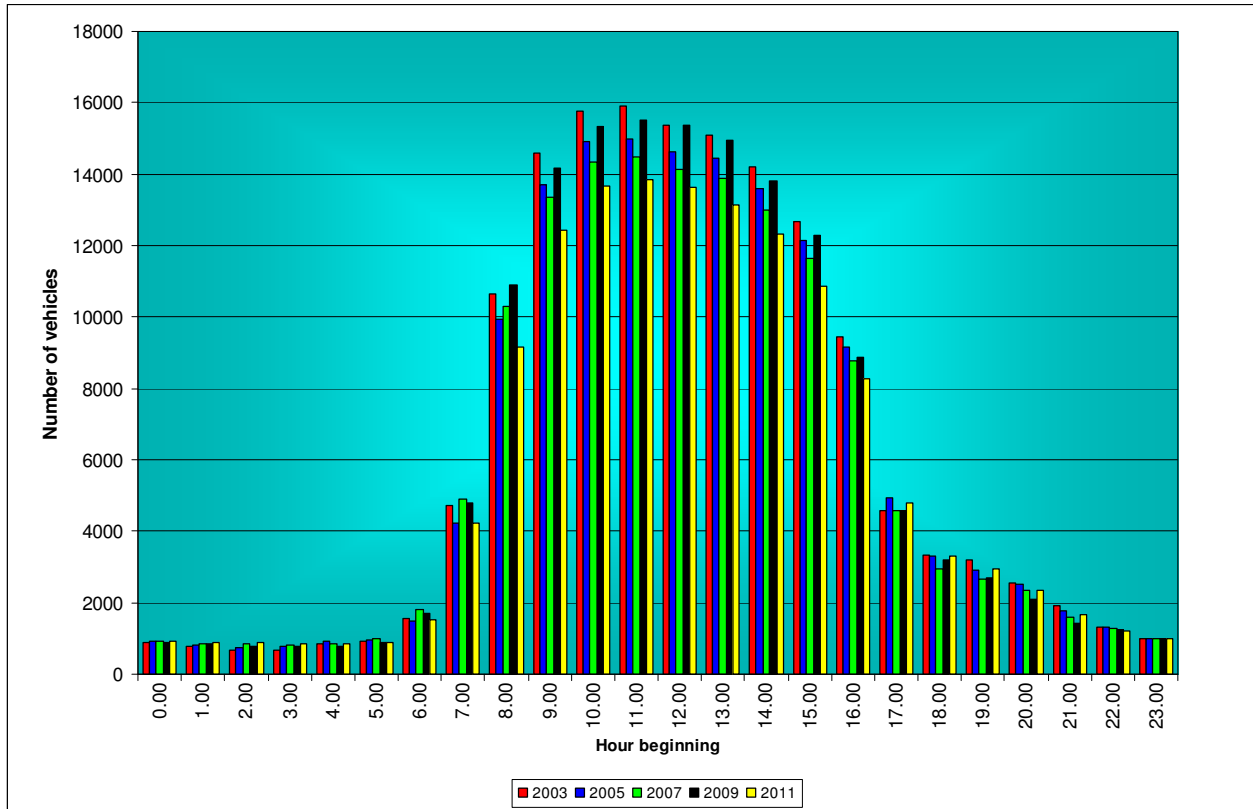


Figure 2.7 shows the accumulation of vehicles during the 24 hour period in Coventry City Centre.

The highest number of vehicles remaining inside the town centre occurred during the hours beginning 10:00, 11:00 and 12:00 when there were 13,853, 13,840 and 13,631 vehicles within the cordon respectively. Highest levels of accumulation occurred during the same hours as previous years.

In calculating the accumulation of vehicles, the ratio of inbound to outbound vehicles was balanced and a nominal 1,000 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 2011

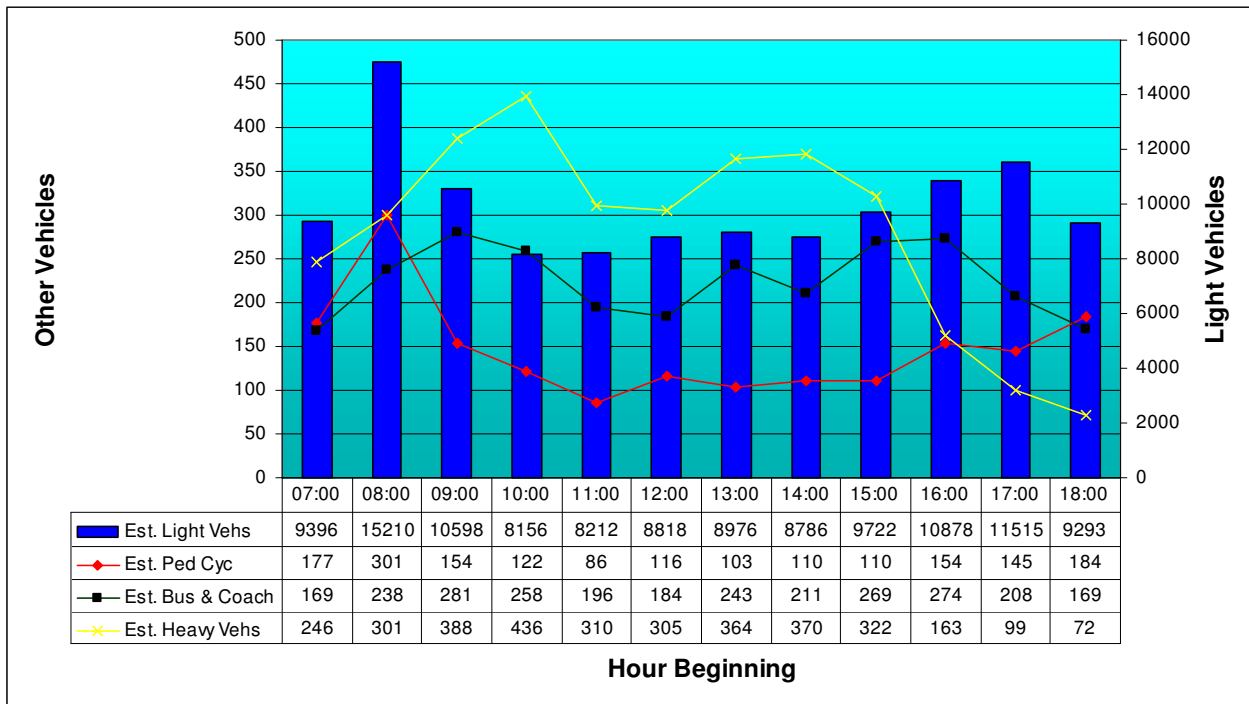


Figure 2.8 shows the estimated number of vehicles by vehicular classification. The estimation has been derived from the proportion of each classification found in the manual classified counts. This proportion has been applied to the total number of vehicles collected by the Automatic Traffic Counts. This data provides information on mode of travel and is a key tool in estimating modal share between public and private transport.

The highest number of light vehicles entered the cordon during the hour beginning 08:00. The highest number of light vehicles entering the cordon in the afternoon occurred during the hour beginning 17:00.

The highest number of heavy goods vehicles (HGVs) entered the cordon during the hour beginning 10:00.

The highest number of pedal cycles entered the cordon in the hour beginning 08:00 (total of 301 pedal cycles).

The highest hourly numbers of buses were in the hours beginning 0900 and 1600.

Table 2.6: Estimates of Persons from Occupancy Data 2011

Totals from Manual Occupancy Counts				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	362	433	1.20	1612	26	34	1505	1800	1834	47	59	1893	1980	1888	1744	1866
07:15	474	568	1.20	2107	26	39	1956	2344	2383	86	103	2486	2576	2596	2436	2723
07:30	653	805	1.23	2782	41	54	2638	3252	3306	49	59	3365	3529	3597	3422	3571
07:45	752	976	1.30	3486	77	50	3296	4278	4327	63	98	4425	4482	4333	4288	4496
08:00	849	1159	1.37	3869	53	58	3691	5039	5097	67	76	5173	5105	4904	5155	5015
08:15	872	1189	1.36	4143	64	82	3905	5325	5407	91	118	5525	6016	5540	5954	5931
08:30	842	1135	1.35	4096	79	84	3868	5214	5297	65	82	5379	6022	5663	6146	6226
08:45	899	1120	1.25	3943	43	77	3746	4666	4744	77	97	4840	4977	5834	5326	5446
09:00	767	911	1.19	3465	75	40	3252	3863	3903	98	122	4025	4251	4401	4561	4703
09:15	590	744	1.26	2921	62	29	2700	3405	3434	130	149	3583	3405	3611	3816	3828
09:30	456	564	1.24	2545	97	48	2335	2888	2937	65	79	3016	3451	3187	3255	3375
09:45	557	674	1.21	2491	52	39	2306	2790	2829	95	103	2932	3179	3247	3338	3329
<b>07:30-09:30</b>	<b>6224</b>	<b>8039</b>	<b>1.29</b>	<b>28705</b>	<b>495</b>	<b>473</b>	<b>27096</b>	<b>35041</b>	<b>35514</b>	<b>641</b>	<b>800</b>	<b>36314</b>	<b>37787</b>	<b>37883</b>	<b>38668</b>	<b>39216</b>
<b>07:00-10:00</b>	<b>8073</b>	<b>10278</b>	<b>1.27</b>	<b>37460</b>	<b>696</b>	<b>634</b>	<b>35198</b>	<b>44863</b>	<b>45497</b>	<b>933</b>	<b>1145</b>	<b>46642</b>	<b>48973</b>	<b>48801</b>	<b>49441</b>	<b>50509</b>

Table 2.7 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 has been derived. These figures are shown in the Time Series column of Table 2.7.

The figures show the lowest level of person trips by private vehicles between 2003 and 2011 during the period 07:30 - 09:30 and 07:00 - 10:00.

Figure 2.9: Estimates of Persons Travelling Inbound by Private Transport 07:00-10:00

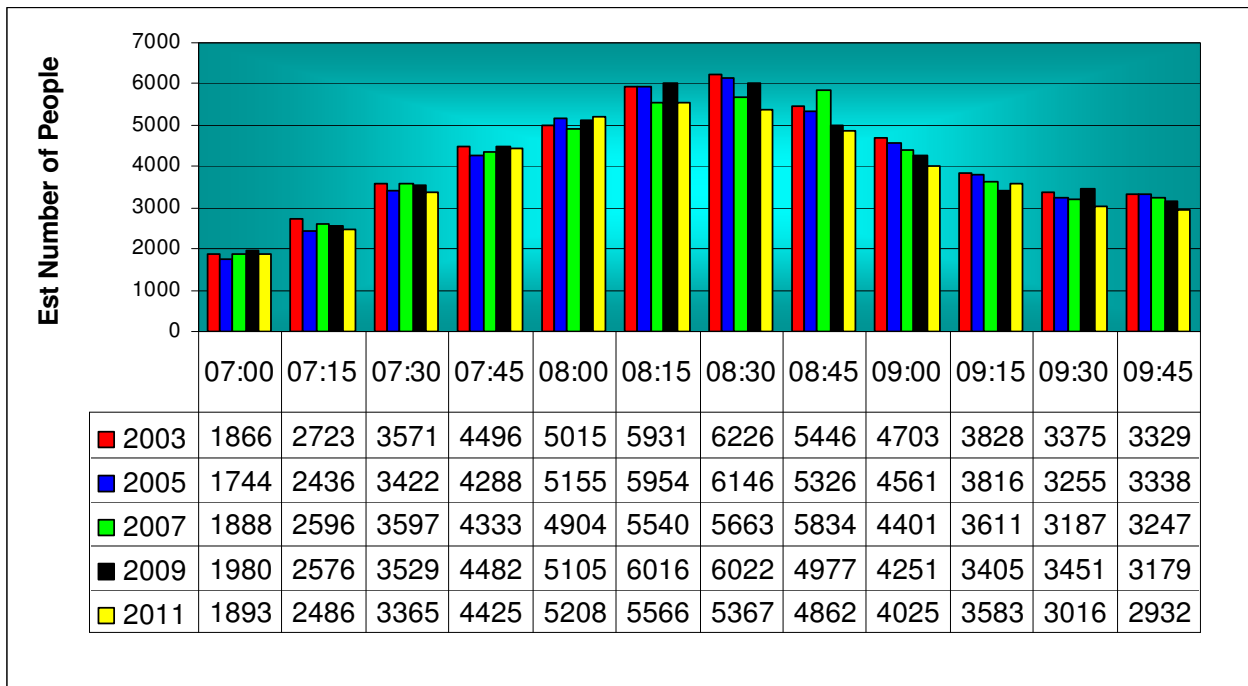
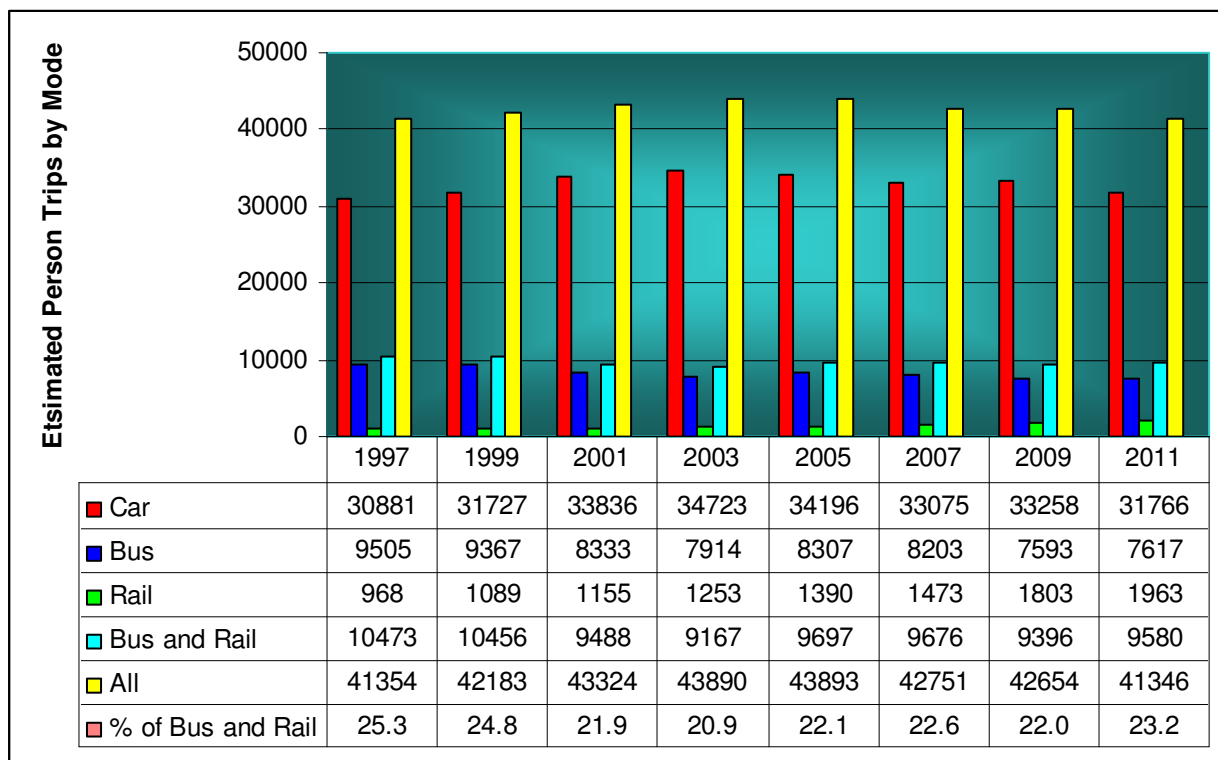


Figure 2.9 illustrates the estimated number of people travelling into Coventry City Centre by means of private transport. This includes drivers and passengers of all vehicles except buses.

During 2011, the number of people travelling by private transport has decreased compared to 2009.

Figure 2.10: Total Estimated Inbound Person Trips 07:30-09:30



Source: Bus and Rail Figures Supplied by Centro

During 2011, the person trips by car have decreased by 4.5% compared to 2009. The number of person trips by bus and rail has increased by about 1.2% (bus trips have increased by 0.3% and rail trips by 8.9%).