

1. INTRODUCTION

Purpose of the Traffic Monitoring Report

1.1 The County Council, as Highway Authority, is responsible for all public roads within the county, except for the motorway and trunk road network, which is the responsibility of the Department for Transport, (DfT). In order to fulfil its functions, the County Council requires up to date information on vehicle flows, flow composition, vehicle occupancy and overall trends. This information is used:-

- to identify and justify transport schemes;
- to assist in the priority ranking of schemes ;
- for strategic planning;
- for development control purposes;
- in road maintenance assessments;
- in road safety investigations;
- in the environmental assessment of schemes;
- for the monitoring of targets;
- to provide a database of information.

1.2 This report examines traffic and travel trends for both rural and urban roads within the county. Where appropriate, trends are compared with national statistics.

Air Quality

1.3 Air quality continues to be a problem in several areas in the county with vehicle emissions continuing to be the main cause.

Location		Pollutant	AQMA declared
Cambridge City	Centre	Nitrogen dioxide (NO ₂)	2004
Huntingdonshire	Huntingdon	NO ₂	2005
	St Neots	NO ₂	2005
	Brampton	NO ₂	2006
	A14 Hemingford to Fenstanton	NO ₂	2006
Fenland	Wisbech	NO ₂	2006
South Cambridgeshire	A14 Bar Hill to Milton	NO ₂ & Fine Particles (PM ₁₀)	2008

1.4 Seven traffic related Air Quality Management Areas (AQMAs) have been declared (see above table). These are areas where pollutant levels do not meet national objectives.

1.5 A Joint Air Quality Action Plan is being developed for the AQMAs in Cambridge City, Huntingdonshire and South Cambridgeshire. This will pursue measures to improve air quality within their AQMAs over the next 5 years. Consultation on measures within the Plan is due to take place Spring 2009.

Variability in Traffic Counts

- 1.6 Much of the information in this report is based on twelve-hour manual traffic counts.
- 1.7 Due to the random nature of traffic flow, even if counted under identical conditions the number of vehicles recorded in these samples will fluctuate. The associated uncertainty reduces (in percentage terms) as the number of vehicles increases.
- 1.8 More serious, and much harder to quantify, is potential systematic variation due to differing circumstances when counts are carried out. Three examples are:-
 - Roadworks, accidents or other incidents causing vehicle diversions;
 - Changes in travel mode due to weather;
 - Unusual events (e.g. sport or entertainment events) causing untypical traffic patterns.
- 1.9 Care is taken to minimise the potential for systematic variation, but, inevitably, there is no guarantee that it is completely eliminated.
- 1.10 Because of random and possible systematic variation, caution is needed when interpreting observed changes in traffic from one year to the next.

Traffic Monitoring and Management Strategy

- 1.11 The Traffic Management Act 2004 places a statutory duty on local traffic authorities to ensure the expeditious movement of traffic on the authority's roads.
- 1.12 The Council is starting to develop a strategy to monitor traffic in "real-time", and is in the process of procuring a common database that will enable us to commence establishing an Integrated Highways Management Centre (IHMC).
- 1.13 We already have some journey time data, including Real Time Passenger Information (RTPI) and historical journey time data provided by the Government (ITIS data).
- 1.14 A key element of the Council's strategy is to implement an automatic number plate recognition (ANPR) system to monitor journey times in real-time in Cambridge and the surrounding area. Phase 1 is due to be implemented in Cambridge City. This will enable us to manage traffic more effectively and will provide the travelling public with information to help people make better-informed travel mode choices.

3. CAMBRIDGE CITY

Introduction

- 3.1 Traffic flows have been monitored comprehensively in Cambridge since 1978 using two screenlines.
- 3.2 The first screenline runs along the River Cam, with vehicles, pedestrians and cyclists crossing all bridges in the city centre being counted in the Spring of each year. These counts are carried out after the University goes down but before the schools close for Easter. This does mean that the pedestrian and pedal cycle flows shown are considerably less than would be present during university term time; counts undertaken to previously quantify this seasonal variation showed that pedal cycle flows were 30% higher and the number of pedestrians 15% greater.
- 3.3 The second screenline is a radial cordon, with vehicles, pedestrians and cyclists on every entry and exit route counted in the Autumn. Seven sites are also monitored to count cyclists and pedestrians on paths between the radial routes.
- 3.4 Following discussion with the Department for Transport, the outer cordon was modified in 2004, with the new cordon being bounded by the A14, M11 and the built-up area to the south and west.
- 3.5 Vehicle occupancy has been monitored on the River Cam screenline since 1999.
- 3.6 In order to measure a mandatory Local Transport Plan indicator, motor vehicles entering the central area of Cambridge during the peak periods are counted.
- 3.7 Chapter Five contains a comparison of traffic and travel patterns in Cambridge and nine market towns. Additional information from automatic traffic counting equipment in the city is summarised in Chapter Six, and Chapter Seven includes further data on cycling.

River Cam Screenline

- 3.8 Mode of travel for vehicles and people crossing the River Cam urban screenline in March 2008 is shown in Table 3.1. The figures include cycle and pedestrian traffic on the City's River Cam cycle and pedestrian bridges.
- 3.9 Table 3.1 shows that there are just under 150,000 journeys across the River Cam bridges in 12 hours. Just under half of these are by car, 18% by bus, 15% on foot and 13% by pedal cycle.

Table 3.1 Vehicles & People Crossing the River Cam - March 2008

Vehicle Type	VEHICLES		PEOPLE		People per Motor Vehicle
	12 Hour Flow	Modal Split	12 Hr Flow	Modal Split	
Motor Cycles	871	0.8%	890	0.6%	1.02
Cars & Taxis	51,767	49%	69,036	46%	1.3
Light Goods	7,572	7%	9,106	6%	1.2
Heavy Goods	1,296	1%	1,553	1%	1.2
Bus & Coach	1,973	2%	26,954	18%	13.7
All motor vehicles	63,479	60%	107,539	72%	1.7
Pedal cycles	19,412	18%	19,412	13%	
Pedestrians	22,944	22%	22,944	15%	
Total (All modes)	105,835	100%	149,895	100%	2.3

3.10 Traffic trends across the River Cam since 1998 are shown in Table 3.2.

Table 3.2 Traffic Growth on the Urban River Cam Screenline

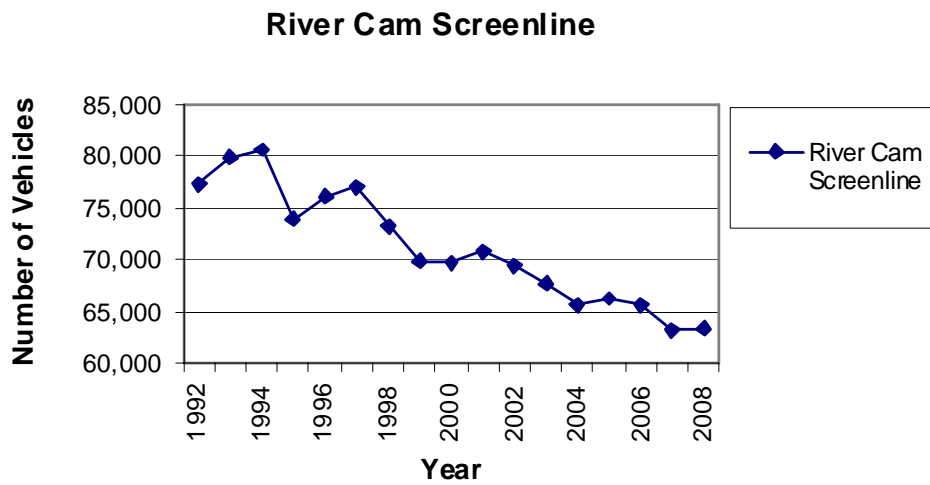
Vehicle Type	INDEX (1998=100)						Change 07-08
	1998	2004	2005	2006	2007	2008	
Motorcycles	100	68	78	67	58	61	6%
Cars	100	90	90	90	86	85	-1%
Light Goods	100	99	106	99	102	109	7%
Heavy Goods	100	58	62	56	63	59	-7%
Bus & Coach	100	92	100	94	110	116	5%
All motor vehicles	100	90	91	90	86	87	0%
Pedal Cycles	100	89	91	94	96	104	9%

3.11 The number of motor vehicles observed crossing the River Cam last year was similar to the 2008 figure and 13% less than ten years ago.

3.12 The number of buses has increased by 16% over the past ten years and the number of motorcycles has reduced over the same period.

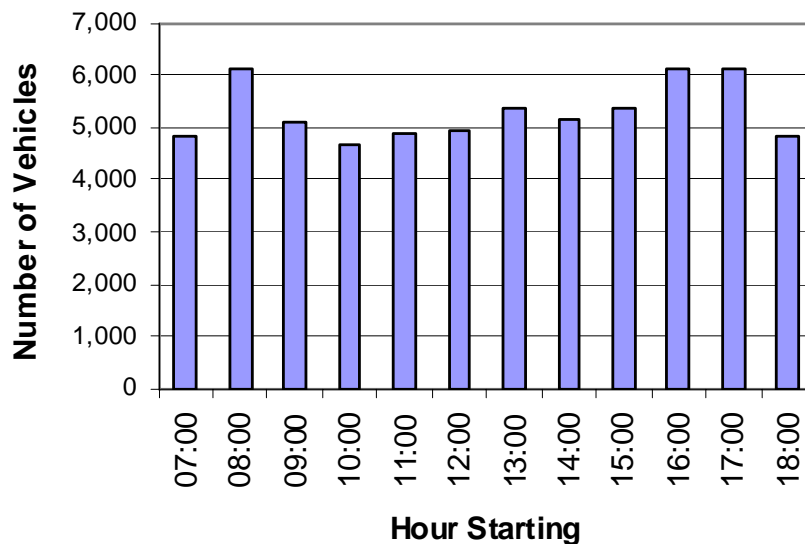
3.13 Year-to-year variation can be expected in the numbers of cyclists and pedestrians observed, as these can be influenced significantly by prevailing weather conditions on the day of the survey. The number of cyclists last year was 4% higher than ten years ago.

Figure 3.1 Motor vehicle traffic crossing River Cam



3.14 Figure 3.2 below shows flows by time of day. The morning and evening peaks are less pronounced than on the Cambridge radials (shown in Figure 3.4).

Figure 3.2 River Cam Screenline flows by time of day 2008



Cambridge Radial Cordon

3.15 Table 3.3 records the numbers of vehicles crossing the Cambridge radial cordon. Table 3.3 includes 3133 pedal cyclists and 1683 pedestrians on paths between the radial routes.

- 3.16 Just over 187,000 motor vehicles cross the outer cordon each day between 7am and 7pm.

Table 3.3 Vehicles Crossing the Cambridge Radial Cordon - October 2008

Vehicle Type	VEHICLES	
	12 Hr Flow	Modal Split
Motor Cycles	2,112	1%
Cars & Taxis	156,927	80%
Light Goods	21,594	11%
Heavy Goods	4,184	2%
Bus & Coach	2,336	1%
All motor vehicles	187,153	95%
Pedal cycles	7,219	4%
Pedestrians	2,669	1%
Total (All modes)	197,041	100%

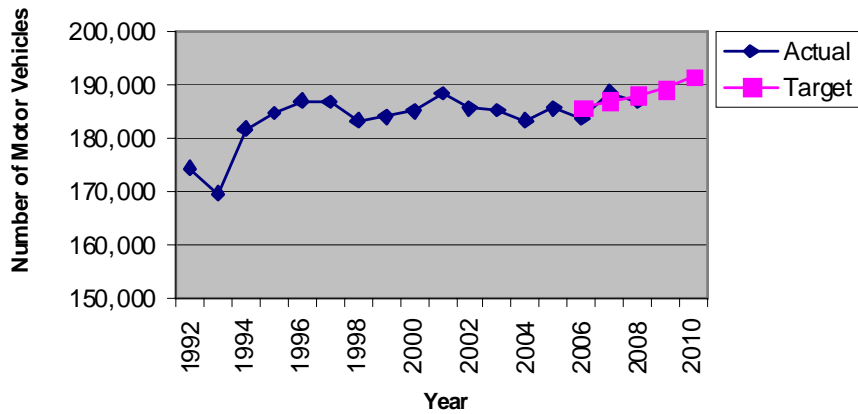
- 3.17 Changes in traffic on the City's radial routes are recorded in Table 3.4 and Figure 3.3. The number of buses was 77% higher than in 1998.
- 3.18 The Council's LTP target is to stabilise traffic during the peak period and allow for a small increase off-peak, giving a 2010/11 target of no more than 191,700 motor vehicles crossing the cordon. As can be seen from Figure 3.3, the 2008 total is slightly better than the 2008 target.

Table 3.4 Traffic Growth on the Cambridge Radial Cordon

Vehicle Type	INDEX (1998=100)						Change 07-08
	1998	2004	2005	2006	2007	2008	
Motorcycles	100	94	102	103	97	93	-4%
Cars	100	99	100	98	101	100	0%
Light Goods	100	107	110	111	116	115	-1%
Heavy Goods	100	99	104	94	94	86	-9%
Bus & Coach	100	155	156	176	184	177	-4%
All motor vehicles	100	100	101	100	103	102	-1%
Pedal cycles	100	99	95	102	105	114	8%

Note: Indices prior to 2004 are based on the rebased trend across the former radial cordon

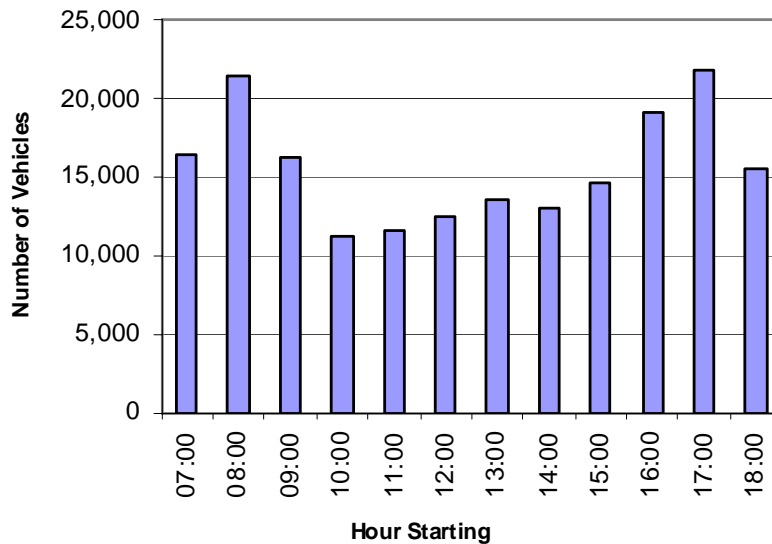
Figure 3.3 Motor vehicles entering and leaving Cambridge



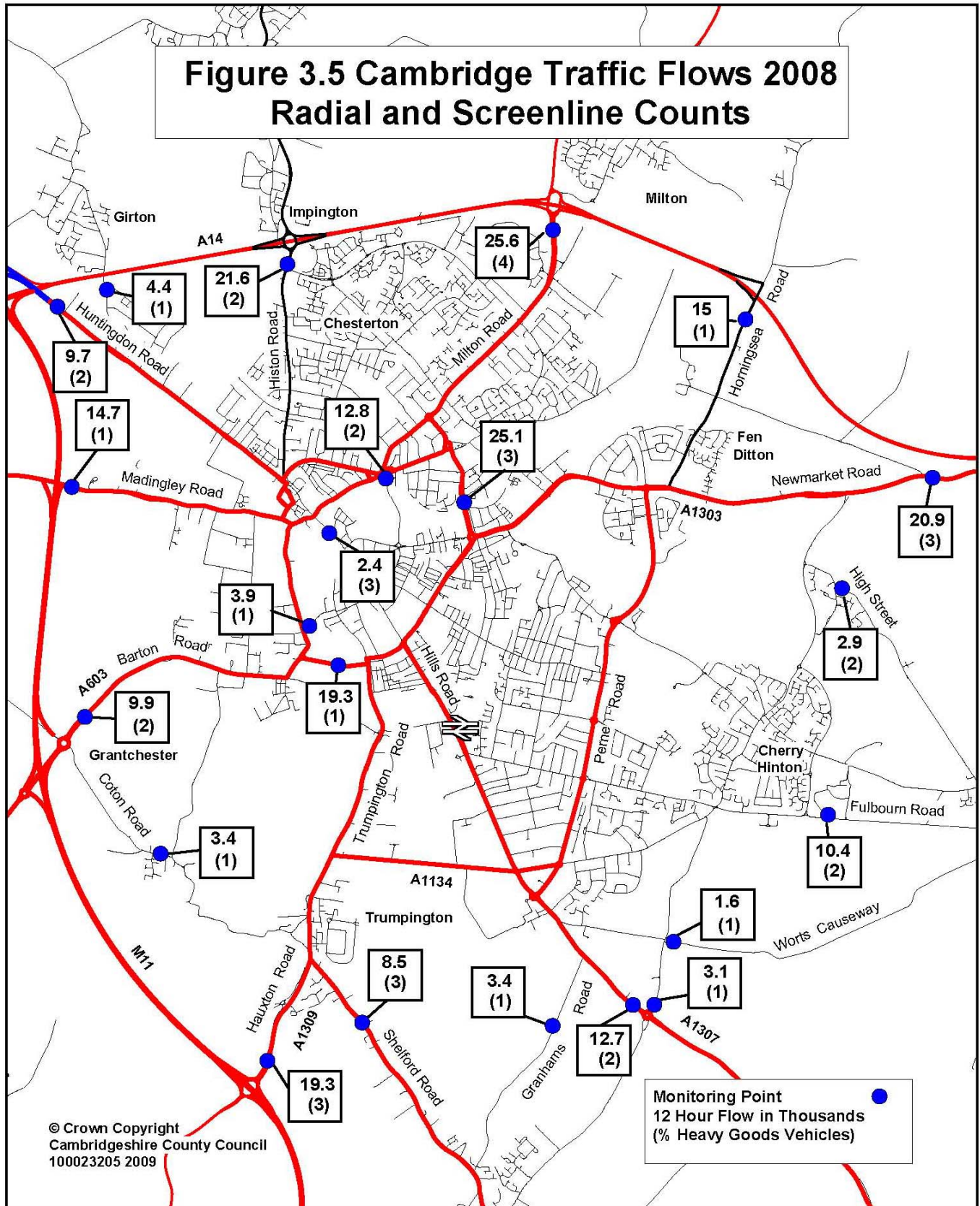
Note: Figures prior to 2004 are based on the rebased trend across the former radial cordon

3.19 Figure 3.4 shows flows by time of day. The morning and evening peaks are more pronounced than on the River Cam Screenline

Figure 3.4 Cambridge radial traffic by time of day 2008



**Figure 3.5 Cambridge Traffic Flows 2008
Radial and Screenline Counts**



Cambridge Central Area Cordon

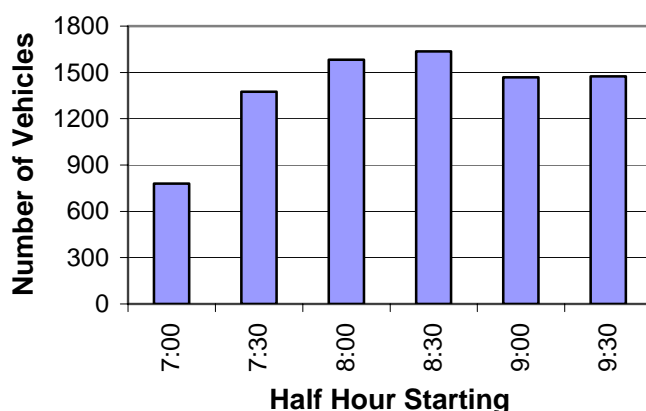
- 3.20 In order to measure a mandatory LTP indicator, all motor vehicles crossing the Cambridge inner cordon (defined as the inner ring road) were monitored for the fourth time this year. This monitoring was carried out during the morning peak period (between 7 am and 10 am) for 10 days, (Monday to Friday) on two consecutive weeks.
- 3.21 The Council's LTP target is to stabilise traffic within Cambridge during the peak period up to 2010/11. The reduction in 2008 confirms that we are doing better than the target.

Table 3.5 Cambridge Inner Cordon: Inbound AM traffic

Cambridge Central Area Cordon - Average over 10 days							
Location	2005 Total Vehicles	2006 Total Vehicles	2007 Total Vehicles	2008			
				Total Vehicles	PSV	HGV	Pedal Cycles
Victoria Avenue	1,948	1,800	1,818	1,626	57	36	448
Newmarket Road	1,709	1,602	1,598	1,477	68	37	208
Grafton Centre Car Park	241	193	188	165	-	-	-
Dover Street	382	413	403	331	-	12	46
Parkside	345	318	338	353	46	10	263
Regent Street	764	841	812	807	100	55	360
Tennis Court Road	502	487	466	494	1	21	297
Trumpington Street	648	618	651	661	39	25	341
Silver Street	1,751	1,709	1,608	1,587	24	15	514
Magdalene Street	374	333	374	344	88	7	1,420
Total	8,664	8,314	8,256	7,845	423	218	3,897

Note: Counts only undertaken at motor vehicle access points. Pedal cycles using other access points are not counted

Figure 3.6 Cambridge Inner Cordon: Inbound AM traffic 2008



Park and Ride

Journeys

- 3.22 Journey numbers are shown in Figure 3.7 and Tables 3.6 and 3.7
- 3.23 There were 4.384 million Park and Ride passenger journeys in 2008: an increase of 27% on the 2007 figure. The increase is due, in part, to growth in concessionary fares.

Table 3.6 Annual Journey Figures

Site	2004	2005	2006	2007	2008
Madingley Rd/Newmarket Rd	1,168,654	1,227,910	1,226,588	1,269,967	1,689,272
Cowley Rd/Babraham Rd	1,245,056	1,331,372	1,496,234	1,426,461	1,630,628
Trumpington Road	657,694	684,570	648,606	744,717	1,064,428
Total (All Sites)	3,071,404	3,243,852	3,371,428	3,441,145	4,384,328

Figure 3.7 Park and Ride Passenger Journeys

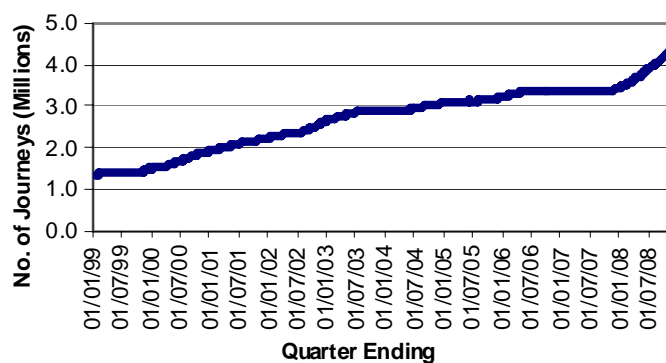


Table 3.7 Park and Ride Journeys since 1998

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Passengers (millions)	1.312	1.542	1.921	2.236	2.646	2.888	3.071	3.245	3.371	3,441	4.384

- 3.24 The figures in Figure 3.7, Table 3.6 and Table 3.7 above exclude children (who make up approximately 3.5% of passengers on a normal weekday and about 16% on a Saturday).

Vehicles and People Using Car Parks

Table 3.8 Cars entering & leaving car parks (Two-way 12-hour flows)

	June 2007		June 2008	
	Wednesday	Saturday	Wednesday	Saturday
Cowley	878	1,140	1,059	1,388
Madingley	1,652	1,818	1,759	2,091
Newmarket	1,121	1,342	1,276	1,694
Babraham	2,269	1,342	2,554	1,568
Trumpington	3,756	3,345	4,387	3,529
Total	9,676	8,987	11,035	10,270

5. URBAN AREA COMPARISONS

Vehicles Entering and Leaving Cambridge and the Nine Towns

- 5.1 Table 5.1 records the total number of motor vehicles entering and leaving each town during 12 hours (two-way flows). The figures are also shown in terms of a rate per head of resident population.

Table 5.1 Motor vehicles entering & leaving in 12 hours in 2008 (Number and No. per head of resident population)

	Population (2007)	Motor Vehicles	
		Number	No. per head
Cambridge	115,200	187,153	1.6
Huntingdon	20,260	76,621	3.8
St. Neots*	16,140	49,278	3.1
Wisbech	21,610	60,875	2.8
St. Ives	15,920	46,675	2.9
Ely	17,960	40,769	2.2
Ramsey	8,570	18,503	2.2
Chatteris	9,700	17,769	1.8
Whittlesey	16,030	30,848	1.9
March	21,260	36,107	1.7

**Estimate which Excludes Eaton Socon and Eaton Ford*

- 5.2 Of the market towns, the Fenland towns of March, Chatteris, Whittlesey and Ramsey have the lowest numbers of motor vehicles entering and leaving per head of resident population. Huntingdon has the highest figure, followed by St. Neots then Wisbech and St. Ives. The figure for Ely is between these two groups.
- 5.3 The population used to calculate the flow per head in St. Neots excludes the built up areas of Eaton Socon and Eaton Ford not enclosed by the cordon, although these will clearly impact upon the traffic flow.
- 5.4 Cambridge actually has the lowest number of vehicles entering and leaving per head of population. Although interesting, the comparison with the market towns isn't really appropriate, as Cambridge is fundamentally different, having a population much higher than the market towns. If population density and spacing of roads around the circumference of a city or town are both constant, larger towns and cities will generally have lower traffic flows entering and leaving per head of resident population unless the traffic flow on each road is greater.
- 5.5 Table 5.2 shows the average and maximum vehicle flows along the roads making up the outer cordon of Cambridge and each town.

Table 5.2 Average and Maximum Motor Vehicle Flow Per Outer Cordon Road in 2008

	Motor vehicles	No. of roads	Average flow per road	Maximum Flow
Cambridge	187,153	17	11,009	25,641
Huntingdon	76,621	5	15,324	16,507
St. Ives	46,675	5	9,335	17,421
Wisbech	60,875	7	8,696	17,959
St. Neots	49,278	6	8,213	13,552
Ely	40,769	7	5,824	12,663
Whittlesey	30,848	6	5,141	10,923
March	36,107	9	4,011	10,746
Chatteris	17,769	5	3,554	6,257
Ramsey	18,503	6	3,084	6,557

- 5.6 The busiest urban cordon road is in Cambridge (Milton Road) with 25,600 motor vehicles per day. The least busy cordon roads surround Chatteris and Ramsey.
- 5.7 Figure 5.1 shows the numbers of motor vehicles, pedal cyclists and pedestrians entering and leaving Cambridge and the nine market towns, with Table 5.3 showing the distribution.
- 5.8 Cars make up between 75% and 83% of the vehicles + pedestrians entering and leaving the urban areas monitored. Figures for goods vehicles range between 12% for Huntingdon and 21% for Whittlesey and Wisbech.

Figure 5.1 Numbers of Motor Vehicles, pedal cyclists and pedestrians entering and leaving Cambridge and nine market towns in 2008

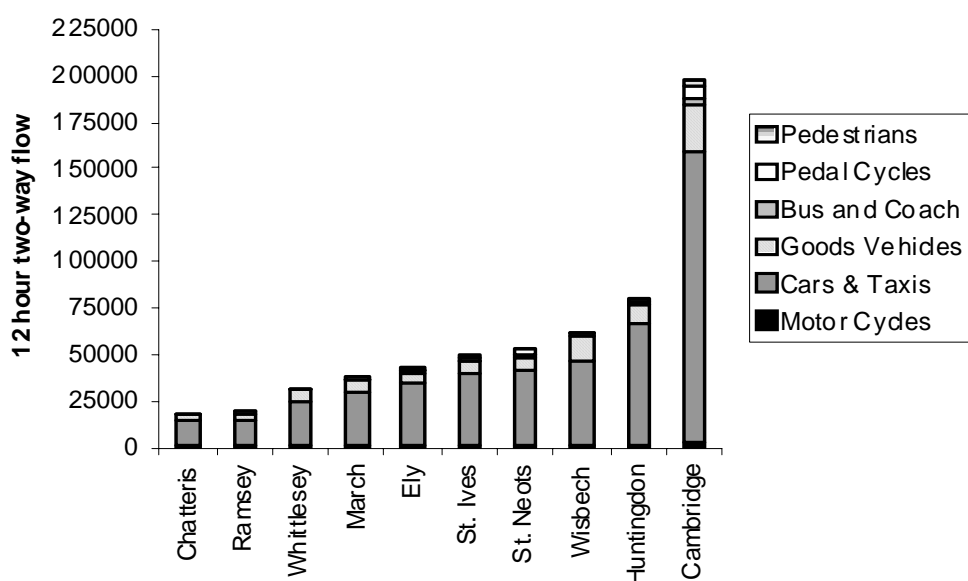


Table 5.3 Distribution of Motor Vehicles, Pedestrians and Pedal Cyclists Entering and Leaving in 12 hours in 2008

Vehicle Type	Modal Split									
	Cambridge	St. Neots	Hunting-don	St. Ives	Wisbech	March	Ely	Chatteris	Ramsey	Whittle-sey
Motor Cycles	1.1%	0.4%	0.5%	0.7%	0.6%	0.6%	0.5%	0.6%	0.7%	0.8%
Cars & Taxis	80%	78%	83%	79%	75%	79%	79%	78%	81%	75%
Goods vehs	13%	14%	12%	13%	21%	14%	14%	19%	17%	21%
Bus & Coach	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
All Motor Vehs	95%	94%	96%	94%	99%	95%	95%	99%	99%	98%
Pedal cycles	4%	2%	2%	2%	0.4%	2%	1%	0.4%	0.3%	1%
Pedestrians	1%	6%	2%	4%	1%	3%	4%	1%	1%	1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Local Transport Plan Market Town Modal Share Indicator

- 5.9 The modal share for bus, pedal cycle and pedestrian trips across screenlines within the six original market towns is being monitored as a key LTP indicator. As can be seen in Table 5.4, the latest figure has exceeded the Council's 2010/11 target.

Table 5.4 Bus Passengers, Cyclists + Pedestrians Crossing Screenlines in Six Market Towns

Year	Total	Modal share
2004	51,757	21.8%
2005	52,700	21.9%
2004-05 average baseline	52,357	21.9%
2006	54,363	22.8%
2007	57,428	23.9%
2008	58,973	25.0%
2010/11 target		23.9%

6. CONTINUOUS TRAFFIC INFORMATION

Introduction

6.1 Traffic flows are counted automatically at 24 permanent sites in Cambridgeshire, three of which are located in Cambridge. The equipment can collect data 24 hours a day. Continuous monitoring enables manual count data to be verified, hourly conversion factors to be calculated and seasonal and daily variations to be observed.

Rural Traffic

6.2 Tables 6.1 and 6.2 below records vehicle flows at monitoring points on the rural and urban road network in terms of 24-hour annual average daily traffic (AADT). The locations of the monitoring sites are shown in Figure 6.1

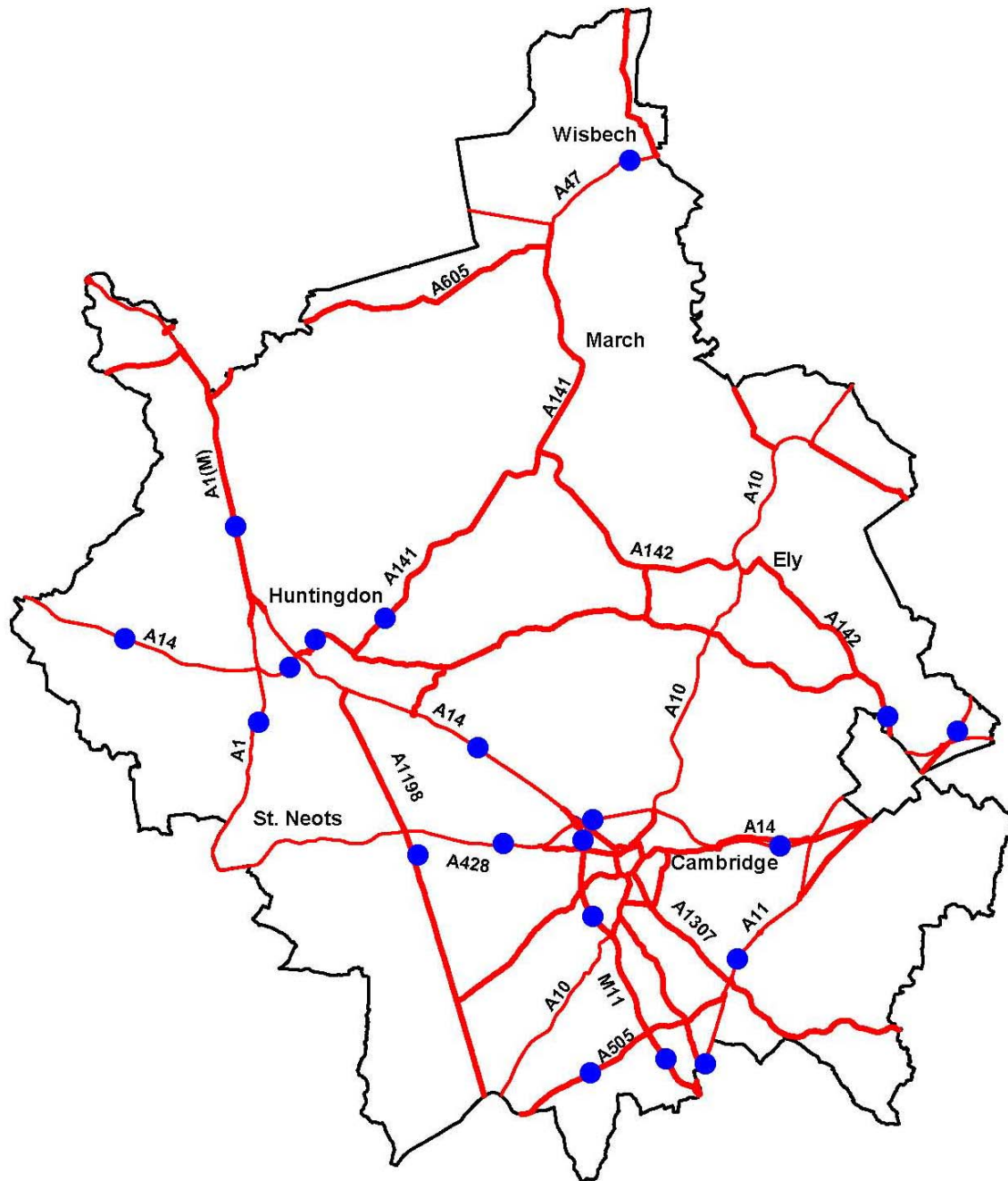
Table 6.1 Rural ATC Sites - All Vehicle Traffic

Road No.	Location	24 hr AADT Flow (7 Day Average)				Change '07 to '08
		2005	2006	2007	2008	
A1	Stangate Hill	63,537	64,894	66,669	65,276	-1.9%
A1	Southoe	41,342	42,050	43,678	42,553	-2.6%
A10	Ely bypass	-	10,226	10,088	-	-
A11	Waterhall Farm	37,978	37,849	38,714	38,229	-1.2%
A11	Worsted Lodge	36,193	36,746	37,993	37,563	-1.0%
A11	Stump Cross	28,877	27,971	28,217	28,757	1.9%
A14	Cambridge Northern Bypass	56,995	54,975	56,333	56,141	-0.4%
A14	Catworth Hill	40,058	41,182	42,290	41,135	-2.7%
A14	Huntingdon Racecourse	47,261	47,178	48,545	47,119	-2.9%
A14	Swavesey	72,671	74,227	74,511	73,896	-0.8%
A14	N.E of Cambridge-Bottisham	39,782	38,920	39,908	39,890	-0.1%
A47	Wisbech Bypass	16,883	16,715	16,749	16,797	0.3%
M11	between Junctions 13 & 14	56,544	58,081	59,879	59,077	-1.3%
M11	between Junctions 9 and 10	42,873	44,209	44,167	43,689	-1.1%
M11	Grantchester	61,220	63,112	64,469	63,156	-2.0%
A141	Wyton Airfield	15,447	15,832	16,288	16,025	-2.2%
A142	Fordham (2005 = pre-bypass)	16,448	16,316	16,659	16,676	0.3%
A505	Dottrell Hall	-	16,661	16,709	15,701	-6.0%

Table 6.2 Urban ATC Sites All Vehicle Traffic

Road No.	Location	24 hr AADT Flow (7 Day Average)				Change '07 to '08
		2005	2006	2007	2008	
U/C	Cambourne from A428	10,793	11,017	11,808	13,319	12.8%
U/C	Cambourne from A1198	2,989	3,478	3,542	3,333	-5.9%
B1514	Huntingdon Ring Road	23,476	23,421	22,043	22,390	1.6%

Figure 6.1 Location of Rural ATC Sites



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Cambridge

- 6.3 Table 6.3 shows vehicle flows at the urban ATC sites in Cambridge, with the locations recorded in Figure 6.2.

Table 6.3 Cambridge Urban ATC Sites - All Vehicle Growth

Road No.	Location	24 hr AADT Flow (7 day Average)				Change '07 to '08
		2005	2006	2007	2008	
A1309	Trumpington High Street	23,852	24,052	22,770	23,524	3.9%
A1309	Milton Road	21,653	21,261	21,500	21,416	-6.1%
A603	East Road	-	23,699	22,960	21,438	-6.6%

Monthly Variation

- 6.4 Traffic flows exhibit monthly variation, with different types of road showing different patterns. Continuous ATC data averaged over three years have been used at selected sites to produce Figures 6.3 to 6.6, which illustrate the variations that have occurred on particular motorway, trunk, county primary and urban primary roads. In these graphs, October flow is taken as the base index of 100.
- 6.5 The M11 exhibits a steady growth in traffic from January to July, flows then level off before falling between October and December. On the A14 the pattern is similar. The trend on Trumpington High Street is flatter, and there is a noticeable dip during August.

Daily Variation

- 6.6 Traffic flows also vary throughout the week, and again different roads exhibit slightly different patterns. Daily flows during May and October were averaged over a three-year period on the same road links used to calculate monthly variations. The weekly profiles are shown in Figures 6.7 to 6.10, where Wednesday flow is taken as the base index of 100.
- 6.7 Traffic flows are highest on a Friday on the A14, M11 and A142. On Trumpington High Street the level of traffic is similar between Tuesday and Friday. Traffic flows at the weekend are lower at all sites.

Figure 6.2 Cambridge - Urban ATC Sites



Figure 6.3 Monthly Variation - Motorway (M11)

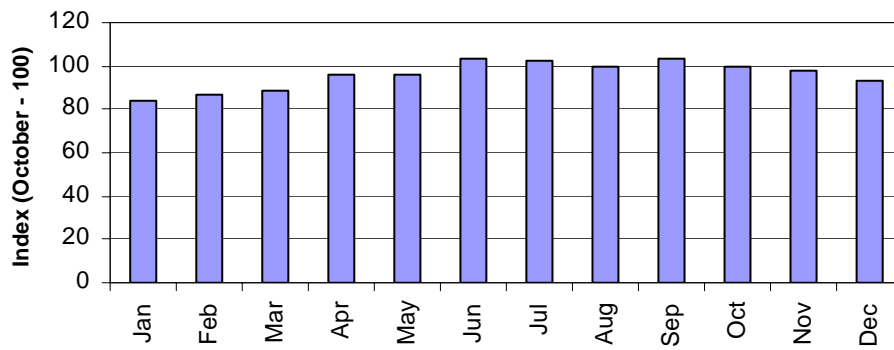


Figure 6.4 Monthly Variation - Trunk Road (A14)

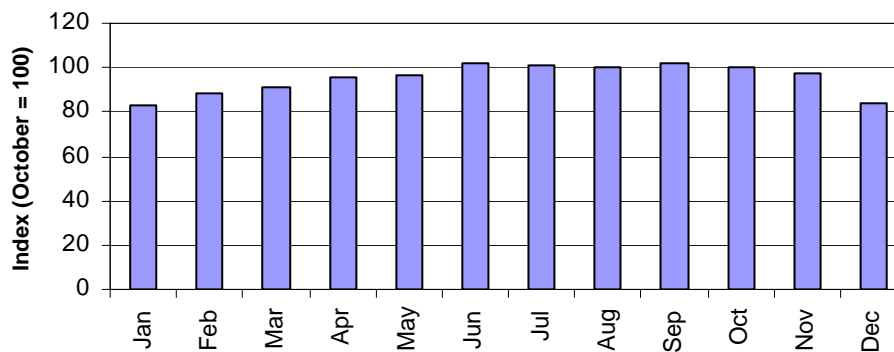


Figure 6.5 Monthly Variation - County Primary (A141)

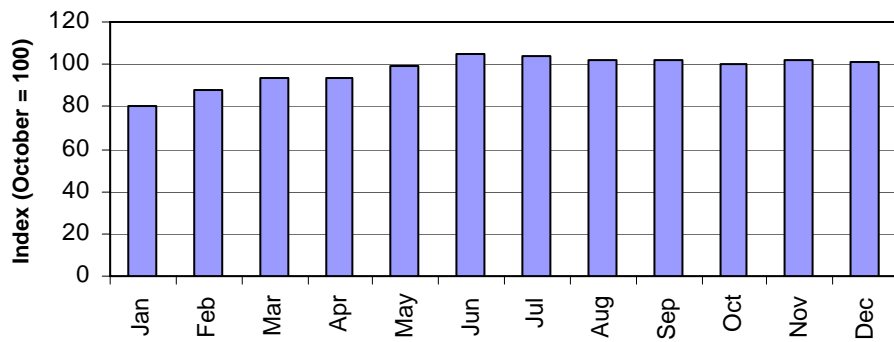


Figure 6.6 Monthly Variation-Trumpington High Street

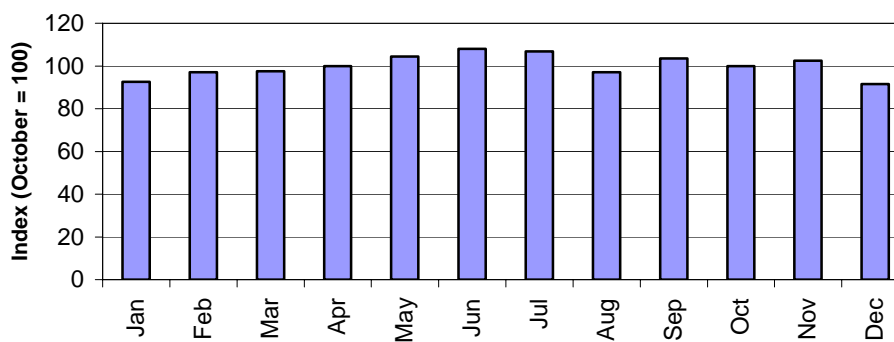


Figure 6.7 Daily Variation - Motorway (M11)

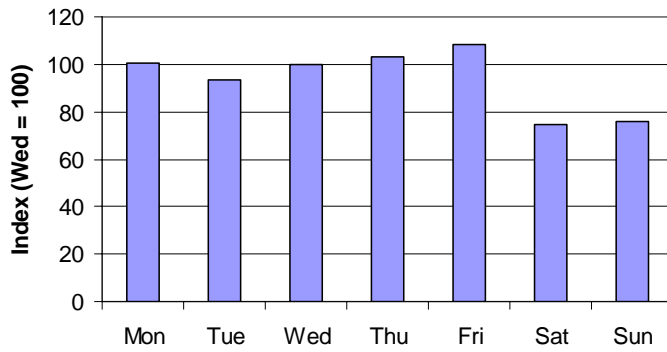


Figure 6.8 Daily Variation - Trunk Road (A14)

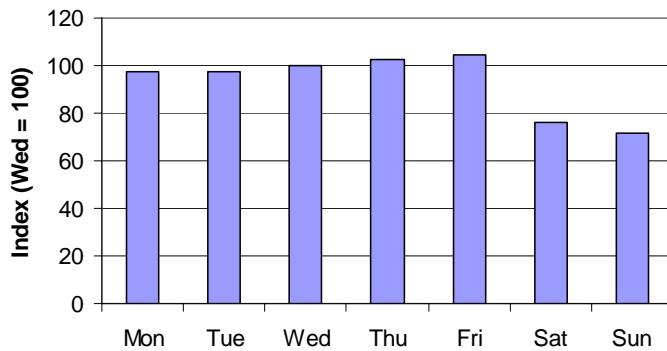


Figure 6.9 Daily Variation - County Primary (A142)

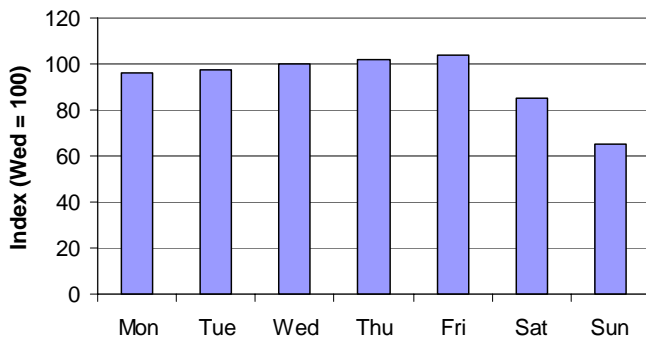
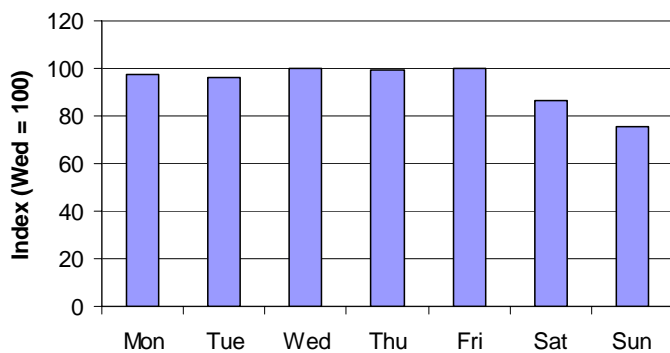


Figure 6.10 Daily Variation-Trumpington High Street



Traffic Flow Conversion Factors

6.8 Manual classified counts are usually counted over 12 hours duration on any weekday except Fridays. Factors have been calculated for all permanent ATC installations, where data are available, to convert 12 hour Annual Average Weekday Flows (AAWF) to 16 hour AAWF (Monday to Thursday average), 24 hour AAWF (Monday to Friday average) and 24 hour Annual Average Daily Traffic (AADT) averaged over seven days. These conversion factors are recorded in Tables 6.4 to 6.7 below.

Note: 16 hour AAWF is the average Monday to Thursday flow throughout the year.

24 hour AAWF is the average Monday to Friday flow throughout the year.

AADT Annual Average Daily Traffic is the average flow on an average day (Sunday to Saturday inclusive), throughout the year, and is expressed as a 24-hour flow.

Table 6.4 Trunk Road Traffic Flow Conversion Factors

Road No.	Location	Conversion 12 hr AAWF to		
		16 hr AAWF (4 day)	24 hr AAWF (5 day)	24 hr AADT (7 day)
A1	Stangate Hill	1.177	1.283	1.190
A1	Southoe	1.167	1.258	1.167
A11	Waterhall Farm	1.171	1.266	1.217
A11	Worsted Lodge	1.164	1.256	1.187
A11	Stump Cross	1.182	1.291	1.239
A14	Cambridge Northern Bypass	1.146	1.218	1.102
A14	Catworth Hill	1.182	1.292	1.174
A14	Huntingdon Racecourse	1.177	1.280	1.175
A14	Swavesey	1.185	1.299	1.203
A14	N.E. Cambridge-Bottisham	1.155	1.243	1.127
C283	West of Cambridge	1.141	1.195	1.084
A47	Wisbech Bypass	1.144	1.217	1.166
M11	between Junctions 13 & 14	1.164	1.262	1.152
M11	between Junctions 9 & 10	1.199	1.339	1.279
M11	Grantchester	1.169	1.271	1.175
Average (All Sites)		1.168	1.265	1.176

Table 6.5 County Road Traffic Flow Conversion Factors

Road No.	Location	Conversion 12 hr AAWF to		
		16 hr AAWF (4 day)	24 hr AAWF (5 day)	24 hr AADT (7 day)
A10	Ely Bypass	1.192	1.252	1.180
A141	Wyton Airfield	1.163	1.236	1.152
A142	Fordham	1.152	1.222	1.127
A505	Dottrell Hall	1.146	1.216	1.125
Average (All Sites)		1.163	1.232	1.146

Table 6.6 Cambridge Urban Traffic Flow Conversion Factors

Road No.	Location	Conversion 12 hr AAWF to		
		16 hr AAWF (4 day)	24 hr AAWF (5 day)	24 hr AADT (7 day)
A1309	Trumpington High Street	1.174	1.244	1.183
A1309	Milton Road	1.203	1.305	1.246
A603	East Road	1.297	1.487	1.533
Average (All Sites)		1.245	1.345	1.321

Table 6.7 Other Urban Traffic Flow Conversion Factors

Road No.	Location	Conversion 12 hr AAWF to		
		16 hr AAWF (4 day)	24 hr AAWF (5 day)	24 hr AADT (7 day)
U/C	Cambourne from A428	1.139	1.179	1.077
U/C	Cambourne from A1198	1.181	1.231	1.134
B1514	Huntingdon Ring Road	1.158	1.207	1.120
Average (All Sites)		1.159	1.206	1.110

7. CYCLE MONITORING

7.1 Table 7.1 shows the numbers of cyclists using particular routes over the past five years.

Table 7.1 Cycle route monitoring (12 hour flows)

Site	2000	2001	2002	2003	2004	2005	2006	2007	2008
Newnham	1,401	1,424	1,288	1,402	1,441	2,172	1,914	1,533	1,779
Comberton	174	166	123	150	151	232	207	225	218
Toft	114	123	88	73	102	85	128	99	100
Dry Drayton	41	52	58	77	49	48	147	67	66
Oakington	224	239	178	193	217	215	221	256	304
Milton	547	633	595	692	742	740	908	757	955
Fulbourn	248	327	213	161	148	147	171	150	209
Teversham	122	122	97	144	130	173	175	200	225
Coldham's Lane	-	-	908	941	1,253	1,798	1,821	1,285	1,273
Carter Cycle Bridge	-	-	2,528	2,614	2,666	3,091	4,054	2,738	3,141
A1301 through Gt. Shelford	-	-	343	413	554	656	730	694	727
Hills Road	-	-	1,965	2,020	2,133	2,453	3,003	2,566	2,893
Long Road	-	-	573	441	662	645	928	828	995
Cambridge Road, Sawston	-	203	178	169	212	185	292	265	321
Swaffham Bulbeck - Prior	-	-	-	46	73	76	71	92	105
A1303 Quy to Bottisham	-	-	-	90	121	106	133	111	147
Jubilee Way	-	-	-	425	612	765	887	738	600

7.2 Automatic cycle counting loops have been installed at a number of sites in the County. Average daily flows are recorded in Table 7.2 below.

Table 7.2 Cycle route monitoring (24 hour flows from automatic counters)

Route	2001	2002	2003	2004	2005	2006	2007	2008
Stonald Road, Whittlesey	31	40	39	24	-	29	-	-
Cambridge Road, Fulbourn	90	85	98	102	78	117	97	112
Barton Road, Cambridge	652	588	954	907	950	912	968	1,018
High St. Dry Drayton	39	31	48	47	46	58	-	-
A1303 Airport Roundabout	-	-	-	102	110	121	-	-
A1303 Quy to Bottisham	-	-	57	63	57	67	70	70
A142 Witchford to Ely	-	-	42	48	48	34	50	62
Hinchingbrooke School	-	-	181	257	247	257	260	326
Brook Road, St. Neots	-	-	155	156	138	149	130	138
The Causeway, March	-	-	-	150	261	140	118	126
Whitemoor, March	-	-	-	17	15	28	19	22
Benwick Road, Whittlesey	-	-	-	7	9	9	8	14
B1046 West St. Toft	-	-	-	71	69	62	55	57
B1046 Comberton Road	-	-	-	121	137	106	126	146
Godmanchester	-	-	-	-	40	66	56	73
Garrett Hostel Lane	-	-	-	1,741	1,805	2,142	2,314	2,423

Mandatory Local Transport Plan Cycling Indicator

- 7.3 The Department for Transport (DfT) introduced a mandatory Local Transport Plan indicator in 2005 to measure overall changes in levels of cycling.
- 7.4 In Cambridgeshire, it has been agreed with DfT that all of the cycle counts undertaken across the county in 2004 and 2005 would be used as the baseline for this cycling index, and that these counts would be repeated in future years to monitor the mandatory indicator.
- 7.5 The indicator is comprised of a mixture of automatic and manual counts carried out, throughout the Spring and Autumn, at 205 separate locations across Cambridgeshire, giving a large, robust sample.
- 7.6 The 2007 figure was 16.7% higher than the 2004-05 average baseline which means that we have exceeded the 2010/11 target of a 10.6% increase.

Table 7.3 Cambridgeshire Cycle Flows at Selected Locations

Year	No. of cyclists	Increase from baseline
2004	47,810	
2005	48,966	
2004-05 average baseline	48,388	
2006	51,174	5.8%
2007	55,376	14.4%
2008	56,485	16.7%
2010/11 LTP target	53,517	10.6%

Journey to Work by Pedal Cycle (2001 Census)

- 7.7 Data from the 2001 census shows that 26% of journeys to work by Cambridge residents are by pedal cycle. For Cambridgeshire as a whole the figure is 9.1%, which is much higher than the average 2.8% for England.

APPENDIX 1 DEFINITIONS

General

Traffic Flow	The number of motor vehicles in a given period of time, expressed as a two-way total.
12 hour flow	Traffic flow in the period between 7 am and 7 pm. This is the usual period observed for manual traffic surveys.
16 hour flow	Traffic flow in the period 6 am to 10 pm
18 hour flow	Traffic flow in the period 6 am to midnight; traffic surveys over this period are used for environmental and traffic noise studies.
24 hour flow	Traffic flow over the entire 24-hour period.
12 hour AAWF	Annual Average Weekday Flow (Monday to Thursday inclusive) throughout the year. This is usually based on counts carried out during the Spring and Autumn months.
16 hour AAWF	The Annual Average Weekday Flow (Monday to Thursday inclusive) throughout the year.
24 hour AAWF	The Annual Average Weekday Flow (Monday to Friday inclusive), throughout the year.
AADT	Annual Average Daily Traffic is the average flow on an average day, i.e. Sunday to Saturday inclusive, throughout the year and is expressed as a 24-hour flow.
ATC	Automatic Traffic Counters are battery powered wire loop detectors operating from permanent loops cut into the road. The loops create a magnetic field, which is disturbed when a vehicle passes over it.
MCC	Manual Classified Count is a traffic count undertaken by manual observation, recorded and classified by vehicle type and time period.
Screenline	An imaginary line drawn across a transport corridor (often following a physical barrier such as a river or a railway line) used to determine net flows between the areas on either side.

Note: It is generally accepted that the 24 hour Annual Average Daily Traffic flow is the same as (or very similar to) the 16 hour Annual Average Weekday Flow.

Vehicle Classifications

Motor Cycles	Motor cycles, mopeds, scooters and motor cycle combinations.
Cars	Cars, taxis, estate cars, light goods vans with side windows to the rear of the driver's seat, three wheeled cars and motor invalid carriages.
LGV	Light Goods Vehicles are goods vehicles up to 3.5 tonnes gross vehicle weight. This category includes all transit style vans, and small pickup vans.
HGV	Heavy Goods Vehicles are goods vehicles over 3.5 tonnes gross vehicle weight. This category includes both rigid and articulated vehicles. The definition of HGVs changed in 1999 to exclude 6-wheeled Transit type vans. This change has been accounted for in any indices shown in the report, as HGVs were counted under both the old and new definition in 1999 to allow seamless monitoring of trends.
Buses	All buses and coaches, including works buses.
All Vehicles	All motor vehicles.

Route Classifications

Motorways	National routes with restricted access for which the Department for Transport is the Highway Authority.
Trunk Roads	National routes for which the Department for Transport is the Highway Authority.
Primary Roads	Important through routes of regional significance, including all trunk roads and a number of strategic routes for which the County Council is the Highway Authority.
Distributor Roads	County roads which link major settlements with primary routes.
Access Roads	All other county roads.
Principal Roads	All non trunk 'A class' roads.
Rural Roads	Those with a speed limit of more than 40 mph.
Urban Roads	Those with a speed limit of 40 mph or less.

Table 6 : 2007 ATC Monthly Average Daily Traffic Flow - 24 Hour AADT													
ROAD	Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
M11	Grantchester	56,848	61,436	63,468	64,593	64,945	68,341	68,040	67,111	68,796	66,622	64,222	59,175
A1	Stangate Hill	58,420	62,891	65,117	67,026	67,366	69,181	70,973	70,962	69,760	69,275	65,834	-
A1	Southoe	39,483	41,828	43,910	44,264	43,832	45,180	46,314	44,757	45,459	44,864	43,742	40,455
A11	Waterhall Farm	33,091	35,943	37,249	40,008	39,531	40,579	41,496	42,617	40,567	40,185	37,596	35,564
A11	Worsted Lodge	32,551	35,000	36,795	38,251	38,797	39,351	-	40,851	40,183	40,203	37,553	34,990
A11	Stump Cross	24,581	26,444	27,527	28,631	29,037	29,561	30,452	30,730	30,400	29,214	25,387	26,505
A14	Cambridge N. Bypass	51,645	54,796	56,884	56,814	56,145	59,028	60,194	59,599	59,259	59,624	57,555	44,544
A14	Catworth Hill	36,816	40,315	41,533	42,817	42,478	44,746	44,471	45,441	44,606	44,099	42,018	38,110
A14	Huntingdon Racecourse	42,990	46,690	48,320	49,309	49,104	51,761	51,079	50,468	50,857	50,046	48,113	43,808
A14	Swavesey	-	-	-	-	76,328	78,217	77,945	78,210	77,532	77,345	73,731	68,337
A428	St. Neots Bypass	17,265	17,589	17,626	17,573	18,512	19,868	19,617	-	-	-	-	-
A47	Wisbech Bypass	14,197	15,129	15,990	17,902	17,302	17,531	17,954	-	-	-	16,053	14,796
M11	Between Juncs 13 & 14	-	-	59,701	60,621	60,174	62,315	62,172	61,896	61,267	61,233	58,890	54,595
M11	Between juncs 9 & 10	39,002	41,577	42,248	-	-	46,844	48,736	48,682	47,730	-	-	41,654
A14	NE of Cambridge Bottisham	34,672	-	39,840	38,923	38,010	41,884	42,635	42,695	41,817	42,341	40,379	36,572
A428	West of Cambridge	23,274	23,366	24,847	24,636	20,088	-	-	-	-	-	-	-
A10	Ely/Littleport Bypass	9,178	9,575	-	-	-	-	-	-	-	-	-	-
A141	Wyton Airfield	15,603	16,210	16,550	-	16,463	16,690	16,692	16,612	16,682	16,812	16,630	15,098
A142	Fordham	15,685	16,437	17,166	15,536	15,302	-	17,251	17,058	17,236	17,845	17,503	15,550
A505	Dottrell Hall	15,095	15,799	17,039	17,207	17,187	17,885	18,264	17,985	16,695	16,689	16,264	14,343
A603	East Road Cambridge	-	23,390	22,091	22,489	23,327	23,931	23,675	22,834	23,025	22,159	-	-
A1309	Trumpington High St.	22,963	21,666	-	24,269	23,914	24,666	20,219	17,631	23,971	24,166	24,427	21,777
C295	Regent Street	-	8,983	8,683	7,364	-	8,111	-	-	-	-	-	-
A1309	Milton Road	21,320	21,457	-	-	21,597	22,192	22,089	20,929	21,967	21,947	22,426	20,263
A1307	Huntingdon Road	-	-	13,259	17,184	16,803	17,493	16,983	15,986	22,585	16,780	17,654	-
B1514	Huntingdon Ring Road	20,947	21,732	21,694	22,585	23,072	-	-	21,912	-	-	-	-
U/C	Cambourne from A428	10,713	10,924	11,325	11,369	11,251	12,582	12,295	9,708	12,481	13,021	13,626	12,410
U/C	Cambourne from A1198	3,603	3,673	3,924	3,791	3,688	3,599	3,502	3,203	3,494	3,480	3,486	3,076

Pedal Cycle ATC	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Cambridge Road, Fulbourn	-	85	81	106	91	113	119	103	142	47	116	70
Garrett Hostel Lane	-	2,883	2,094	1,902	2,674	2,050	-	-	-	-	-	-
Barton Road, Cambridge	811	917	1,014	973	1,006	1,064	1,011	882	1,017	1,182	1,113	630
Quy to Bottisham	-	-	-	-	-	-	-	-	92	74	68	47
Witchford to Ely	-	44	44	-	-	-	-	-	65	64	53	32
Hinchingbrooke School	-	131	259	324	317	-	-	-	-	-	-	-
Brook Road, St. Neots	-	-	-	-	-	-	-	-	159	-	-	102
The Causeway, March	-	-	99	120	111	126	115	21	-	-	-	-
Whitemoor, March	-	-	-	-	-	17	20	21	-	-	-	-
West Street, Toft	-	-	-	-	-	55	57	52	-	-	-	-
Godmanchester	-	-	-	-	-	55	44	71	-	-	-	-
B1046 Comberton Road	-	-	-	-	-	-	-	-	167	142	121	75
Benwick Road, Whittlesey	3	4	5	18	10	-	-	-	-	-	-	-

Table 7 : 2008 ATC Monthly Average Daily Traffic Flow - 24 Hour AADT

ROAD	Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
M11	Grantchester	57,435	61,934	62,322	65,008	64,351	66,501	65,122	64,499	65,163	63,601	60,813	61,249
A1	Stangate Hill	58,740	63,939	63,891	66,612	67,207	67,884	68,686	68,264	66,598	66,200	-	-
A1	Southoe	39,335	43,007	42,389	43,512	43,759	42,737	44,215	42,728	42,923	42,637	42,138	41,338
A11	Waterhall Farm	33,778	36,944	37,611	39,091	39,551	39,837	40,928	41,468	39,141	38,620	36,369	35,331
A11	Worsted Lodge	33,336	36,428	36,631	38,181	38,845	39,457	40,312	40,190	38,883	38,248	36,216	34,002
A11	Stump Cross	25,268	27,576	28,213	28,983	29,197	29,956	29,907	30,823	30,108	29,456	27,870	27,675
A14	Cambridge N. Bypass	51,775	-	53,771	57,936	56,694	58,989	58,813	56,851	57,753	57,553	56,297	52,420
A14	Catworth Hill	37,140	40,717	41,045	42,096	42,022	42,897	42,838	42,281	42,158	41,334	39,359	39,761
A14	Huntingdon Racecourse	40,559	46,949	46,931	48,361	47,788	49,201	49,045	48,163	48,607	47,650	45,977	46,295
A14	Swavesey	66,886	71,388	72,432	75,309	74,788	77,707	76,921	76,863	76,386	75,274	71,172	71,549
A47	Wisbech Bypass	14,422	15,698	15,877	16,968	17,784	17,022	18,139	18,629	17,392	16,824	16,259	16,460
M11	Between Juncs 13 & 14	51,756	-	-	-	-	-	-	-	-	-	-	-
M11	Between juncs 9 & 10	38,992	42,346	43,841	44,734	44,589	46,144	47,717	46,299	44,993	43,535	40,250	40,747
A14	NE of Cambridge Bottisham	36,383	39,283	38,795	40,867	40,141	41,611	42,176	41,650	40,784	40,754	39,353	36,917
C283	Former A428 West Cambridge	4,205	4,468	4,503	4,623	4,886	4,670	4,651	4,417	4,544	-	-	-
A141	Wyton Airfield	15,529	16,205	15,476	16,303	16,372	16,426	16,662	15,745	16,353	16,403	15,821	15,043
A142	Fordham	16,032	16,994	16,268	17,467	17,120	17,108	16,603	16,352	17,142	17,086	16,527	15,495
A505	Dottrell Hall	14,256	15,513	15,046	16,146	16,232	16,358	17,677	16,336	16,141	15,896	14,922	13,893
A603	East Road Cambridge	-	-	-	21,274	-	23,478	23,148	22,402	20,941	-	-	-
A1309	Trumpington High St.	22,543	23,578	22,967	24,229	23,440	24,256	24,291	22,581	24,260	24,162	23,955	22,109
A1309	Milton Road	21,072	-	21,297	22,137	21,548	21,748	21,839	20,737	21,740	21,316	21,468	20,293
B1514	Huntingdon Ring Road	22,525	22,880	21,392	23,235	22,727	-	-	22,358	-	-	-	-
U/C	Cambourne from A428	12,915	13,359	13,031	13,442	13,173	13,494	13,203	12,343	13,305	13,540	13,977	14,079
U/C	Cambourne from A1198	3,229	3,422	3,282	3,483	3,407	3,449	3,387	3,033	3,286	3,301	3,365	3,365

Pedal Cycle ATC	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Cambridge Road, Fulbourn	89	97	79	125	134	69	130	134	146	130	118	89
Garrett Hostel Lane	-	3,012	2,035	2,045	2,801	2,264	-	-	-	-	-	-
Barton Road, Cambridge	864	1,047	805	1,031	1,181	1,204	1,159	846	1,093	1,216	1,072	710
Quy to Bottisham	61	-	-	-	-	-	-	-	96	82	64	49
Witchford to Ely	-	-	38	-	-	-	-	-	88	72	59	55
Hinchingbrooke School	-	255	-	-	323	380	341	-	-	-	-	-
Brook Road, St. Neots	138	-	-	-	-	-	-	-	-	-	-	-
The Causeway, March	-	-	-	-	-	143	136	101	-	-	-	-
Whitemoor, March	-	-	-	-	-	21	23	-	-	-	-	-
West Street, Toft	-	-	-	-	-	67	56	48	-	-	-	-
Godmanchester	-	-	-	-	-	66	80	70	-	-	-	-
B1046 Comberton Road	-	-	-	-	-	-	-	-	171	141	109	-
Benwick Road, Whittlesey	8	-	-	-	14	16	17	-	-	-	-	-