

Dudley Cordon Survey

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Dudley Cordon Report 2006

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1.1 Introduction

This report contains the results and analysis of the traffic cordon surveys undertaken by Mott MacDonald Ltd and Dudley Borough 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 Dudley Town Centre so that the effects of physical engineering measures and transport policies can be assessed. The Manual Traffic Counts have been undertaken by Dudley Borough Council, while the Automatic Traffic Counts and the overall analysis of both types of counts have been undertaken by Mott MacDonald.

1.2 Methodology

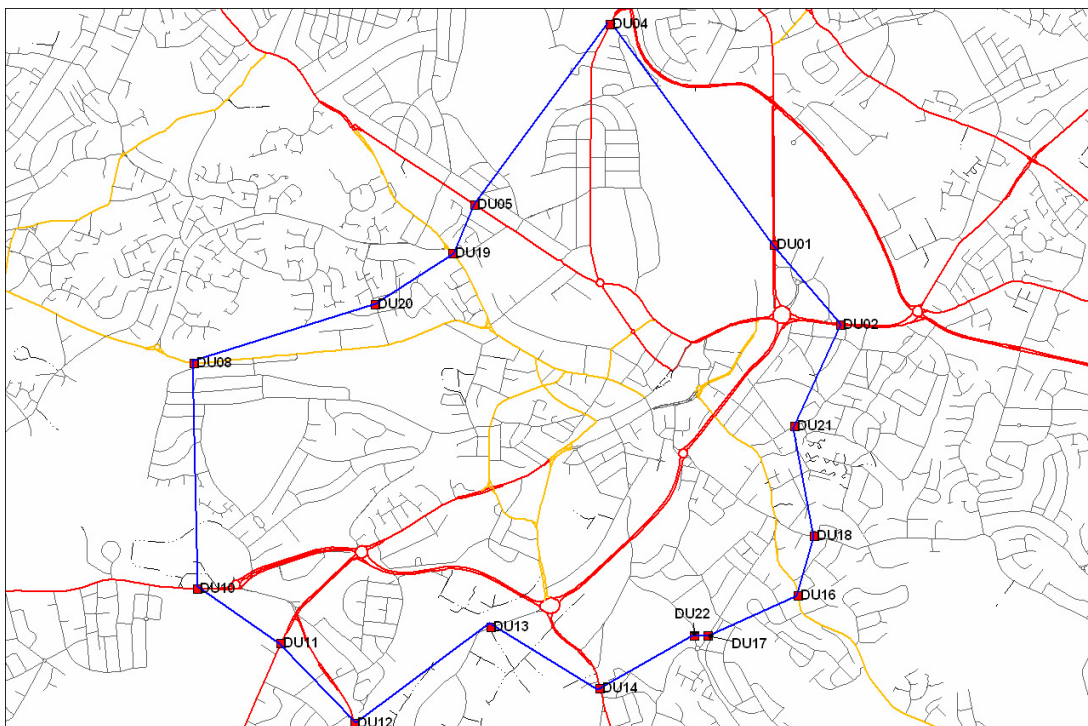
In order to obtain data on current vehicular traffic flow levels, a cordon shown in Fig1, was marked around most major and some minor roads entering into Dudley town centre. Automatic Traffic Counts were installed on all those roads to measure 24 hours traffic flows for a full week.

4 sites are also surveyed manually by Dudley Borough Council 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 private vehicle.

A supplementary bus cordon survey was undertaken by Centro, which also feeds into this report.

The data collection took place during the week beginning Monday 20th November 2006. The same sites are monitored during the same weeks biennially to maintain consistency in the data.

Figure 1: Location of Automatic Traffic Counters



Automatic Survey Results

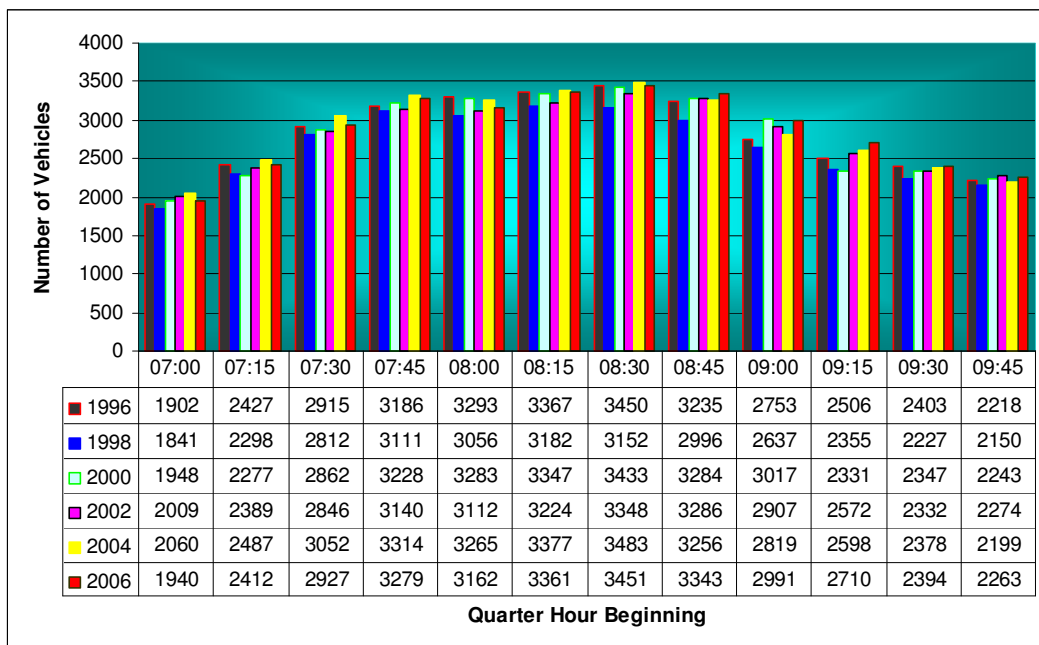
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Table 1: Number of vehicles crossing the cordon in the Morning Peak (07.30 - 09.30)

	1996	1998	2000	2002	2004	2006	2006 (07.00-10.00)
Inbound Total	24,705	23,301	24,785	24,435	25,163	25,224	34,232
Outbound Total	18,462	18,649	19,496	20,068	20,506	20,597	28,710

- Inbound morning peak traffic has marginally increased by 3% between year 2002 and 2004 and by another 0.25% between 2004 and 2006. The only decrease is noted during the year 1998 when it decreased by 5.7% from 1996 levels.
- Outbound morning peak traffic has been on a steady increase. Notably there has been an increase of 11% from the levels seen in 1998 but in between 2004 and 2006 there has been very low increase of less than 0.5%. This suggests that there is now a greater amount of through traffic within the town centre.
- This is supported by figure 8 which shows a reducing amount of accumulated traffic within the town centre.

Figure 2: Inbound Vehicles by Quarter Hour (07.00-10.00)



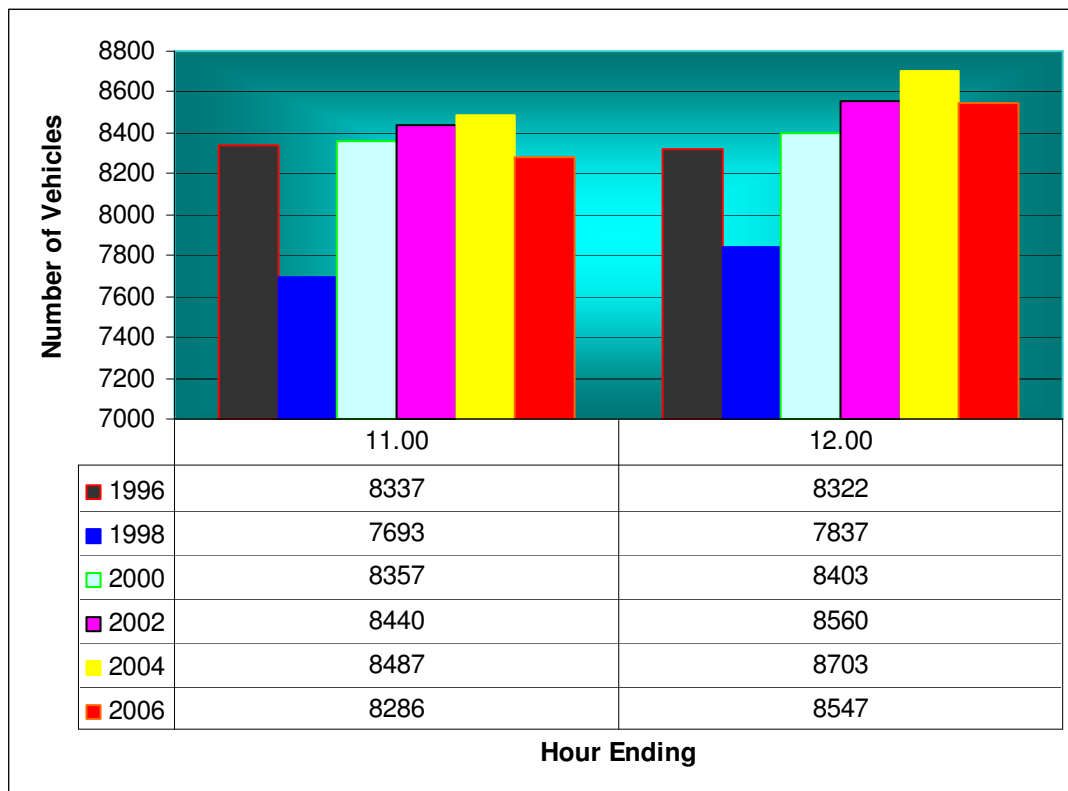
- Figure 2 shows fluctuating changes in traffic between 1996 and 2006.
- Traffic volumes were higher in the quarter hour periods between 8.45 and 9.45am during 2006 compared with 2004.

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Table 2: Number of vehicles crossing the cordon in the Morning Off-Peak Period (10.00-12.00)

	1996	1998	2000	2002	2004	2006
Inbound Total	18,217	15,530	16,760	17,000	17,189	16,833
Outbound Total	15,130	15,216	16,582	16,967	17,107	16,819

Figure 3: Off-Peak Inbound Vehicles by Hour (10.00-12.00)



- Traffic during the off-peak period has fallen slightly both inbound and outbound in 2006 compared with 2004.

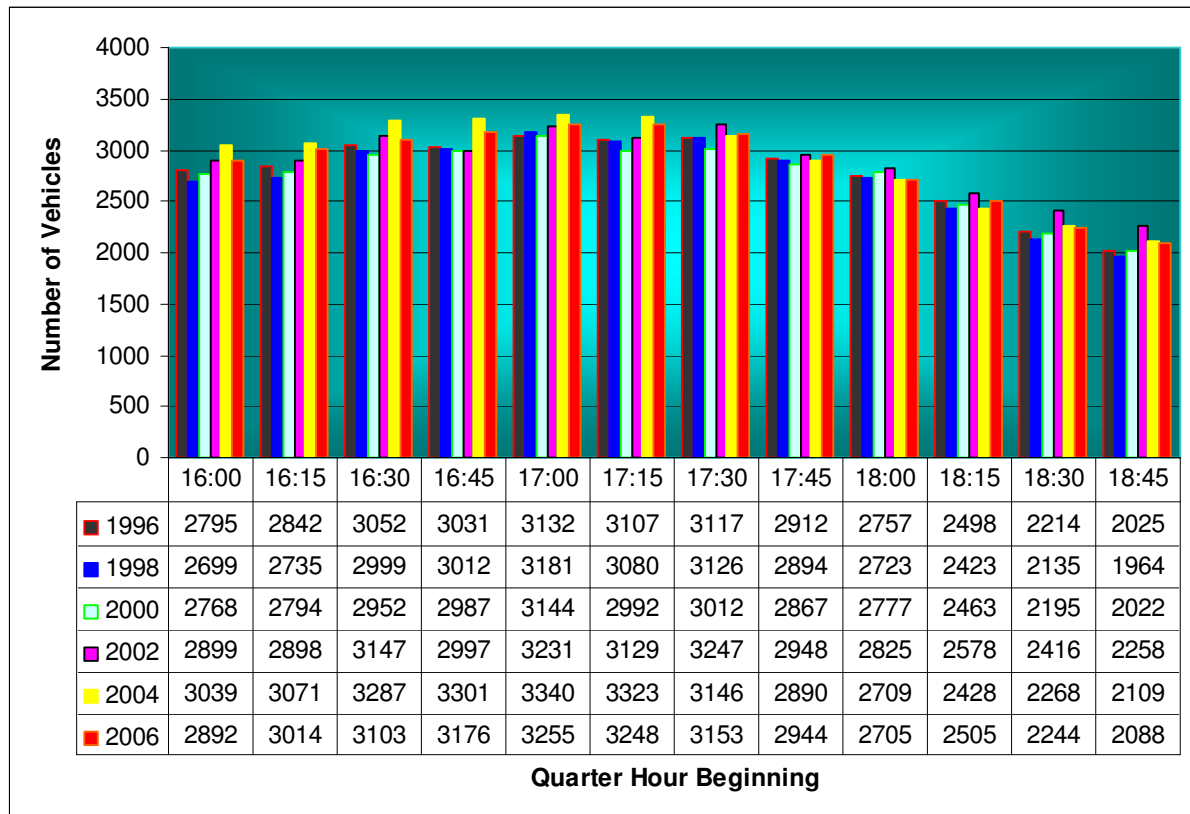
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Table 3: Number of vehicles crossing the cordon in the Evening Peak (16.00-18.00)

	1996	1998	2000	2002	2004	2006
Inbound Total	20,596	19,563	21,555	21,870	22,791	21,951
Outbound Total	23,988	23,726	23,516	24,496	25,396	24,785

Table 3 shows that during 2006, inbound evening peak traffic decreased by 3.7%, and outbound traffic decreased by 2.4%, compared with 2004. Traffic now has returned to those levels seen in 2002.

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



- Figure 4 shows slight increases in vehicles between 17.30 and 18.15, but slight decreases during the other time periods in 2006 compared with 2004.

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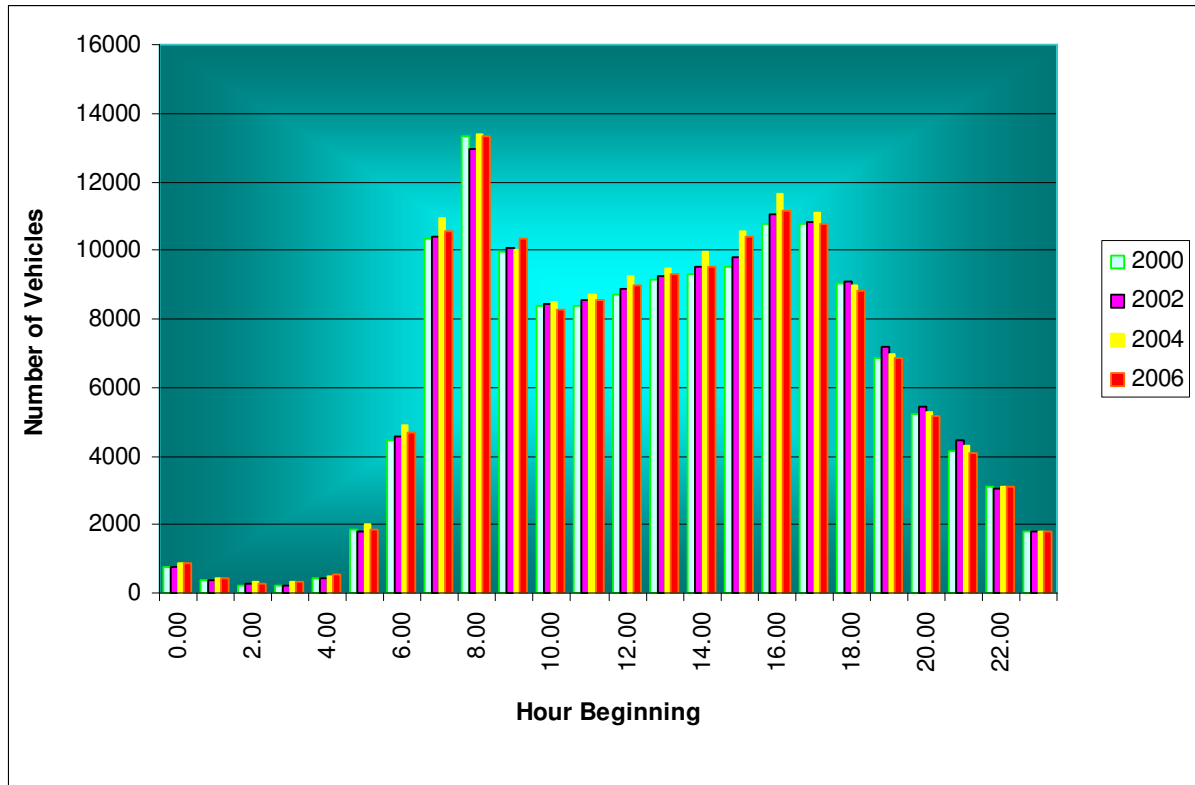
Table 4: Total Vehicles by Time Period on an Average Weekday

	07.30 - 09.30	10.00 - 12.00	16.00 - 18.00	07.00 - 19.00 (12 hour)	00.00 - 24.00 (24 hour)
1998					
Inbound	23,299	15,530	19,563	108,544	135,194
% of 24 hr	17.2	13.8	14.5	80.3	100
Outbound	18,645	15,216	23,726	110,654	140,135
% of 24 hr	13.3	10.9	16.9	79.0	100
NET	4,654	314	-4,163	-2,110	-4,941
2000					
Inbound	24,785	16,760	21,555	117,627	147,029
% of 24hr	16.9	11.4	14.7	80.0	100
Outbound	19,496	16,582	23,516	115,086	145,312
% of 24hr	13.4	11.4	16.2	79.2	100
NET	5,289	178	-1,961	2,541	1,717
2002					
Inbound	24,435	17,000	21,870	118,856	149,276
% of 24hr	16.4	11.4	14.7	79.6	100
Outbound	20,068	16,967	24,496	119,091	151,434
% of 24hr	13.3	11.2	16.2	78.6	100
NET	4,367	33	-2,626	-235	-2,158
2004					
Inbound	25,163	17,189	22,791	122,541	153,313
% of 24hr	16.4	11.2	14.9	79.9	100
Outbound	20,506	16,902	25,396	120,817	152,497
% of 24hr	13.4	11.1	16.7	79.2	100
NET	4,657	287	-2,605	1,724	816
2006					
Inbound	25,224	16,833	21,951	120,057	150,003
% of 24hr	16.8	11.2	14.6	80.0	100
Outbound	20,597	16,819	24,785	119,246	150,152
% of 24hr	13.7	11.2	16.5	79.4	100
NET	4627	14	-2834	811	-149

- 16.8% of traffic flowing into the town centre on a typical weekday crossed the cordon line between the hours of 7.30a.m. and 9.30a.m.
- 16.5% of outbound traffic crossed the cordon line between 1600-1800.
- 11.2% of the daily weekday traffic into the city centre occurred during the off peak time period (1000-1200).
- 80% of average daily (weekday) inbound traffic crossed the cordon during the main 12hr day (0700-1900).
- 79% of outbound traffic crossed the cordon within the same period.
- The number of vehicles counted in 2006 were less both inbound and outbound than those counted in 2004 (2.2%), and (1.5%).

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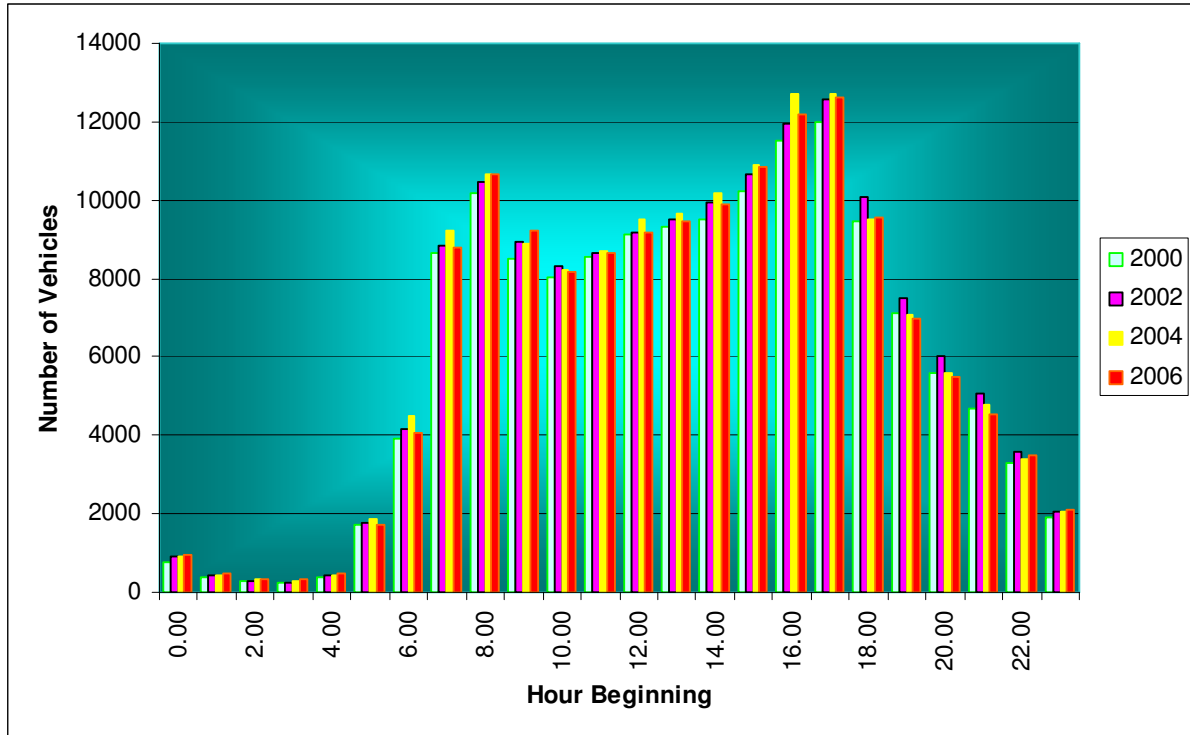
Figure 5: 24 Hour Flows Inbound



- Figure 5 shows the distribution of vehicles entering Dudley Town Centre by hour over the 24 hour period.
- Traffic has decreased in most periods during the day. The exception being the hour between 9am & 10am.

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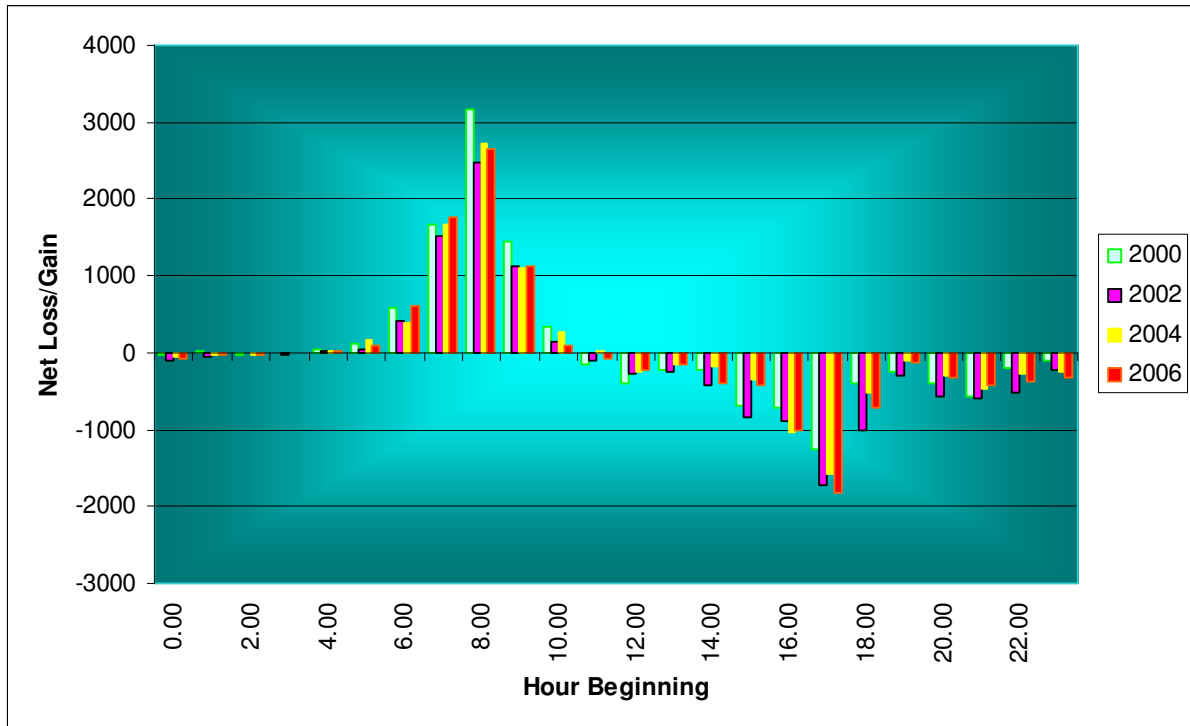
Figure 6: 24 Hour Flows Outbound



- Figure 6 shows the corresponding outbound flow by hour over the 24 hour period.
- Outbound traffic has increased between 9.00 and 10.00, 18.00 and 19.00 and 22.00-00.00.

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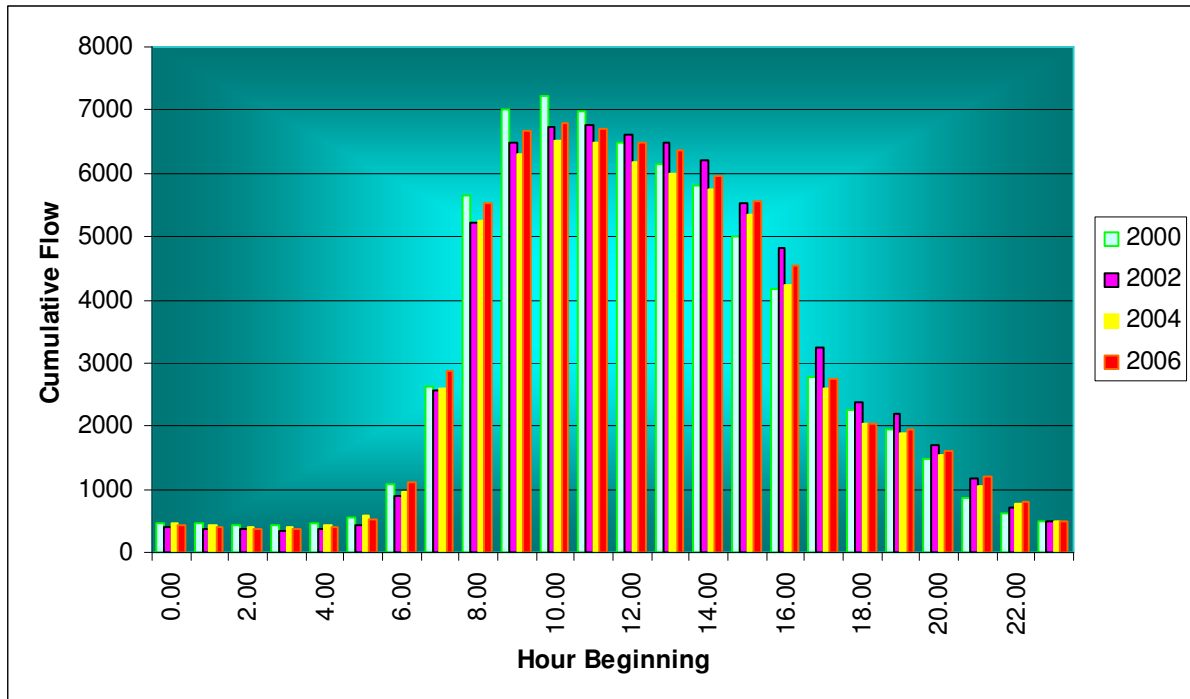
Figure 7: Net Loss/Gain in Vehicles over 24 hour Period



- Figure 7 shows the net gain in vehicles to the cordon by hour from 2000 to 2006.
- In 2006 the highest single hour was 08.00-09.00 when 2,646 more vehicles entered the town centre than left it.
- Correspondingly, the highest hour in the evening was 17.00-18.00 when 1,818 more vehicles left the town centre than entered it.

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Figure 8: Accumulation of Vehicles in Dudley Town Centre 2000-2006



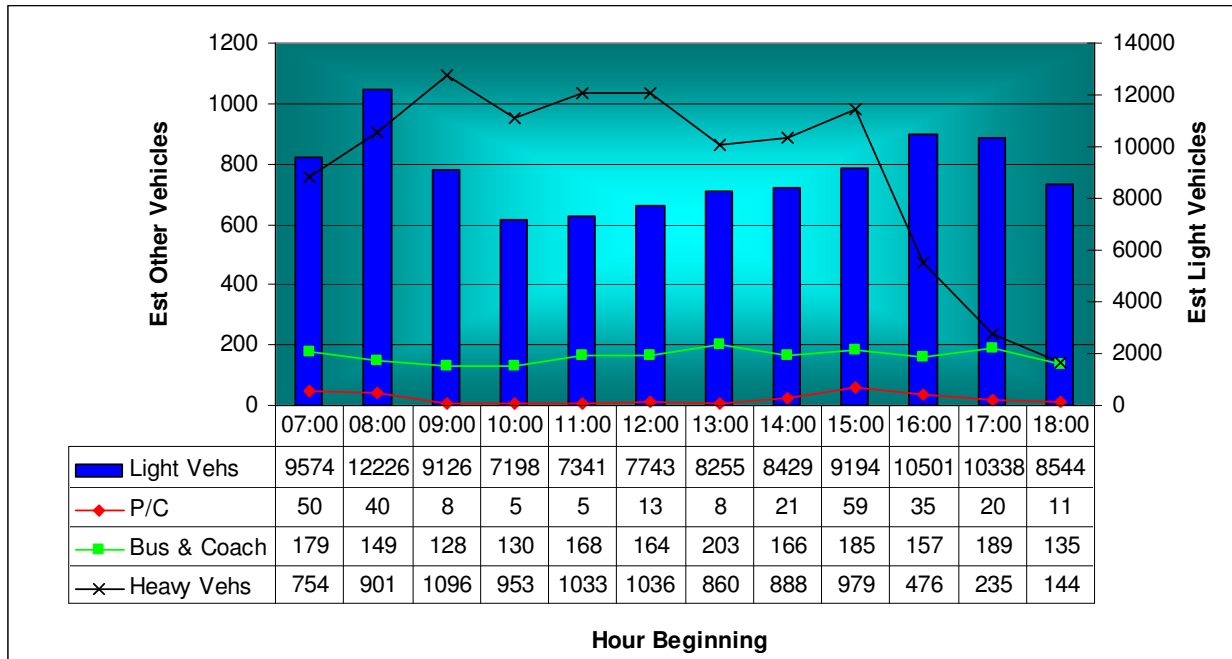
- Figure 8 shows the accumulation of vehicles during the 24 hour period in Dudley town centre.
- The highest number of vehicles remaining inside the town centre occurs during 10.00-11.00 when there were an estimated 6,782 vehicles within the cordon.
- There has been a continuation in the decline in the number of vehicles present within the town centre since 2000 from a peak of 7,236 to approximately 6,700 in 2006.

* 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

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1.4 Mode of Travel

Figure 9: Estimated Inbound Vehicles by Mode 2006.



- The manual surveys give us an indication of the volume of travel into and out of the centre by mode.
- For the purpose of Figure 9, '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 vehicle type taken from the manual surveys and the number of vehicles taken from the automatic traffic count survey.

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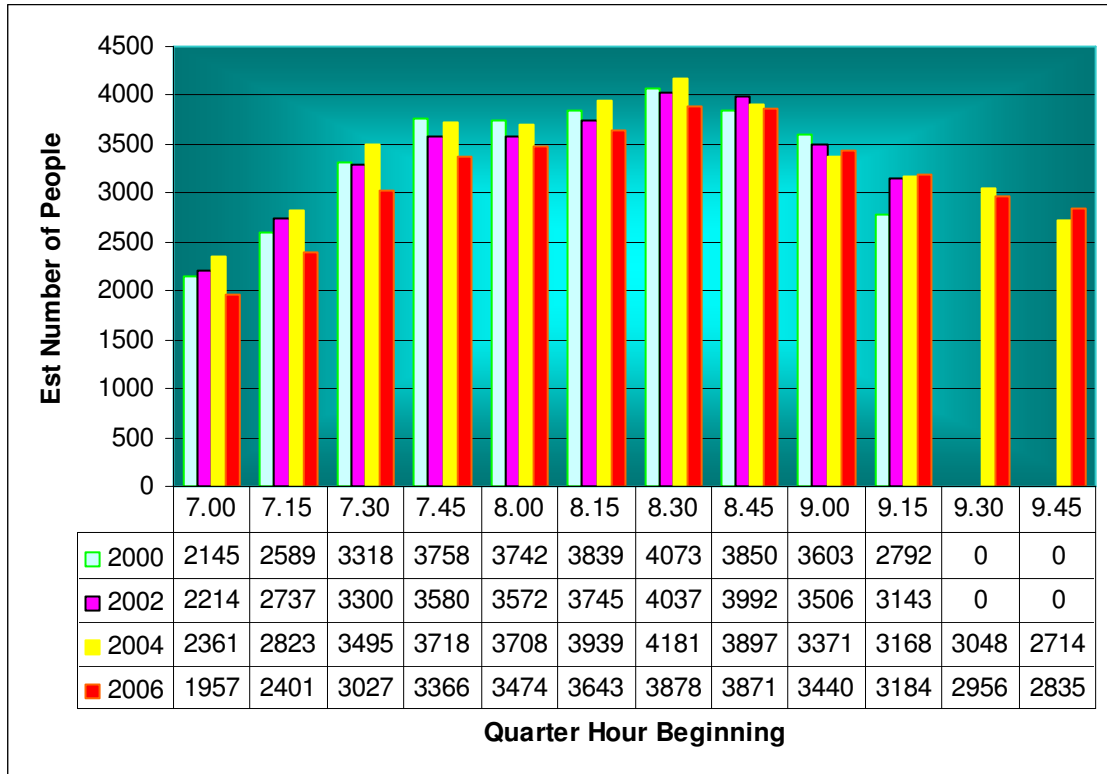
Table 5: Estimates of Persons from Occupancy Data 2006

Total Veh	Total Pass	Ave Occup	Quarter	A	B	C	D	E	F	G	Est People	Est People in Light and Heavy Vehs			
				Automatically Counted Vehicles	Estimated Number of Buses	Estimated Pedal Cycles	Estimated Light Vehs	Est People Light Vehs	Est People Light Vehs + Ped Cyc	Estimated Heavy Vehs		Est People Heavy Vehs	2006	2004	2002
697	799	1.15	7.00	1757	41	13	1559	1787	1800	144	157	1957	2361	2214	2145
765	876	1.15	7.15	2149	44	7	1960	2244	2252	138	149	2401	2823	2737	2589
1003	1160	1.16	7.30	2651	37	7	2449	2832	2840	158	187	3027	3495	3300	3318
1051	1200	1.14	7.45	2990	38	17	2696	3078	3095	240	272	3366	3718	3580	3758
1070	1283	1.20	8.00	2944	38	10	2687	3222	3232	208	242	3474	3708	3572	3742
1072	1263	1.18	8.15	3131	31	9	2913	3433	3441	177	202	3643	3939	3745	3839
1116	1327	1.19	8.30	3293	44	12	2993	3559	3571	244	306	3878	4181	4037	4073
1060	1253	1.18	8.45	3305	29	7	3046	3601	3608	223	263	3871	3897	3992	3850
971	1147	1.18	9.00	2946	35	6	2648	3128	3133	258	307	3440	3371	3506	3603
806	997	1.24	9.15	2630	37	0	2314	2862	2862	279	322	3184	3168	3143	2792
8149	9630	1.18	0730-0930	23890	289	68	21746	25714	25782	1787	2100	27883	29477	28875	28974
859	1082	1.26	9.30	2394	33	0	2085	2627	2627	276	329	2956	3048	N/A	N/A
789	1013	1.28	9.45	2263	22	2	1978	2532	2534	260	301	2835	2714	N/A	N/A
11259	13400	1.19	0700-1000	32453	429	90	29328	34905	34995	2605	3037	38032	40423	N/A	N/A

The figures represented in Table 5 are shown in Figure 9.

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Figure 10: Estimates of Persons Travelling Inbound by Private Transport 07.00-10.00

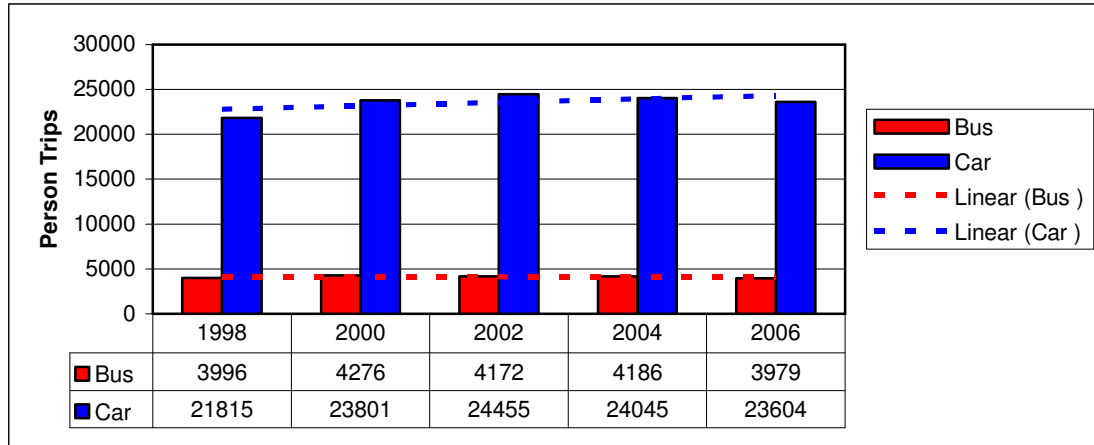


- Figure 10 illustrates the estimated number of people travelling into Dudley town centre by means of private transport. This includes drivers and passengers of all vehicles except buses.
- Most quarter hour time periods show decreases compared with 2004. The only exceptions were the period from 09.00-09.15 and 09.45-10.00.

* N.B. Data not available for 9.30 and 9.45 for 2000 and 2002.

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Figure 11: Total Inbound Person Trips 0730-0930



- 85.6% of personal trips made into Dudley Town centre during the morning peak are made by car. This figure has only varied from this amount by -0.7% since 1998.
- Bus trips have remained fairly constant over the six year period while car trips have fluctuated slightly. Car trips peaked in 2002, but in 2004 they decreased slightly by 1.7%