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Coventry Cordon Report

November 2008

Issue and Revision Record

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A	27/03/08	Majid Adeeb	Aaron Alaimo & Deb King	Awaiting Centro Data	First Submission
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1 Introduction

1.1 About this report

The objectives of the study are to observe, compare and monitor traffic levels in the Coventry City Centre

This report contains the results and analysis of the traffic cordon surveys undertaken by Mott MacDonald Ltd and Coventry City Council, as a part of the Local Transport Plan monitoring programme.

The objectives of the study were to observe, compare and monitor vehicular traffic levels in the Coventry City Centre, so that the effect of physical engineering measures and transport policies could be assessed. The manual traffic counts have been undertaken by Coventry City Council, and public transport passenger counts have been undertaken by Centro. The Automatic Traffic Counts and the overall analysis have been undertaken by Mott MacDonald Ltd.

1.2 Methodology

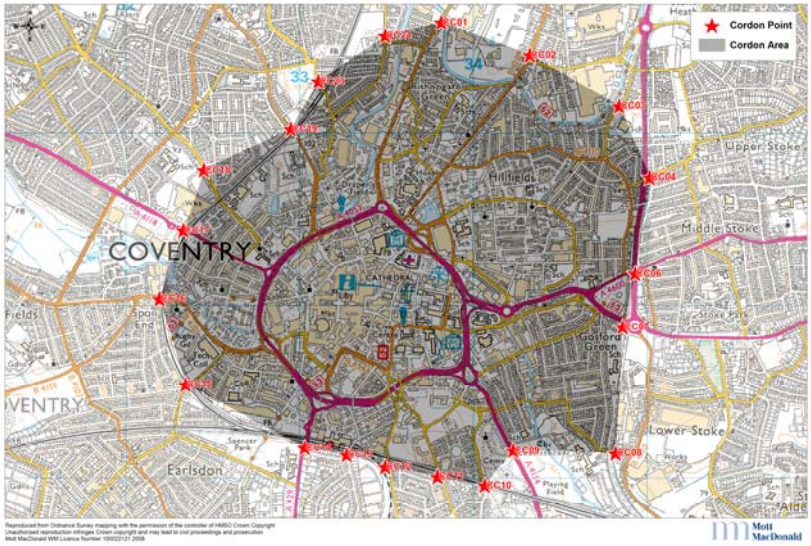
The most effective method of obtaining the necessary data is to monitor traffic flows crossing a cordon around the city centre. A cordon shown in Figure 1 was marked around the Coventry City Centre. The cordon sites were positioned on all the main roads, with further sites on some of the minor roads so as to obtain a 'closed' cordon. The principle is to capture all vehicles entering and leaving the city centre. Automatic Traffic Counters were installed on all roads for a full week, capturing 24 hour average weekday traffic flows for analysis.

Four sites were also surveyed manually by Coventry City Council staff, including CC02-Stoney Stanton Road, CC08-Terry Road, CC14-Warwick Road, and CC17-Holyhead Road. This data was used to estimate the modal split of the automatic data and also to estimate the number of people travelling into the city centre by private vehicle.

A supplementary bus cordon survey has been undertaken by Centro, the results of which are summarised in this report.

The data collection is normally conducted at the same sites biennially during the week beginning Monday 17th October to maintain consistency in the data.

Figure 1: Location of Automatic Traffic Count Sites and the Cordon around the Coventry City Centre



1.3 Further Information

For further information about Mott MacDonald, our capabilities and clarification on this cordon report, please do not hesitate to contact **Deb King** on 0121 262 4312, or e-mail deb.king@mottmac.com

2 Automatic Surveys Count Results

2.1 Morning Peak

2.1.1 7:30 to 9:30

Table 1: Number of vehicles crossing the cordon in the Morning Peak Period (07:30 – 09:30)

	1999	2001	2003	2005	2007
Inbound Total	31,033	30,549	31,262	29,896	29,712
Outbound Total	20,815	21,924	21,021	19,868	20,928

AM peak traffic has increased by 5.3 % in the outbound direction

Between 2005 and 2007, there has been a continued, albeit small decrease in the inbound traffic levels of 0.6%. This follows a decrease of 4.4% from 2003 to 2005. The 2007 cordon observed the lowest level of inbound traffic since 1995.

The 2007 outbound traffic level experienced an increase of 5.3 % from that observed in 2005 returning to those levels seen in 2003. The lowest outbound traffic levels were observed in 2005.

Table 2: Number of vehicles crossing the cordon in the Morning Peak Period (07:00 – 09:30)

	1999	2001	2003	2005	2007
Inbound Total	34,623	34,049	35,147	33,514	33,699
Outbound Total	23,836	24,890	22,884	22,635	23,812

Morning Peak Period (07:00 – 09:30)

Traditionally, Coventry's morning peak has started earlier than other town centres mainly due to the earlier start times for car factory workers. Car manufacturinglevels have decreased in recent years, reducing the effect on the early AM peak times.

Table 2 shows that compared with 2003, the traffic travelling into the Coventry cordon during 2007 has reduced by 4.1% between 07:00 and 09:30.

There was a slight increase of 0.5% in 2007 inbound, compared with 2005.

2.1.2 7:00 to 10:00

Table 3: Number of vehicles crossing the cordon in the morning peak (07.00 - 10.00)

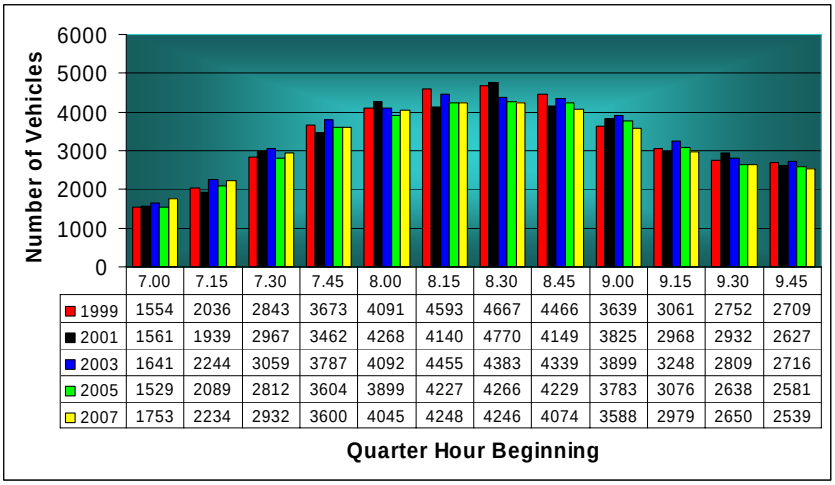
	1999	2001	2003	2005	2007
Inbound Total	40,084	39,608	40,672	38,733	38,888
Outbound Total	28,020	29,148	26,997	26,617	27,980

AM peak traffic has increased by 5.2% in the outbound direction

The Department for Transport's 'congestion monitoring policy' now defines the 'Morning Peak' period as 07.00 to 10.00, expanding the peak beyond the traditional 07.30 to 09.30.

Table 3 shows the changes in the morning peak traffic levels between 1999 and 2007. Between 2005 and 2007, during this time period, there have been increases in traffic varying from 5.2% in the outbound direction to only 0.4% inbound.

Figure 2: Inbound vehicles by quarter hour (07.00 - 10.00)



	7.00	7.15	7.30	7.45	8.00	8.15	8.30	8.45	9.00	9.15	9.30	9.45
1999	1554	2036	2843	3673	4091	4593	4667	4466	3639	3061	2752	2709
2001	1561	1939	2967	3462	4268	4140	4770	4149	3825	2968	2932	2627
2003	1641	2244	3059	3787	4092	4455	4383	4339	3899	3248	2809	2716
2005	1529	2089	2812	3604	3899	4227	4266	4229	3783	3076	2638	2581
2007	1753	2234	2932	3600	4045	4248	4246	4074	3588	2979	2650	2539

Figure 2 shows fluctuating changes in levels of traffic between 1999 and 2007. However, during 2007, traffic appears to be increasing during the early part of the morning and decreasing towards the end of the period.

2.2 Inter-peak

Table 4: Number of vehicles crossing the cordon in the morning inter-peak period (10.00 - 12.00)

	1999	2001	2003	2005	2007
Inbound Total	18,804	19,388	19,472	18,306	18,077
Outbound Total	18,087	18,698	17,788	17,083	17,270

Two-way inter-peak traffic flows are at the lowest levels since 1999

Table 4 shows the changes in the morning inter-peak traffic between 1999 and 2007. Traffic seems to have remained steady between 2005 and 2007.

Figure 3: Inter-peak inbound vehicles by hour (10.00 - 12.00)

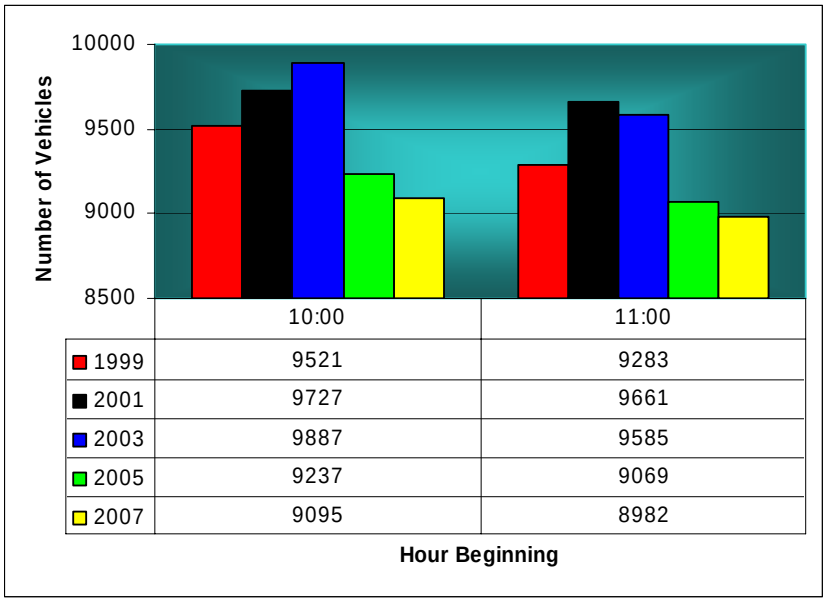


Figure 3 shows that the traffic during the morning inter-peak period is at its lowest level since 1999.

2.3 Evening peak

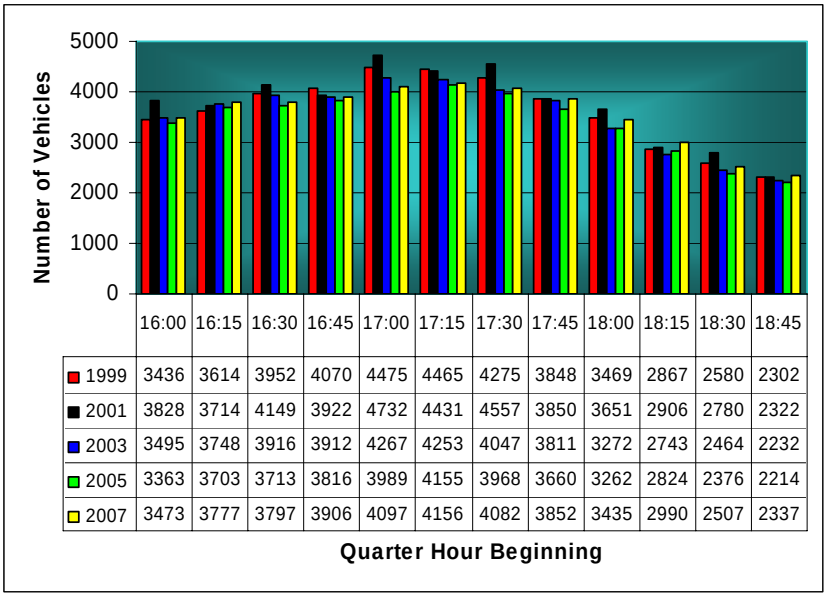
Table 5: Number of vehicles crossing the cordon in the evening peak (16.00 - 18.00)

	1999	2001	2003	2005	2007
Inbound Total	24,246	24,849	23,901	23,087	23,571
Outbound Total	32,135	33,183	31,449	30,367	31,140

PM peak traffic has increased by 2.1% inbound and 2.5% outbound

Table 5 shows that the PM peak traffic has increased by 2.1% inbound and 2.5% outbound in 2007 compared with 2005. The 2007 traffic flows are still less than the 2003 values and the 2005 traffic flows were at the lowest seen since 1999.

Figure 4: Outbound Evening Peak Hour Flows (16.00-19.00)



	16:00	16:15	16:30	16:45	17:00	17:15	17:30	17:45	18:00	18:15	18:30	18:45
1999	3436	3614	3952	4070	4475	4465	4275	3848	3469	2867	2580	2302
2001	3828	3714	4149	3922	4732	4431	4557	3850	3651	2906	2780	2322
2003	3495	3748	3916	3912	4267	4253	4047	3811	3272	2743	2464	2232
2005	3363	3703	3713	3816	3989	4155	3968	3660	3262	2824	2376	2214
2007	3473	3777	3797	3906	4097	4156	4082	3852	3435	2990	2507	2337

Figure 4 shows the outbound evening quarter hourly traffic levels between 1999 and 2007. In general, there has been an increase in PM peak traffic in all quarter hour periods between 2005 and 2007.

2.4 Daily Summary

Table 6: Total Vehicles by Time Period on an Average Weekday

	AM PEAK 07.30 - 09.30	INTER PEAK 10.00 - 12.00	PM PEAK 16.00 - 18.00	12 HOUR 17.00 - 19.00 (12 hour)	DAILY 00.00 - 24.00 (24 hour)
1999					
Inbound	34,623	18,804	24,246	133,643	162,878
% of 24hr	21.3	11.5	14.9	82.1	100
Outbound	23,836	18,087	32,135	134,018	165,811
% of 24hr	14.4	10.9	19.4	80.8	100
NET	10,787	717	-7,889	-375	-2,933
2001					
Inbound	34,049	19,388	24,849	136,379	167,083
% of 24hr	20.4	11.6	14.9	81.6	100
Outbound	24,890	18,698	33,183	139,339	173,283
% of 24hr	14.4	10.8	19.1	80.4	100
NET	9,159	690	-8,334	-2,960	-6,200
2003					
Inbound	35,147	19,472	23,901	135,716	166,903
% of 24hr	21	11.7	14.3	81.3	100
Outbound	22,884	17,788	31,449	131,359	163,729
% of 24hr	13.4	10.9	19.2	80.2	100
NET	11,141	1,684	-7,548	4,357	3,174
2005					
Inbound	33,514	18,306	23,087	129,814	160,271
% of 24hr	20.9	11.4	14.4	81	100
Outbound	22,635	17,083	30,367	128,339	160,656
% of 24hr	14.1	10.6	18.9	80	100
NET	10,879	1,223	-7,280	1,475	-385
2007					
Inbound	33,699	18,077	23,571	130,526	161,502
% of 24hr	20.9	11.2	14.6	80.8	100
Outbound	23,812	17,270	31,140	131,830	164,552
% of 24hr	14.5	10.5	18.9	80.1	100
NET	9,887	807	-7,569	-1,304	-3,050

Inbound daily vehicle numbers increased by 0.8% in 2007

Table 6 shows that in 2007 around 21% of traffic flowing into the city centre on a typical weekday crossed the cordon line between the hours of 07.30 and 09.30.

Around 19% of traffic flowing out of the city centre crossed the cordon line during the evening peak period from 16.00 to 18.00.

The off-peak time period considered (10.00-12.00), shows 11.2% of the daily traffic travelling into the town centre.

Around 81% of an average day's traffic crossed the cordon during the main 12hr day between 07.00 and 19.00.

Inbound vehicle numbers in 2007 over the 24 hour period were around 0.8% higher than in 2005.

Figure 5: 24 hour flows inbound

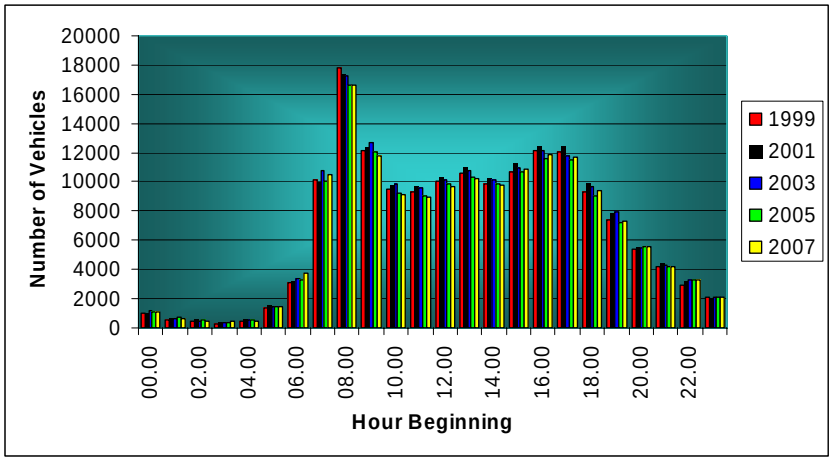
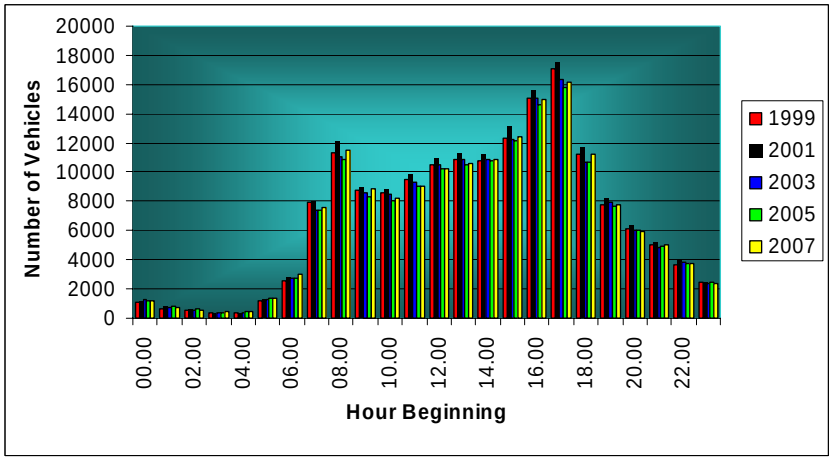


Figure 5 shows the distribution of weekday average vehicles entering the Coventry City Centre by hour over the day. Compared to 2005, slight increases have been experienced in the pre-AM peak and PM peak and slight decreases in all other periods.

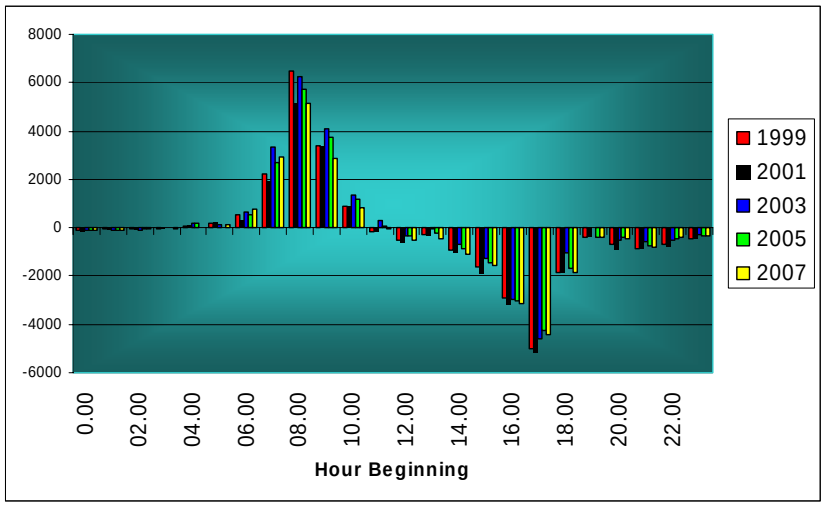
Figure 6: 24 Hour flows outbound



Outbound traffic has increased in most time periods throughout the day

Figure 6 shows the corresponding average weekday outbound flows by hour over the day. Outbound traffic has experienced an increase in traffic flows in most time periods throughout the day.

Figure 7: Net loss/gain in vehicles over 24 hour period



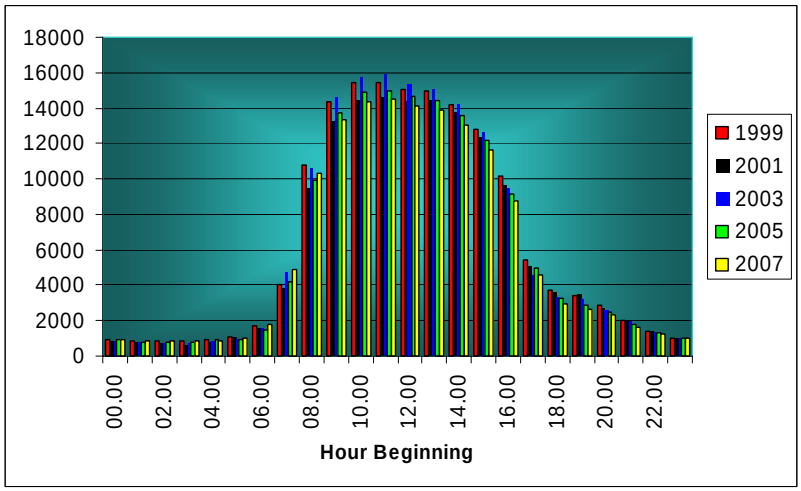
Over 5,100 more vehicles entered the city centre then left it between 08.00 to 09.00

Figure 7 shows the net gain in vehicles within the cordon by hour for the years 1999 to 2007.

In 2007, the highest single hour was 08.00 to 09.00 when 5,100 more vehicles entered the city centre then left it.

Correspondingly, the peak hour in the evening was 17.00 to 18.00 when 4,450 more vehicles left the city centre then entered it.

Figure 8: Accumulation of vehicles in Coventry City Centre cordon



The highest number of vehicles inside the city centre occurs between 11.00 and 12.00

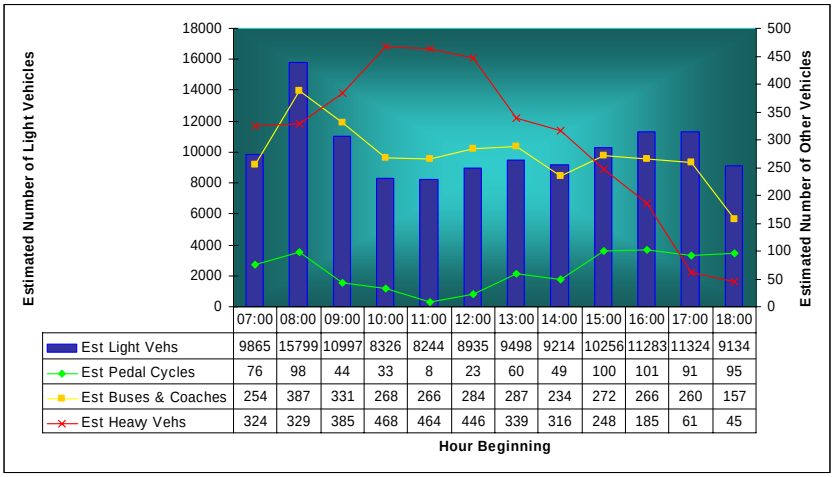
Figure 8 shows the accumulation of vehicles during the 24 hour period in Coventry City Centre. The highest number of vehicles remaining inside the city centre occurred between 11:00 and 12:00 when there were an estimated 14,470 vehicles within the cordon.

Note, in calculating the accumulation of vehicles, the ratio of inbound to outbound vehicles was balanced and a nominal 1,000 vehicles added in as an estimate of vehicles remaining inside the cordon overnight.

3 Manual Survey Results

3.1 Mode of Travel

Figure 9: Estimated inbound vehicles by mode in 2007



	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00
Est Light Vehs	9865	15799	10997	8326	8244	8935	9498	9214	10256	11283	11324	9134
Est Pedal Cycles	76	98	44	33	8	23	60	49	100	101	91	95
Est Buses & Coaches	254	387	331	268	266	284	287	234	272	266	260	157
Est Heavy Vehs	324	329	385	468	464	446	339	316	248	185	61	45

The data from the four manual surveys conducted at the same time as the automatic traffic counts provides information on the mode of travel and is also a key tool when estimating modal share between public and private transport.

Figure 9 shows the classification of inbound vehicles in 2007. The category of 'light vehicles' includes motorcycles, cars, taxis and light vans less than 1.5T. The heavy goods category includes all vehicles over 1.5T.

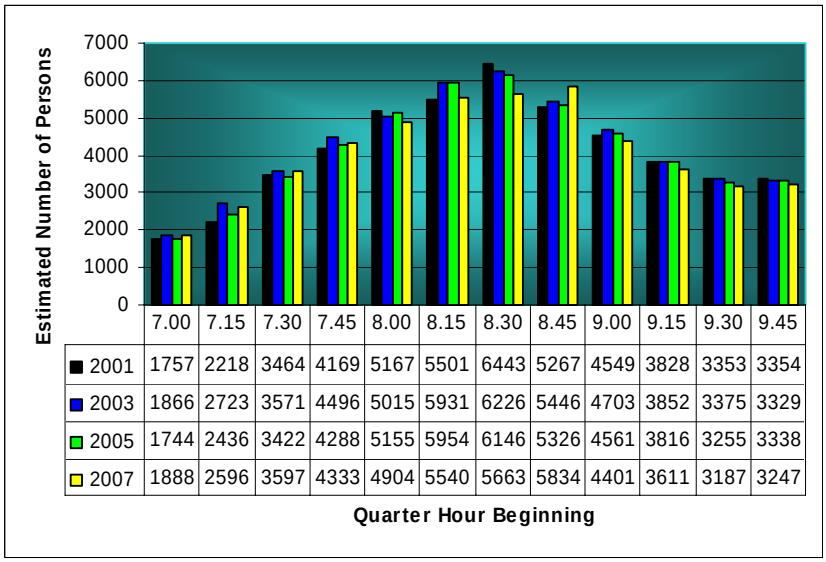
The vehicle mode is estimated by multiplying the percentage by vehicle type taken from the manual surveys and the number of vehicles taken from the automatic count surveys.

Table 7: Estimates of persons from occupancy data 2007

Totals from Sample 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	Est. Light Vehs	Est Persons light vehicles	Estimated Persons by Light Vehicles and Pedal Cycle	Estimated Heavy Vehs	Estimated Persons by Heavy Vehicles	Estimated Persons by Light and Heavy Vehicles		
												2007	**2005**	**2003**
07.00	325	366	1.13	1753	70	15	1573	1771	1786	95	102	1888	1744	1866
07.15	413	494	1.20	2234	57	5	2089	2499	2504	83	92	2596	2436	2723
07.30	483	610	1.26	2932	71	30	2760	3486	3516	71	81	3597	3422	3571
07.45	662	810	1.22	3600	54	27	3449	4220	4247	70	86	4333	4288	4496
08.00	757	938	1.24	4045	91	23	3868	4793	4816	63	88	4904	5155	5015
08.15	775	1041	1.34	4248	111	25	4051	5441	5466	62	74	5540	5954	5931
08.30	796	1096	1.38	4246	119	28	3996	5502	5530	102	133	5663	6146	6226
08.45	802	1007	1.26	4074	77	26	4512	5666	5692	116	142	5834	5326	5446
09.00	661	829	1.25	3588	80	16	3401	4265	4281	91	120	4401	4561	4703
09.15	541	677	1.25	2979	96	11	2782	3481	3492	91	119	3611	3816	3828
07:30-09:30	**5477**	**7008**	**1.28**	**29712**	**700**	**185**	**28819**	**36854**	**37039**	**665**	**947**	**37986**	**38668**	**39239**
09:30	**549**	**687**	**1.25**	**2650**	**111**	**4**	**2446**	**3061**	**3065**	**89**	**121**	**3187**	**3255**	**3375**
09:45	**542**	**710**	**1.31**	**2539**	**43**	**13**	**2375**	**3111**	**3124**	**108**	**123**	**3247**	**3338**	**3329**
07:00-10:00	**7306**	**9265**	**1.27**	**38888**	**981**	**223**	**37302**	**47303**	**47526**	**1040**	**1311**	**48837**	**49442**	**50533**

The figures represented in Table 7 are summarised in Figure 10.

Figure 10: Estimates of persons travelling inbound by private transport



	7.00	7.15	7.30	7.45	8.00	8.15	8.30	8.45	9.00	9.15	9.30	9.45
2001	1757	2218	3464	4169	5167	5501	6443	5267	4549	3828	3353	3354
2003	1866	2723	3571	4496	5015	5931	6226	5446	4703	3852	3375	3329
2005	1744	2436	3422	4288	5155	5954	6146	5326	4561	3816	3255	3338
2007	1888	2596	3597	4333	4904	5540	5663	5834	4401	3611	3187	3247

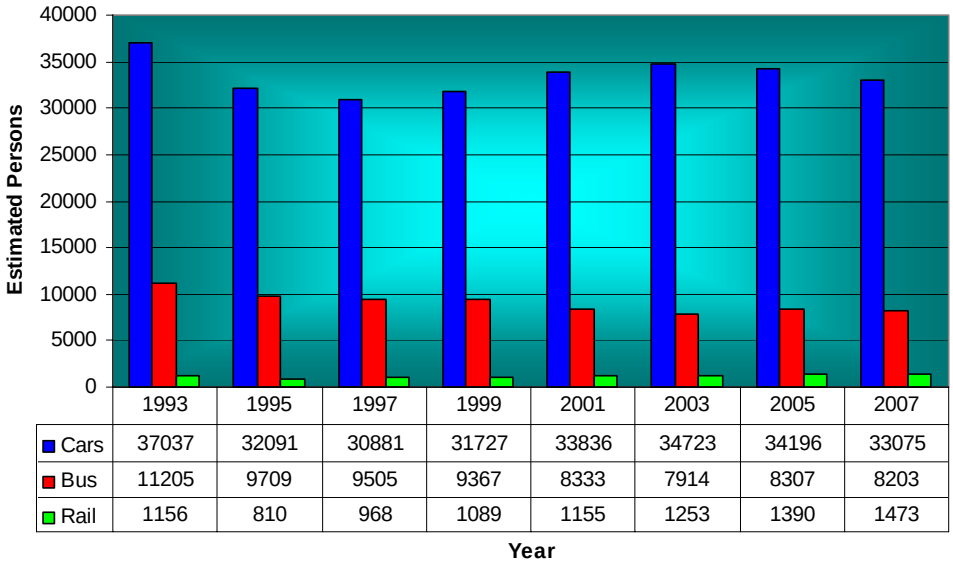
Data estimated for 09:30 and 09:45 in 2001

The peak 15 minutes for persons travelling inbound by public transport is 08.45 to 09.00

Figure 10 illustrates the estimated number of people travelling into Coventry City Centre by means of private transport. This includes pedal cycle riders and drivers and passengers of all mechanised vehicles except buses. A summary of all modes of transport for the morning peak is shown in Figure 11.

Since 2005, increases were noted during the morning peak hour of 07.00 to 08.00. In 2007, the inbound peak 15 minutes is 08.45 to 09.00.

Figure 11: Total Inbound Person Trips by Mode (07.30 – 09.30)



	1993	1995	1997	1999	2001	2003	2005	2007
Cars	37037	32091	30881	31727	33836	34723	34196	33075
Bus	11205	9709	9505	9367	8333	7914	8307	8203
Rail	1156	810	968	1089	1155	1253	1390	1473

Public transport modal share increased from 22.1% in 2005 to 22.6 in 2007

After a steady increase in car passengers from 1997 to 2003, the number of person trips by car entering Coventry City Centre declined in 2005 and further again in 2007. These are now the lowest recorded number of car trips since 1999.

Public transport trips have remained at the same level as 2005. Bus passengers decreased slightly in 2007 compared with 2005 although rail passengers increased to compensate for the fall.

In terms of modal share, public transport trips have increased slightly in 2007 to 22.6% compared with 22.1% in 2005 and 20.9% in 2003.

Overall, the number of trips by cars and public transport decreased in 2007 by 2.6% from 43,893 to 42,751.

A study undertaken by Coventry City Council in 2007 showed there were also 4,269 pedestrians and 196 cyclists crossing the cordon during 07.00-09.00.