

Wolverhampton Cordon Survey

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Wolverhampton Cordon Report 2004

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Wolverhampton Cordon Survey

1.1 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 Wolverhampton city centre, to indicate existing and future levels of transport demand and to monitor the effects of transport policy. The manual surveys have been undertaken by Wolverhampton City Council, while the automatic surveys and analysis have been undertaken by Mott MacDonald.

1.2 Methodology

The most effective method of obtaining the necessary data is to monitor traffic flows crossing a cordon around the city centre. Sites are positioned on all the main roads, with further sites on some of the minor roads so as to obtain a 'closed' cordon. The idea is to capture all vehicles entering the city centre.

Counters are used that record the vehicles automatically (ATC's). In this way, data for a full week is collected, enabling 24 hour average weekday data to be presented.

4 sites are also surveyed manually by Wolverhampton City 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 city centre by private vehicle.

A complementary bus cordon survey has been undertaken by Mott MacDonald on behalf of Centro, which feeds into this report.

Collection of the data took place during the beginning Monday 11th October 2004. The same sites are monitored during the same weeks biennially to maintain consistency in the data.

Figure 1: Wolverhampton City Centre



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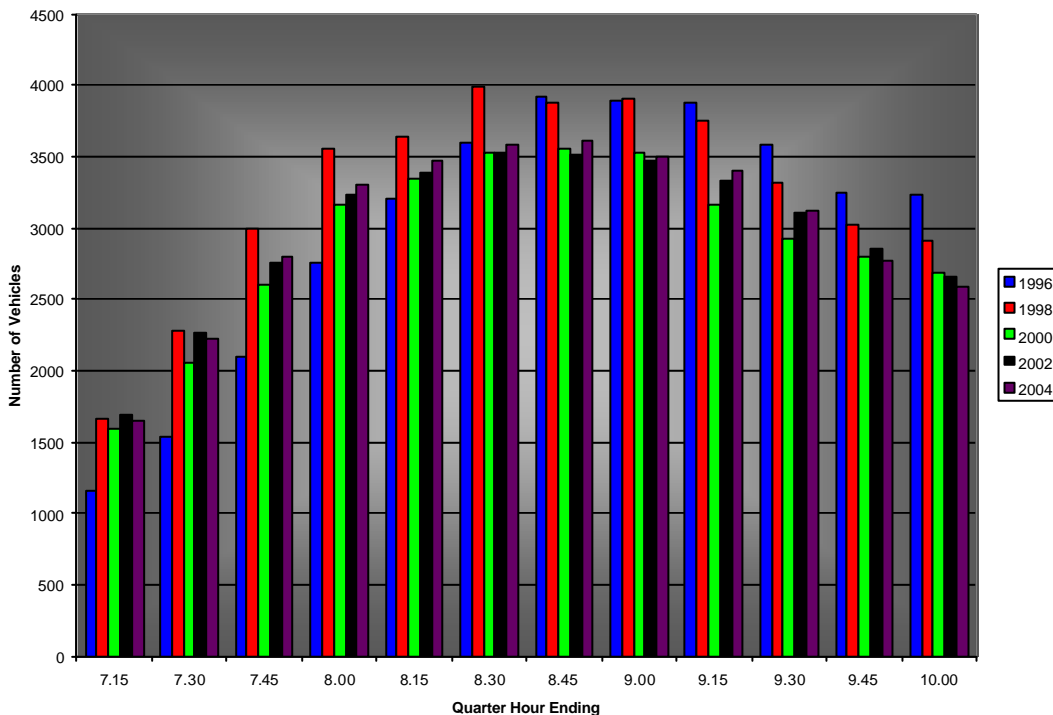
Automatic Survey Results

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

	1990	1992	1994	1996	1998	2000	2002	2004
Inbound Total	30,004	29,058	29,099	26,930	29,023	25,807	26,324	26,798
Outbound Total	17,834	17,212	19,673	17,866	18,926	19,334	19,321	18,595

- Inbound, traffic has increased between 2002 and 2004 by 1.8%. Outbound, the number of vehicles decreased by 3.7%.
- Since 1990, traffic has decreased by 10.7% during the inbound morning peak.

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



- Figure 2 shows fluctuating changes in traffic between 1996 and 2004.
- Traffic volumes were higher in most quarter hour periods during 2004, but were most marked during the 07.30-09.30 peak.

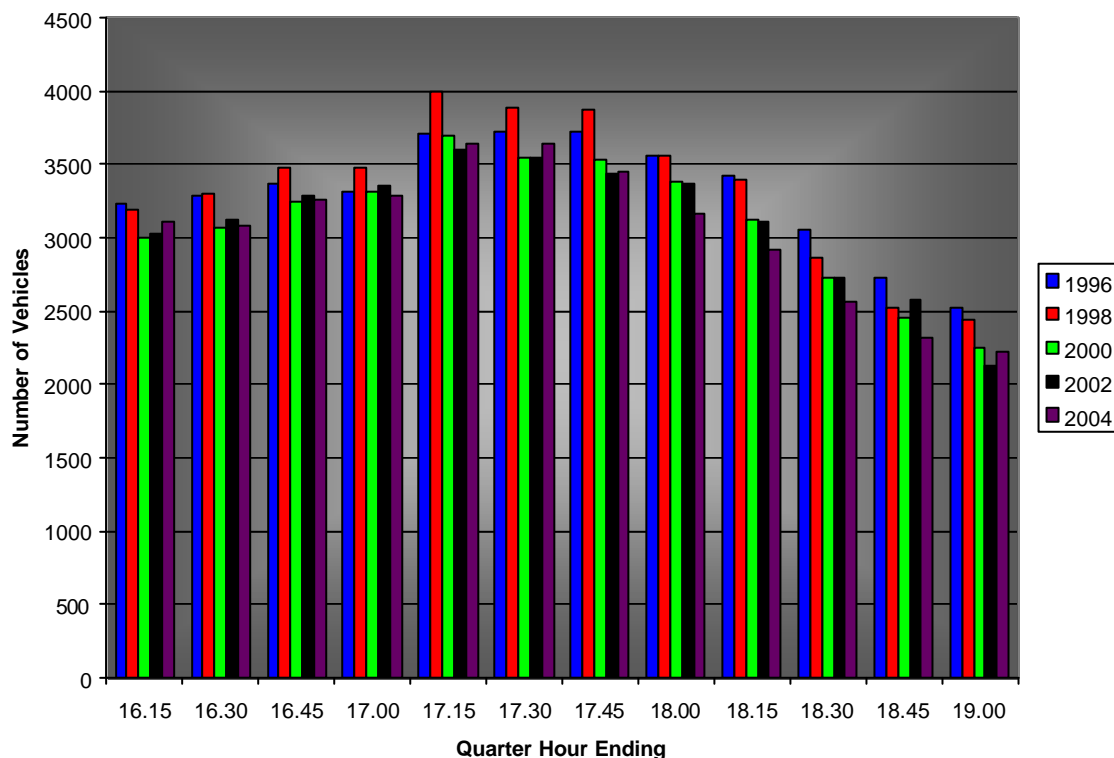
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Table 2: Number of vehicles crossing the cordon in the Morning Off-Peak Period (10.00-12.00)

	1990	1992	1994	1996	1998	2000	2002	2004
Inbound Total	19,452	19,602	20,465	21,118	19,853	19,025	18,986	17,953
Outbound Total	17,577	17,779	19,258	18,303	18,372	17,944	17,685	17,166

- Traffic during the off-peak period has decreased slightly year on year since its peak in 1996.
- Vehicle levels decreased from 2002 to 2004 by around 5.4% inbound. Outbound traffic fell by around 3%.

Figure 3: Outbound Evening Peak Hour Flows (16.00-19.00)



- Figure 3 shows decreases in most time periods except in the peak hour 17.00-17.45.
- Other small rises occurred at 16.00-16.15 and 18.45-19.00.

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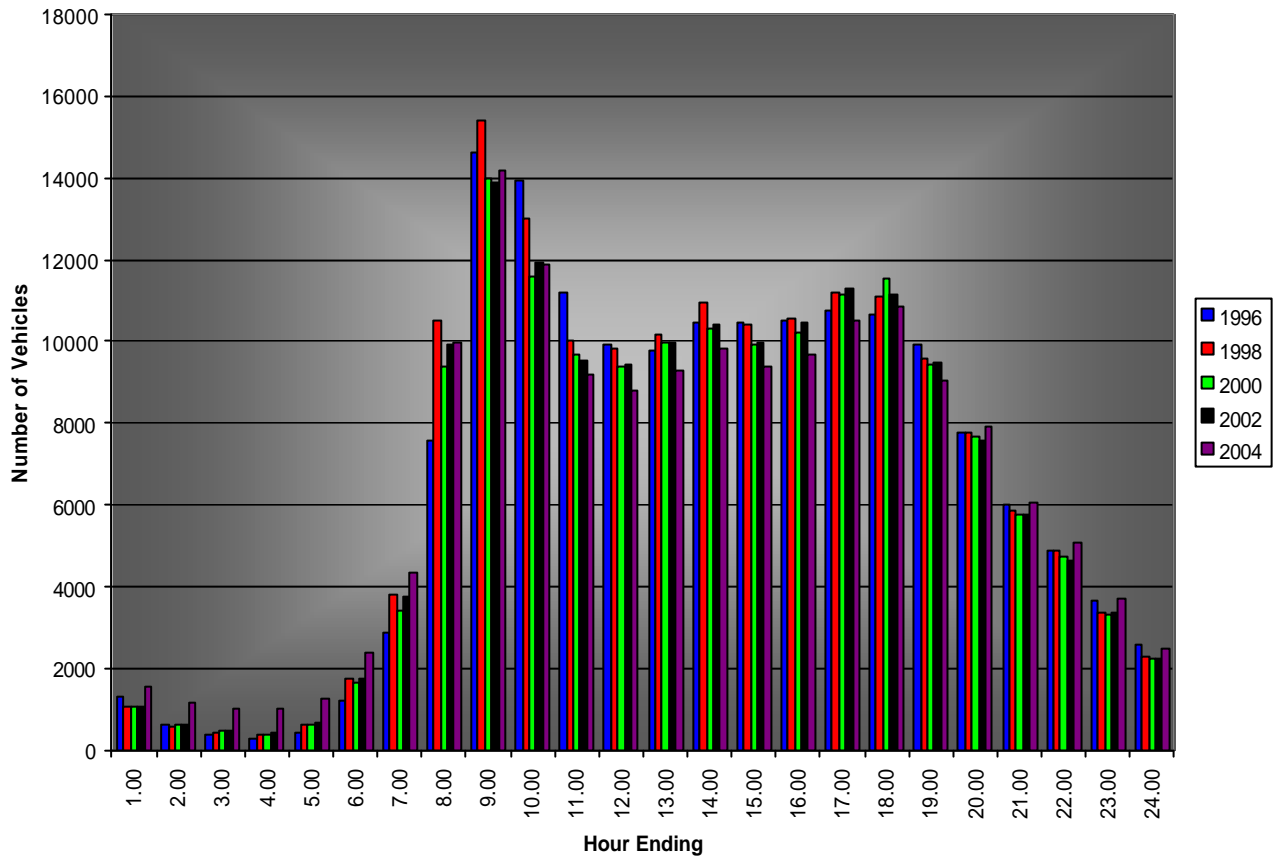
Table 3: Total Vehicles by Time Period on an Average Day

	07.30 - 09.30	10.00 - 12.00	16.00 - 18.00	07.00 – 1900 (12 hour)	00.00 – 24.00 (24 hour)
1998					
Inbound	29,023	19,853	22,261	132,658	165,384
% of 24 hr	17.5	12.0	13.5	80.2	100
Outbound	18,926	18,372	28,747	128,274	162,946
% of 24 hr	11.6	11.3	17.6	78.7	100
NET	10,097	1,481	-6,486	4,384	2,438
2000					
Inbound	25,807	19,025	22,674	126,417	158,273
% of 24hr	16.3	12.0	14.3	79.9	100
Outbound	19,334	17,944	26,783	124,481	158,092
% of 24hr	12.2	11.4	16.9	78.7	100
NET	6,473	1,081	-4,109	1,936	181
2002					
Inbound	26,324	18,986	22,426	127,511	159,781
% of 24hr	16.5	11.9	14.0	79.8	100
Outbound	19,321	17,685	26,768	124,170	158,245
% of 24hr	12.2	11.4	16.9	78.5	100
NET	7,003	1,301	-4,342	3,341	1,536
2004					
Inbound	26,798	17,953	21,881	122,497	160,421
% of 24hr	16.7	11.2	13.6	76.4	100
Outbound	18,595	17,165	26,629	120382	159,009
% of 24hr	11.7	10.8	16.7	75.7	100
NET	8,203	788	-4,748	2114	1,412

- 16.7% 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.
- 16.7% of outbound traffic crossed the cordon line between 1600-1800.
- 11.2% of the daily traffic into the city centre occurred during the off peak time period (1000-1200).
- Around 76% of average daily inbound traffic crossed the cordon during the main 12hr day (0700-1900).
- 76% of outbound traffic crossed the cordon within the same period.
- The number of vehicles counted in 2004 were slightly more inbound and outbound than those counted in 2002 (0.4%), and (0.5%) respectively.

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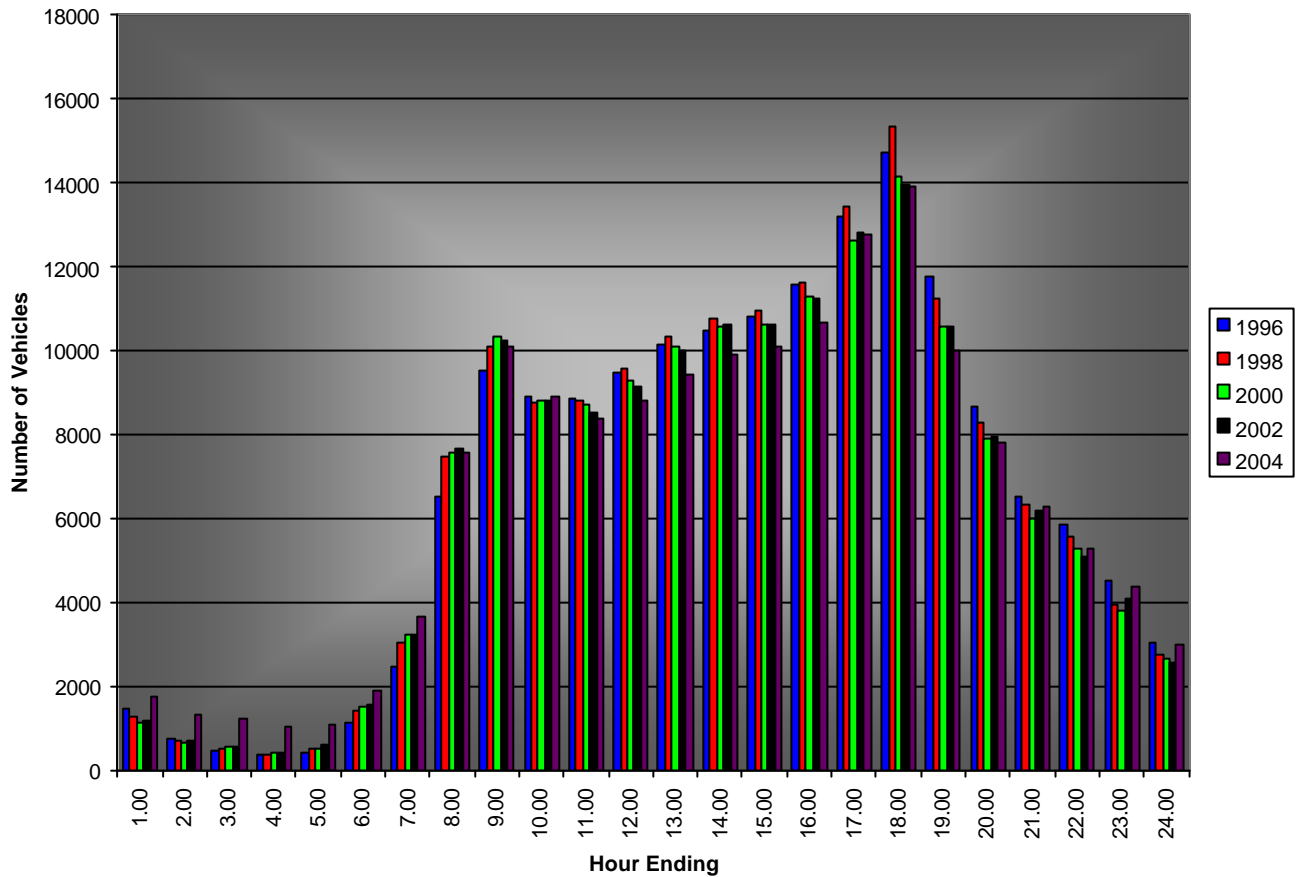
Figure 4: 24 Hour Flows Inbound



- Figure 4 shows the distribution of vehicles entering Wolverhampton City Centre by hour over the 24 hour period.
- Traffic has increased during the earlier and later parts of the day. However, during the mid-morning and early evening there has been a slight decrease in inbound traffic.

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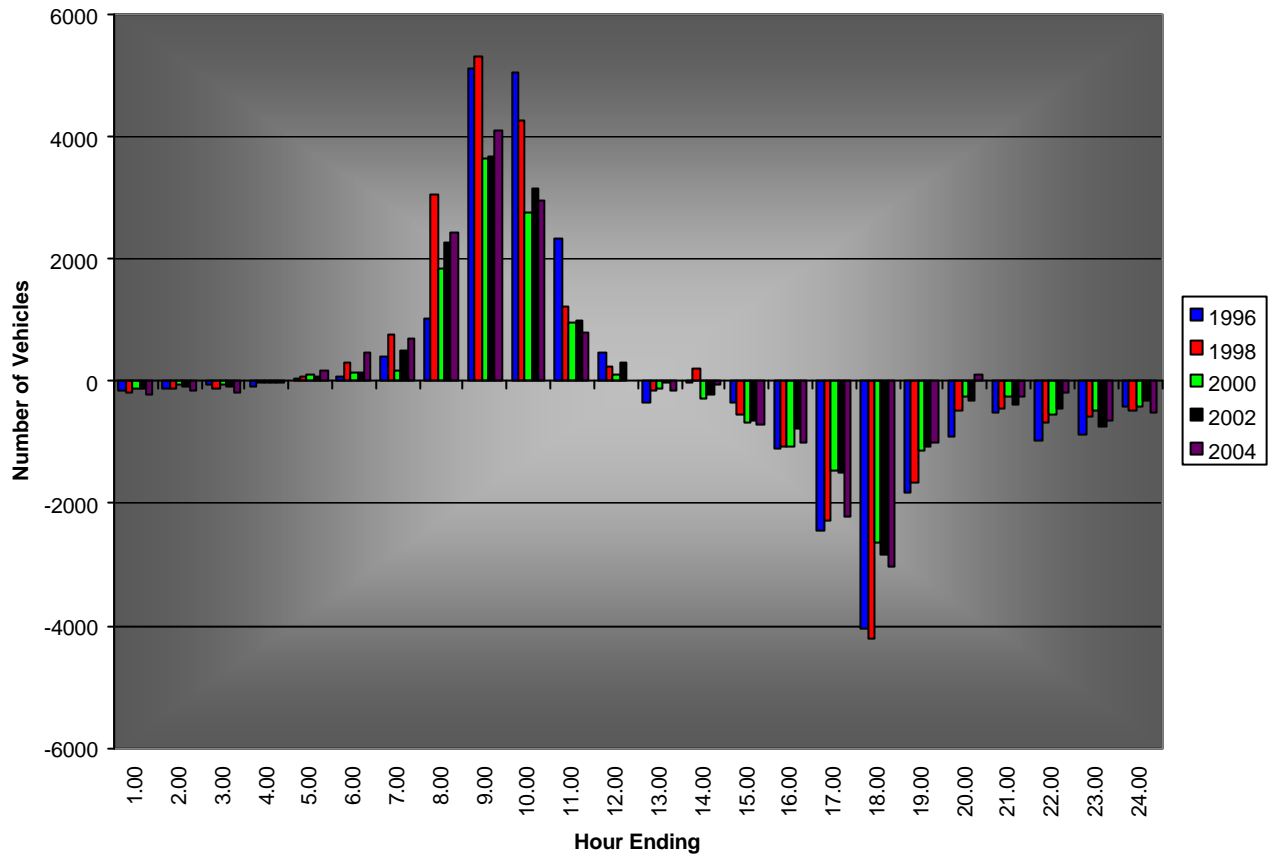
Figure 5: 24 Hour Flows Outbound



- Figure 5 shows the corresponding outbound flow by hour over the 24 hour period.
- Outbound traffic followed a similar pattern to the inbound direction with increases in traffic during the start and end of the day but slight decreases during the day-light hours.

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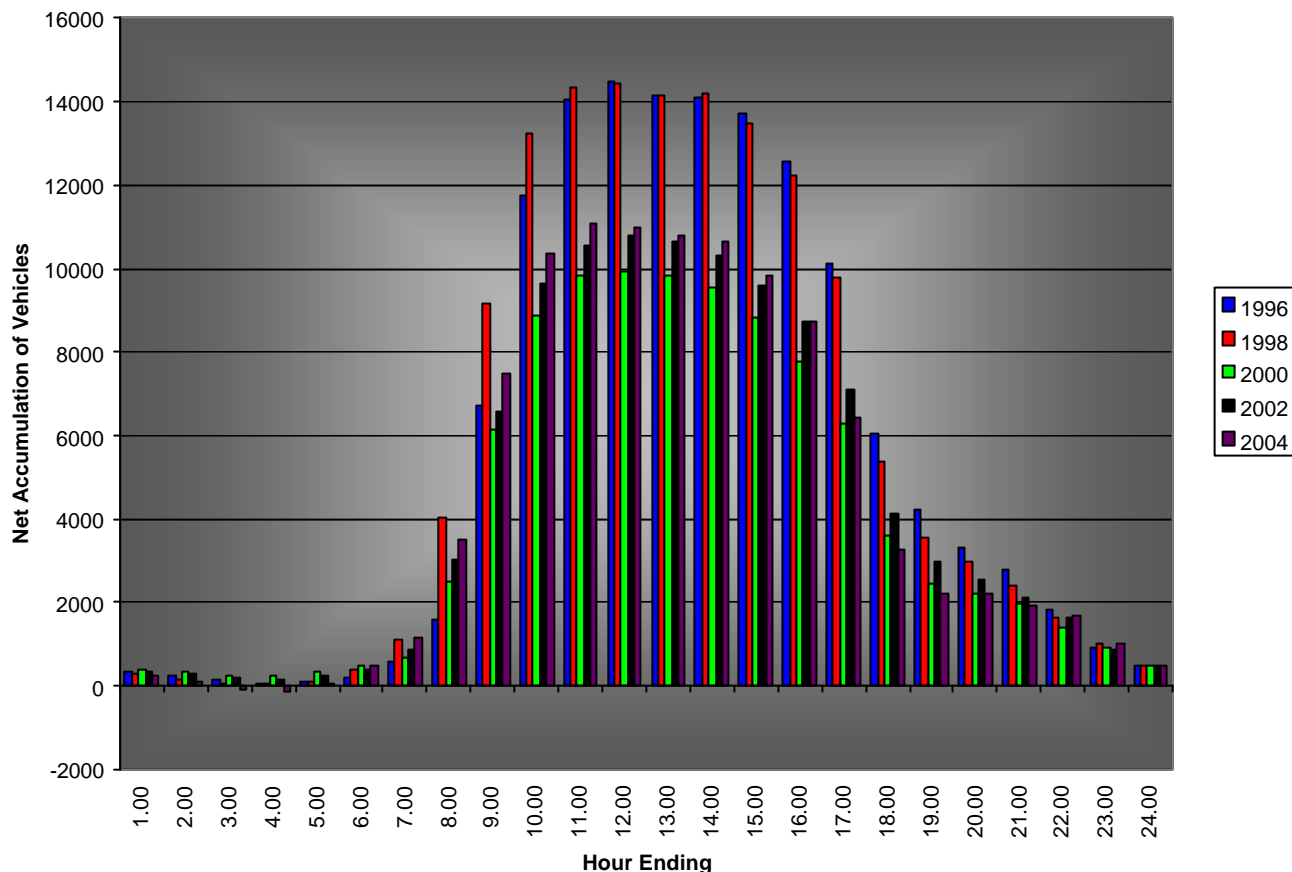
Figure 6: Net Loss/Gain in Vehicles Over 24 hour Period



- Figure 6 shows the net gain in vehicles to the cordon by hour from 1996 to 2004.
- In 2004 the highest single hour was 08.00-09.00 when 4,094 more vehicles entered the town centre than left it.
- Correspondingly, the highest hour in the evening was 17.00-18.00 when 3,024 more vehicles left the town centre than entered it.

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Figure 7: Accumulation of Vehicles in Wolverhampton City Centre 1996-2004



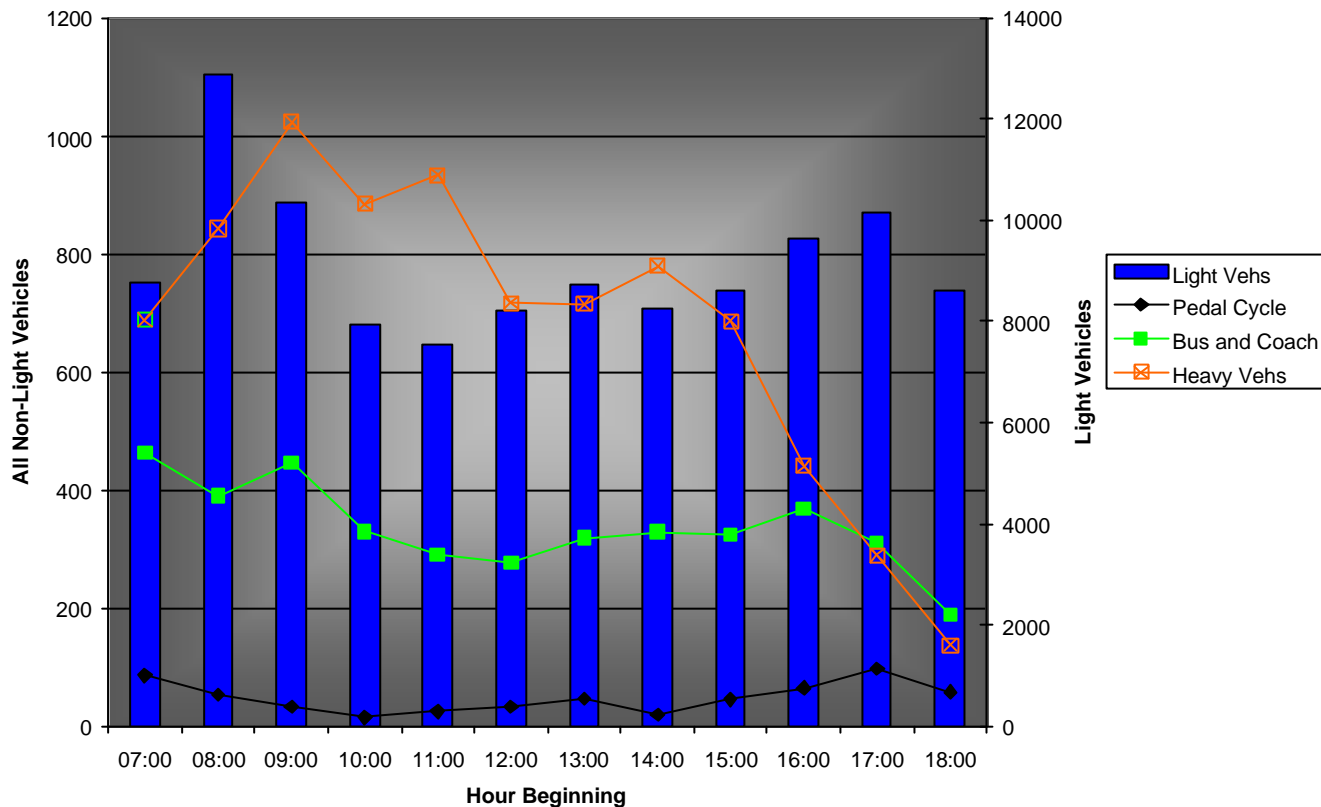
- Figure 7 shows the accumulation of vehicles during the 24 hour period in Wolverhampton City centre.
- The highest number of vehicles remaining inside the town centre occurs during 10.00-11.00 when there were an estimated 11,081 vehicles within the cordon.

* 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 8: Estimated Inbound Vehicles by Mode 2004.



- The manual surveys give us an indication of mode of travel data.
- For the purpose of Figure 8, '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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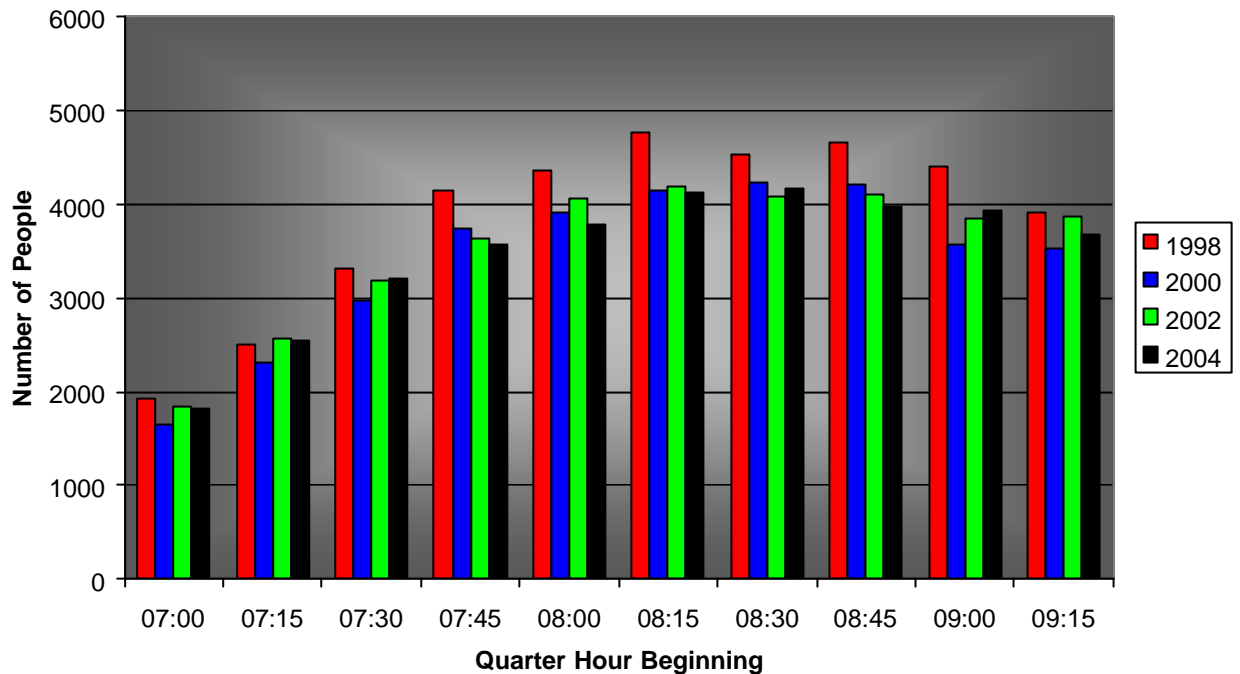
Table 4: Estimates of Persons from Occupancy Data 2004

Total Vehicles	Total Passengers	Average Occupancy	Start Time	A Automatically Counted Vehicles	B Estimated Number of Buses	C Estimated Pedal Cycles	D Estimated Light Vehicles	E Estimated Heavy Vehicles	F=D+E Total Light & Heavy Vehicles	G Estimated Average Occupancy	G+C Estimated People Light & Heavy Vehs + Ped Cyc			
											2004	2002	2000	1998
345	411	1.19	7:00	1649	122	26	1357	144	1501	1788	1814	1838	1648	1920
554	665	1.20	7:15	2230	103	8	1909	211	2119	2544	2552	2562	2305	2508
581	695	1.20	7:30	2805	123	36	2514	132	2646	3165	3201	3195	2976	3316
698	781	1.12	7:45	3304	113	18	2982	190	3173	3550	3568	3624	3735	4151
757	856	1.13	8:00	3463	110	13	3198	141	3340	3777	3790	4056	3904	4351
776	915	1.18	8:15	3585	77	18	3274	216	3490	4115	4133	4185	4145	4773
792	936	1.18	8:30	3616	89	13	3273	240	3514	4152	4166	4076	4238	4537
768	903	1.18	8:45	3504	114	9	3134	246	3380	3974	3983	4103	4220	4657
743	886	1.19	9:00	3402	97	0	2993	312	3305	3941	3941	3839	3570	4404
716	882	1.23	9:15	3120	138	17	2700	264	2964	3652	3668	3864	3537	3901
5831	6854	1.18	0730-0930	26798	862	125	24068	1743	25812	30326	30451	30942	30325	34091

The figures represented in Table 4 are shown in Figure 9.

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Figure 9: Estimates of Persons Travelling Inbound by Private Transport 07.00-09.30



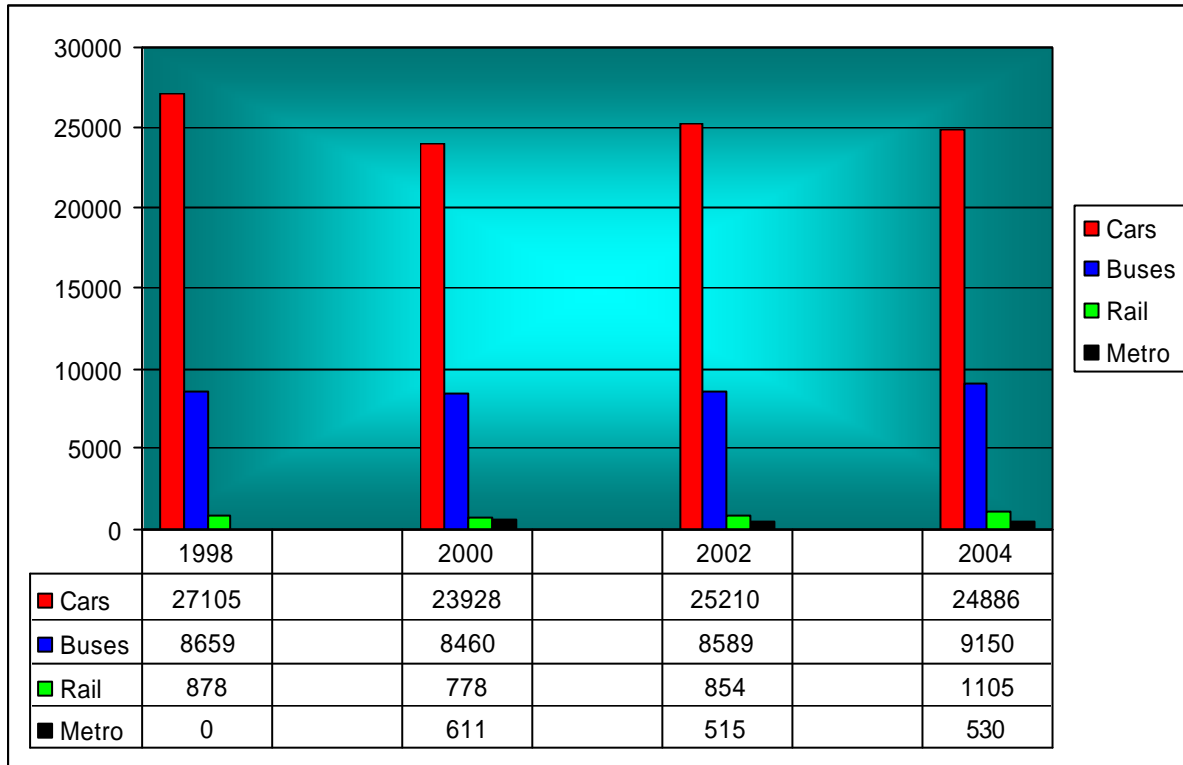
- Figure 9 illustrates the estimated number of people travelling into Wolverhampton City Centre by means of private transport. This includes drivers and passengers of all vehicles except buses.
- Most time periods generally show a consistent number of persons travelling into the city by means of private transport, compared to 2002.



Figure 2. Wolverhampton Metro

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Figure 10: Total Inbound Person Trips 0730-0930



- The trend in total persons entering Wolverhampton City centre has shown a general decrease between 1998 and 2004. There was a slight increase during 2004 compared with 2002.
- Since 2002, the number of persons entering the town during the morning peak period by car has decreased slightly by 324, a percentage decrease of 1.3%.
- Bus patronage rose by 6.5% in 2004. There are now 5.6% more passengers than in 1998.
- The numbers of rail passengers has also risen during 2004. There are 251 more rail passengers than in 2002. Rail passengers account for approximately 3% of total inbound person trips during the morning peak period.
- All public transport modes accounted for 30% of person trips into Wolverhampton in 2004; a rise of 1.9% over the 2002 figures.