

Norfolk Transport Monitoring

2010



Contents

1.	Overview.....	2
2.	Norwich Area	3
3.	Kings Lynn Area	23
4.	Great Yarmouth Area	33
5.	Market Towns and Rural Area.....	44
6.	Norfolk Countywide and Interurban.....	55

Overview

Transport monitoring has been carried out by this section for many years and a monitoring report is produced twice yearly, one in the late summer/autumn and the other in the spring. To date the monitoring has consisted of the following:-

- Manual classified traffic counts which are carried out at 11 towns in the county. Cordons around the major urban centres of Norwich, Great Yarmouth and Kings Lynn are counted annually. Counts also take place at the following 8 market towns, (Dereham, Thetford, Diss, Swaffham, Downham Market, Aylsham, Fakenham and North Walsham). These are done every three years.
- Manual cycle counts which are carried out on the Inner Ring Road cordon (on and off road sites) in Norwich each year when motor vehicle cordon counts are done. Pedestrians are also counted as part of these on the off road counts.
- Automatic traffic counters which are paid for by this section are situated at 32 locations around the county. These are mostly on county A roads and mainly in interurban locations. Many of these have been running for 10 to 15 years. There are other traffic counters on the trunk road network which are run by Atkins on behalf of the DFT. We also receive data from these at no cost to ourselves.
- Automatic cycle counters are situated at 28 sites in the county. These are mainly in the urban centres of Norwich, Kings Lynn & Great Yarmouth. There are also counters in the following market towns – Thetford, Diss, Dereham, North Walsham, Downham Market and Aylsham.
- Bus passenger counts have been carried out annually on cordons around Norwich, King's Lynn and Great Yarmouth up to 2007. In spring 2008 these surveys were cut due to budget constraints, although Gt. Yarmouth was carried out as it was already under way when this decision was taken.
- Modal share monitoring was carried out in the county between 2000 and 2005. A specialist research company was commissioned to carry this out. They sampled two or three districts each year and each district was surveyed twice over the period. The surveys were carried out by telephone on a stratified sample of the population in the districts. The surveys ceased in 2005 due to their high cost.

Norwich Area

This section provides information on transportation monitoring undertaken in the Norwich area. The population of Norwich is around 122,000. The monitoring comprises:

- Traffic counts on Outer Ring Road cordon
- Traffic counts on Inner Ring Road cordon
- Automatic Traffic Counts in the Norwich Travel to Work Area
- Bus passenger counts on Outer Ring Road cordon
- Modal share data from telephone surveys
- Cycle counts on Inner Ring Road cordon
- Automatic cycle counts on paths / roads in the Norwich area.
- Pedestrian counts on Inner Ring Road cordon

Norwich is the largest urban area in the County and is encircled by both inner and outer ring roads. These cordons are surveyed each year and the data indicates that in recent years traffic levels are declining especially those crossing the Inner Ring Road.

Bus surveys indicate that in recent years passenger numbers crossing the Outer Ring Road cordon have increased. Park and Ride passengers have also increased as more sites have opened.

Levels of cycling crossing the Inner Ring Road cordon have increased since 2001. Data from automatic cycle counters in the Norwich Area also show rising levels of cycle use. Pedestrians numbers crossing the cordon have risen since 2004.

Modal share monitoring was carried out between 2000 and 2004. This demonstrated car was the most popular mode of transport.

The following tables and graphs show this information in more detail.

Outer Ring Road Cordon

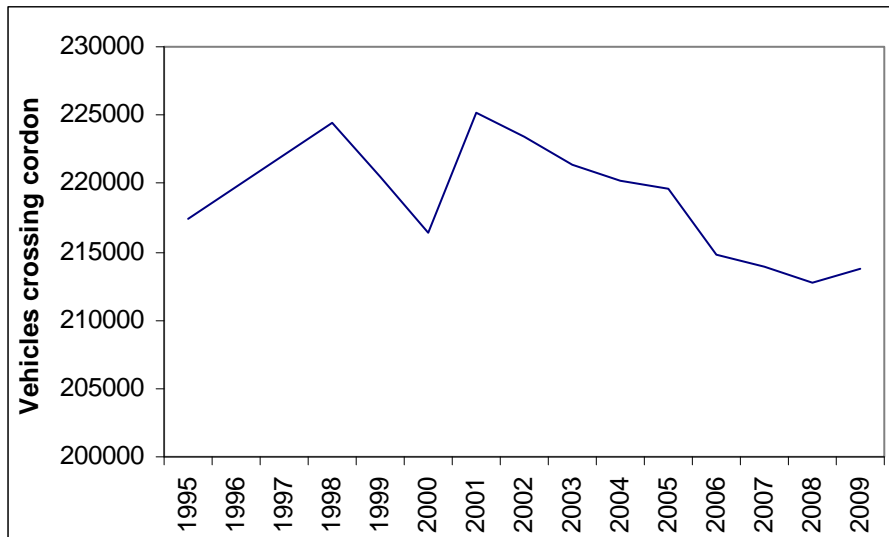
Outer Ring Road Cordon Traffic Counts

All motor vehicles 0700-1900	2003	2004	2005	2006	2007	2008	2009
Long John Hill	5550	5454	5159	5239	5154	5029	4683
Mansfield Lane	1397	1687	1300	1184	1253	1164	1123
Hall Road	9904	9724	9674	9941	9387	9190	9277
Ipswich Road	11946	12176	11679	10569	12053	11505	11912
Newmarket Road	14415	14069	14051	14522	14068	13530	14209
Unthank Road	8785	8922	8737	7935	8342	7941	7153
Jessopp Road	1047	1300	1307	1274	1196	1348	1387
The Avenues	2426	2878	2589	2591	2554	2628	2294
Earlham Road	12660	12642	11433	11593	11289	10936	11459
Bowthorpe Road	8340	7472	8695	9093	8802	9195	9442
Dereham Road	12273	12224	12900	12902	12411	12956	12574
Drayton Road	15794	14245	14577	14263	13683	14007	13955
Aylsham Road	14536	15765	16776	15059	15052	15010	15404
Weston Road	4125	4062	3783	3712	3383	3521	3503
Catton Grove Road	5840	6126	6103	6075	5765	5620	5978
St Clements Hill	1049	1010	853	906	905	833	675
Constitution Hill	10056	9722	10206	9628	10310	9471	9653
Spowston Road	15029	14857	15141	14461	13163	14453	15110
Gurney Road	10504	10189	10149	9740	10151	10020	10659
Plumstead Road	12264	12036	11781	11957	11410	12150	12437
Thorpe Road	16746	16577	16301	15871	16157	15463	13728
Bracondale	26748	27027	26481	26277	27379	26780	27165
Cordon total	221434	220164	219675	214792	213867	212750	213780
		03-04	04-05	05-06	06-07	07-08	08-09
Growth by year		-0.6%	-0.2%	-2.2%	-0.4%	-0.5%	0.5%
							03-09
Growth per annum							-0.6%
Total growth							-3.5%

12 hour manual classified counts are carried out on traffic crossing the Outer Ring Road. These are currently undertaken annually during the autumn neutral period.

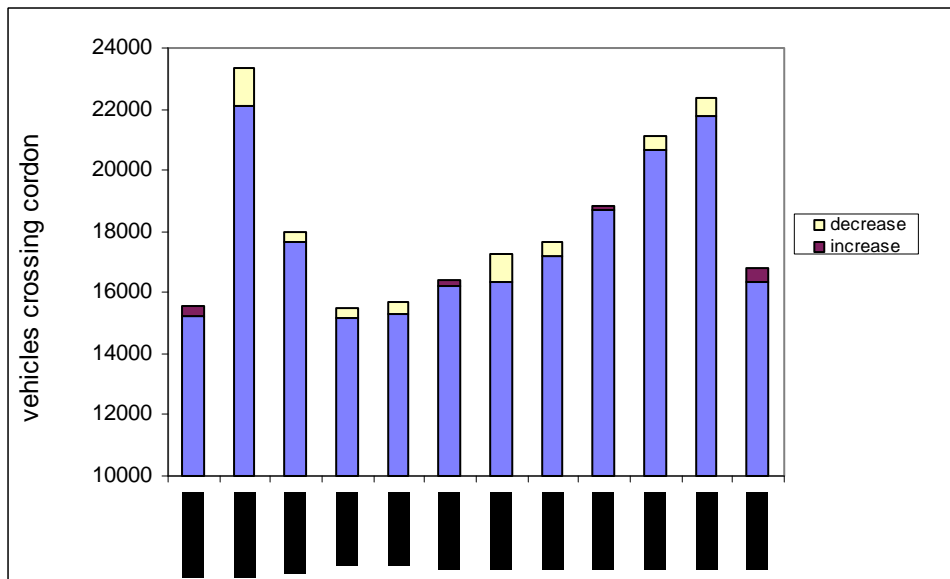
Figures for the Outer Ring Road cordon show an average growth rate of -0.6% per annum since 2003 but record a slight rise of 0.5% in 2009. The graph overleaf shows a dip in the trend for 2000 and this is likely to have been caused by the September 2000 fuel crisis. Since 2001 the number of vehicles crossing the cordon per day has fallen by over 11,000.

Outer Ring Road Cordon

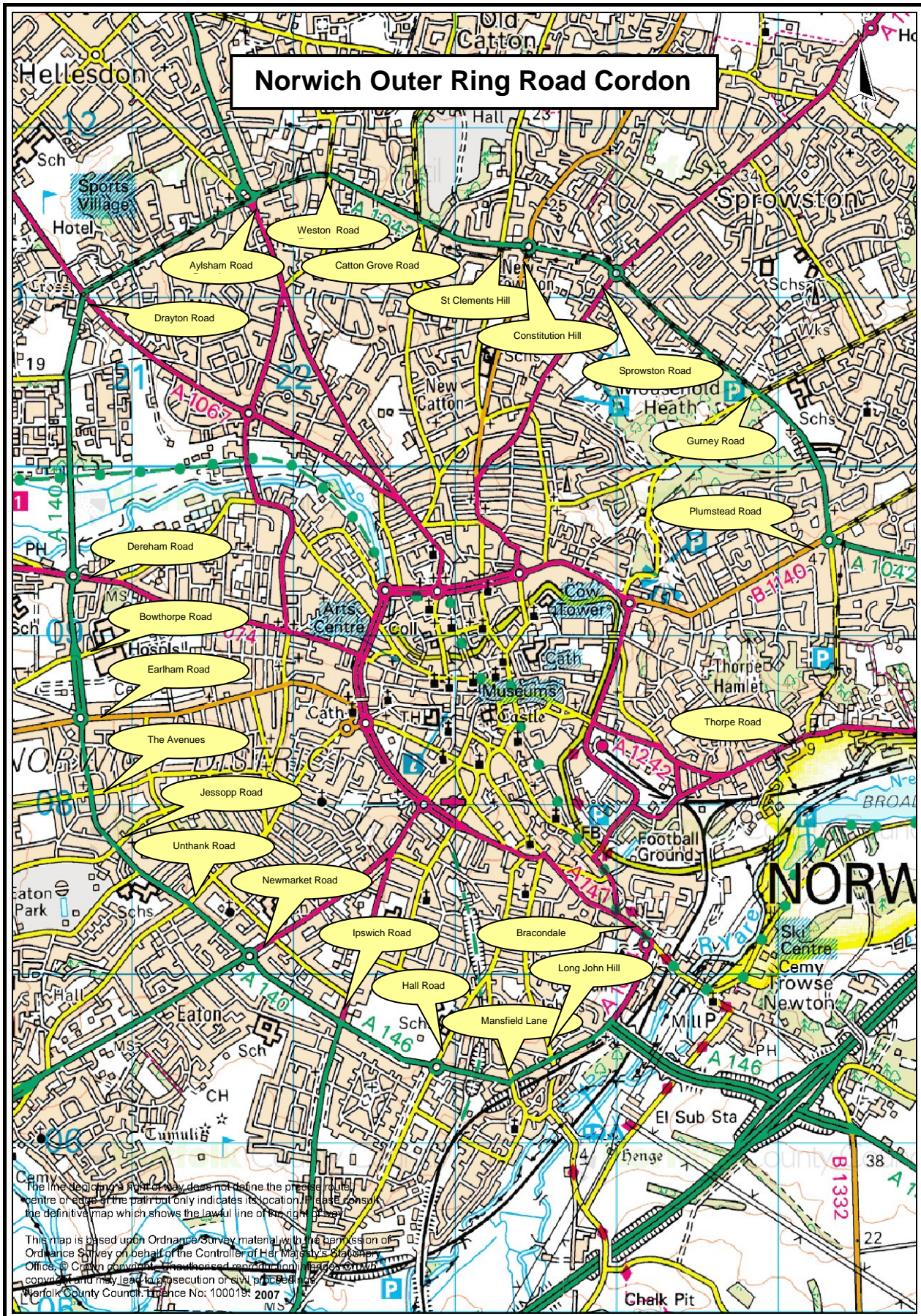


The graph above shows the variation in flows crossing the Outer Ring Road cordon from 1995 to 2009.

Outer Ring Road Cordon Profile 1995- 2009



The Outer Ring Road cordon profile shows the change in flows on an hourly basis throughout the day. The morning and evening peak flows are clearly demonstrated by the graph and it can be seen that the evening peak is more evenly spread than the morning. Since 1995 decreases have occurred over most of the day. There are slight increases at the beginning and end of the day.

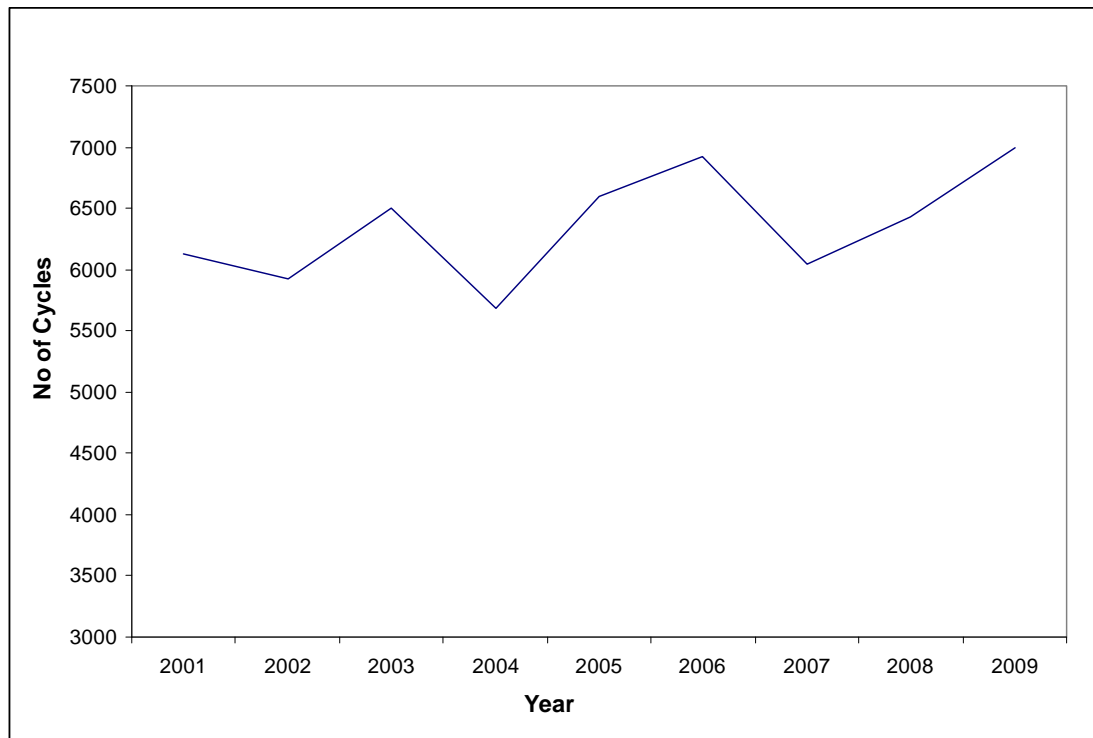


Outer Ring Road Vehicle Proportions 2009

Pedal Cycle	3%
Motorcycle	2%
Car	80%
Bus	2%
LGV	12%
HGV	1%
Total	100%

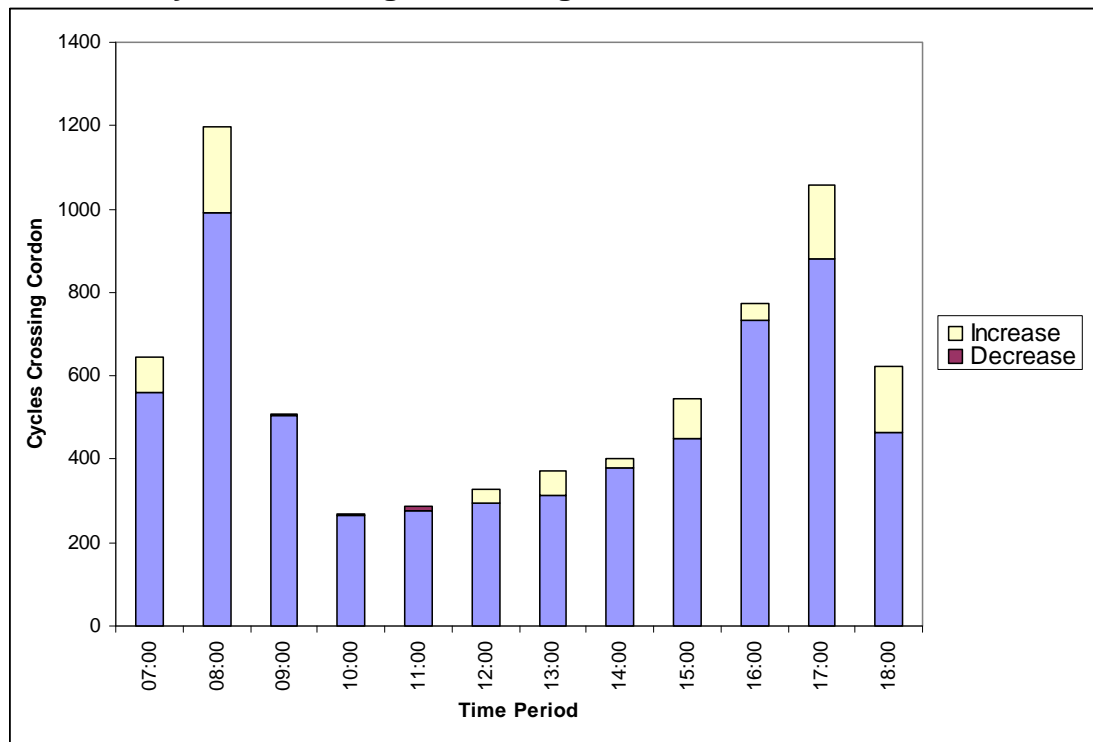
This table shows the proportion of different vehicles types crossing the Outer Ring Road cordon during the day. Cars make up by far the largest category with 80% of flows. Light goods vehicles are the next largest group at 12%, an increase of 3% since 1995. The proportion of HGV's has fallen from 4% to 1% in the same period. The other categories have remained virtually the same since 1995.

No of Cycles Crossing the Outer Ring Road Cordon



This graph shows how the numbers of cycles crossing the Outer Ring Road Cordon have varied over the time period. In 2009 there were around 860 more cyclists per day crossing the cordon than in 2001.

Profile of Cycles Crossing Outer Ring Road Cordon 2001 - 2009



This graph shows the numbers of cyclists crossing the Outer Ring Road Cordon during different time periods of the day. The morning and evening peaks are clearly demonstrated here indicating that people are commuting into the city on cycles. These time periods also show the greatest increases. The cycle flows over the day show a similar profile to that of the motor vehicles.

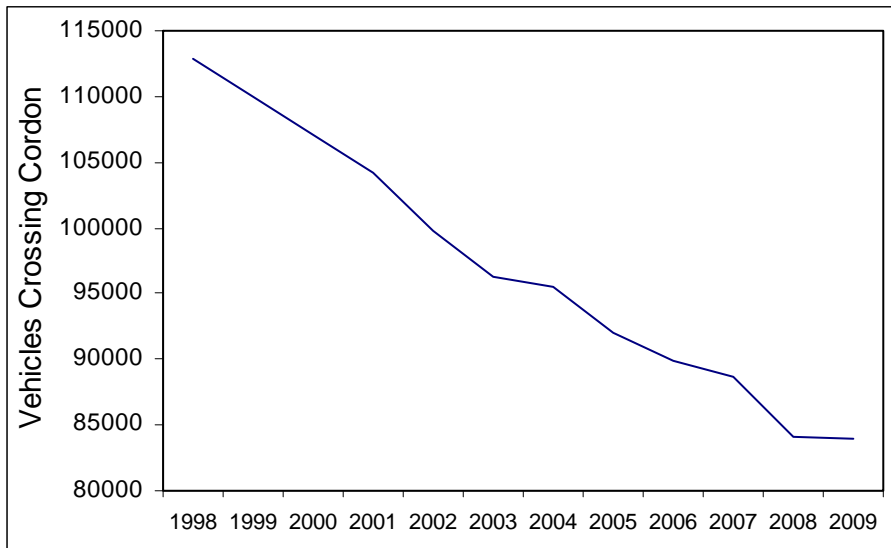
Inner Ring Road Cordon

12 hour manual classified counts are carried out on traffic crossing the Inner Ring Road. These are currently undertaken every year during the autumn neutral period.

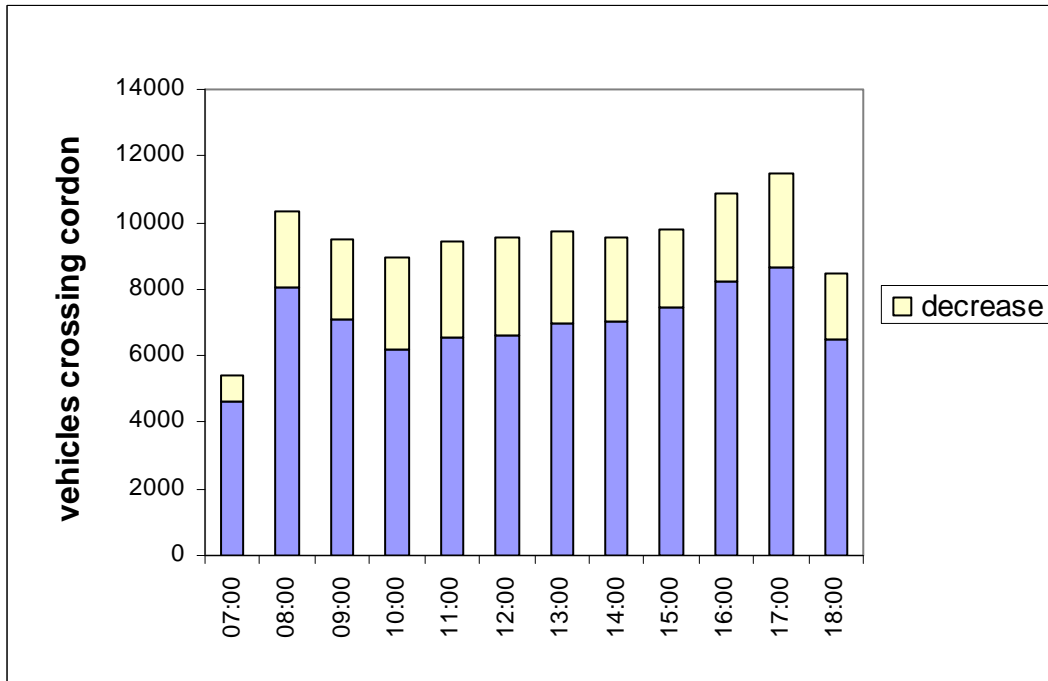
Figures for the Inner Ring Road cordon show a decline of nearly 29,000 vehicles per day for the period 1998 to 2009. The average growth rate per annum between 2003 and 2009 is -2.2%. In 2009 flows fell very slightly by 0.1%, much less of a fall than in previous years. It is possible that the overall decline is due to changes in the availability of car parking spaces in the city centre. Over the period two large car parks have been rebuilt and charges have been introduced for on street controlled parking. Traffic restraint measures in the city centre and increasing use of the park and ride sites are also likely to be contributing to the reduction in traffic flows.

This graph shows a trend of constant decline in vehicle numbers crossing the Inner Ring Road cordon since 1998.

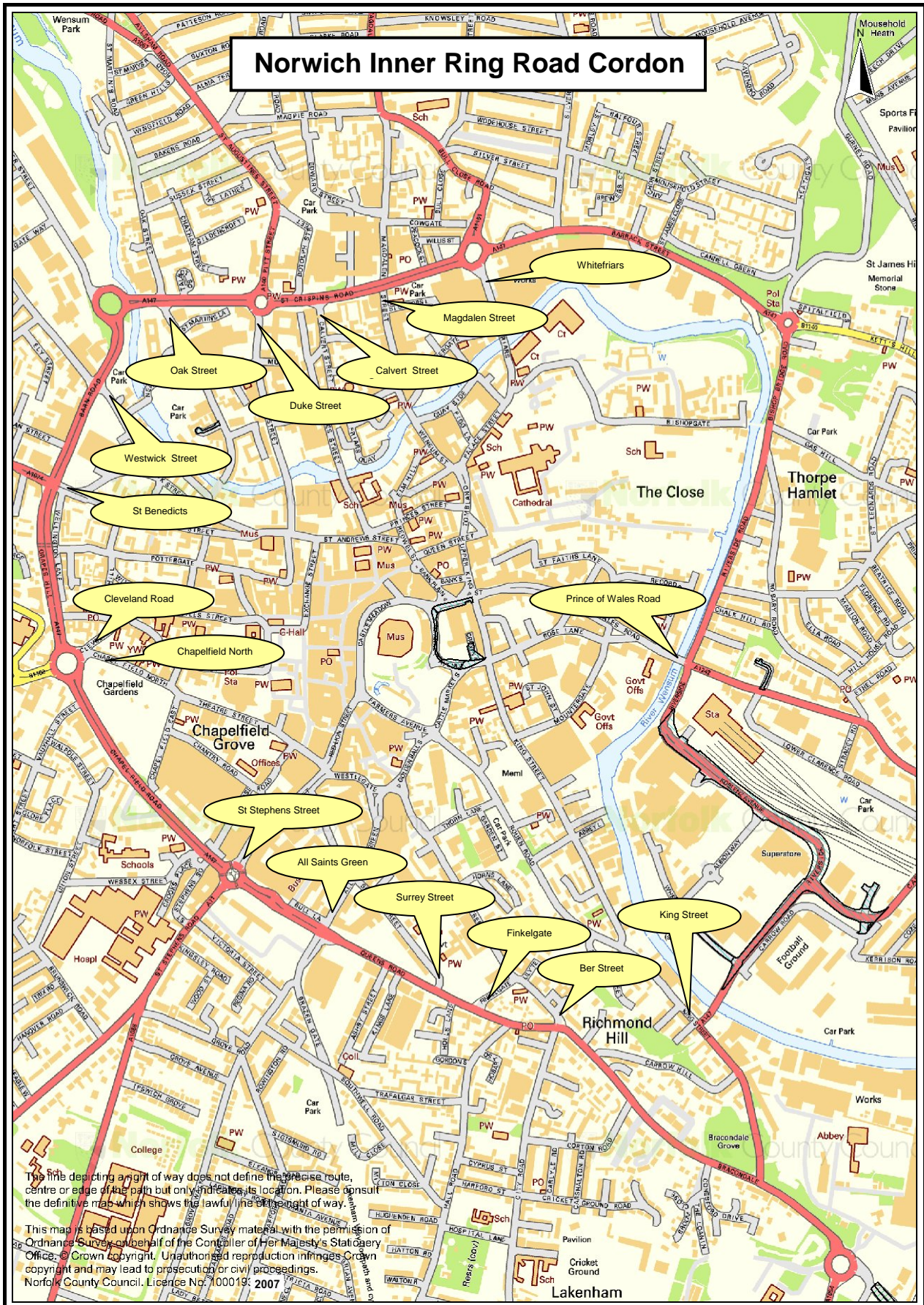
Inner Ring Road Cordon



Inner Ring Road Cordon Profile 1998 - 2009



The graph above shows the Inner Ring Road Cordon profile by hour over the day. It can be seen when compared with the Outer Ring Road that flows across this cordon are more even throughout the day with morning and evening peaks much less pronounced. It can also be seen that since 1998 there has been a considerable reduction in flows throughout most of the day.



Norwich Inner Ring Road Cordon

This line depicting a right of way does not define the precise route, centre or edge of the path but only indicates its location. Please consult the definitive map which shows the lawful line of the right of way.

This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. © Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Norfolk County Council. Licence No: 100019: 2007

Inner Ring Road Cordon Traffic Counts

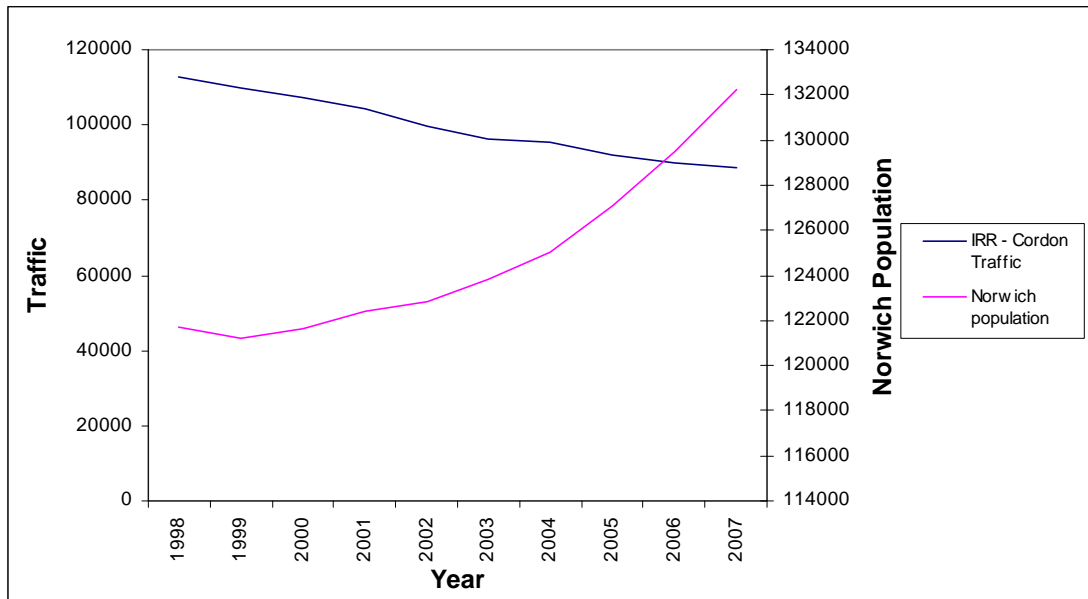
All motor vehicles - 0700-1900	2003	2004	2005	2006	2007	2008	2009
Ber Street	4281	4279	4391	4061	3789	3614	3642
Finkelgate	6401	6615	6710	6018	5950	5878	5938
Surrey Street	3037	3469	3215	2578	2236	2197	2310
All Saints Green	5068	4796	5028	5054	5079	4823	4760
St. Stephens Street	8431	6835	4918	4733	5184	4721	4746
Cleveland Road / Chapelfield North	16188	16304	15085	13935	13760	13196	13138
St. Benedicts	4670	4564	4592	4603	5088	4569	4099
Westwick Street	4361	4464	4545	4734	4777	4894	5131
Oak Street	2287	1945	2184	1897	2140	1731	1756
Duke Street	6323	6205	6793	5333	6322	6418	6183
Calvert Street	1501	1536	1242	2176	1419	1105	994
Magdalen Street	3919	3902	3262	3705	3535	3294	3429
Whitefriars	13012	13109	13706	15164	12763	12111	11709
Prince of Wales Road	11841	12687	12084	12205	12868	12108	12577
King Street North	4965	4852	4198	3733	3799	3466	3617
Cordon total	96285	95562	91953	89929	88709	84125	84029
	02-03	03-04	04-05	05-06	06-07	07-08	08-09
Growth each year		-0.8%	-3.8%	-2.2%	-1.4%	-5.2%	-0.1%
							03-09
Growth per annum							-2.2%
Total growth							-12.7%

Inner Ring Road Vehicle Proportions 2009

Pedal Cycle	6%
Motorcycle	2%
Car	77%
Bus	4%
LGV	10%
HGV	1%
Total	100%

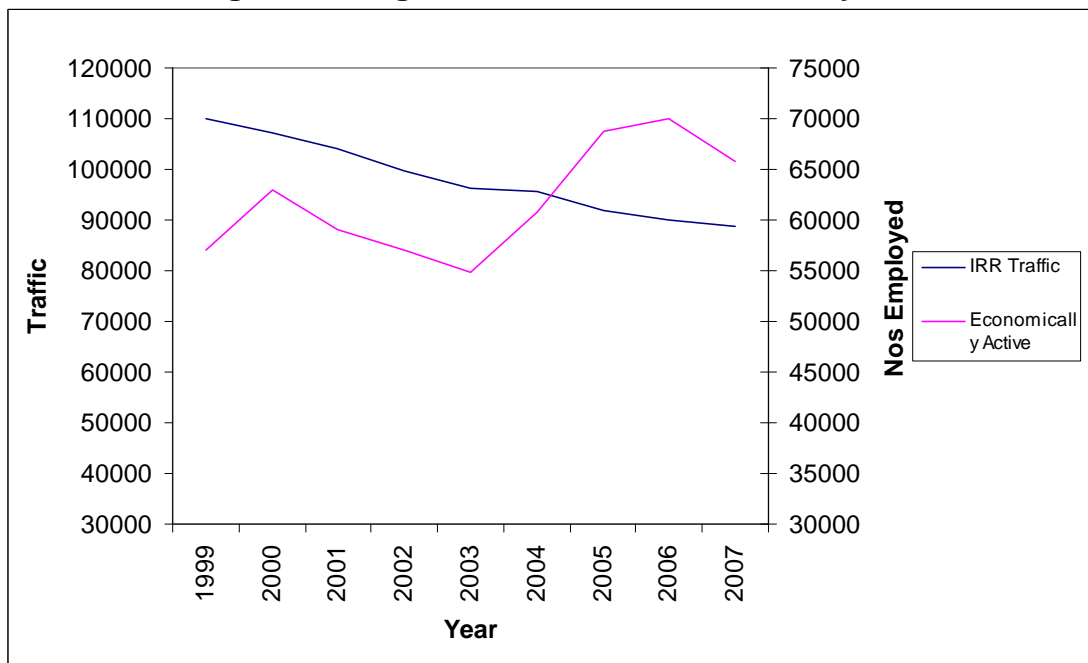
The table above shows the proportions of different vehicle classes crossing the Inner Ring Road cordon during the day. Cars make up the largest category with 77% of flows, a fall from 80% in 1995. LGV's make up 10% of flows, an increase of 1% since 1995. HGV's have fallen from 3% to 1% in the same period. Cycling has increased from 3% to 6%.

Traffic Crossing Inner Ring Road Cordon / Norwich Population



This graph above shows the population of Norwich City has increased since 1998 but that the number of vehicles crossing the Inner Ring Road cordon has decreased. Possible reasons for this are traffic reduction measures introduced over the period, better bus provision and the introduction of more cycling facilities in the city centre.

Traffic Crossing Inner Ring Road Cordon / Economically Active



This graph shows that since 1999 the numbers of economically active people in Norwich City have increased whilst traffic flows crossing the Inner Ring Road cordon have fallen.

The following table shows traffic flows from ATC counters in the Norwich travel to work area.

Norwich Travel to Work Area

	2005	2006	2007	2008	2009
A1151 Wroxham	10378	10843	10869	10719	10663
A140 Hevingham	12934	13164	13334	12666	12999
A1067 Bawdeswell	8548	8780	8854	8448	8446
A47 North Tuddenham	22045	22265	22143	22021	21263
A11 Wymondham	35597	35578	38446	38771	39146
A140 Long Stratton	19130	19486	19495	19094	19151
A146 Thurton	15506	15769	16164	15962	15785
A47Acle Bypass	24923	25110	25523	24785	24885
Ave 5 yrs	18633	18874	19354	19058	19042
Annual Growth		1.3%	2.5%	-1.5%	-0.1%
Growth per annum					0.5%

The Norwich travel to work area consists of a selection ATC of sites making up a cordon about 10 to 15 miles from Norwich. In 2009 there was a 0.1% decrease in flows. Growth per annum for the last 5 years is low at 0.5%.

A146 Trowse Bypass

	2005	2006	2007	2008	2009
A146 Trowse Bypass	30802	30857	31361	30846	31331
Annual Growth	-0.8%	0.2%	1.6%	-1.6%	1.6%
Growth per Annum					0.4%

Trowse bypass shows a low growth rate of 0.4% per annum for the 5 years to 2009. Traffic flows show an increase of 1.6% in 2009.

Bus Passenger Counts

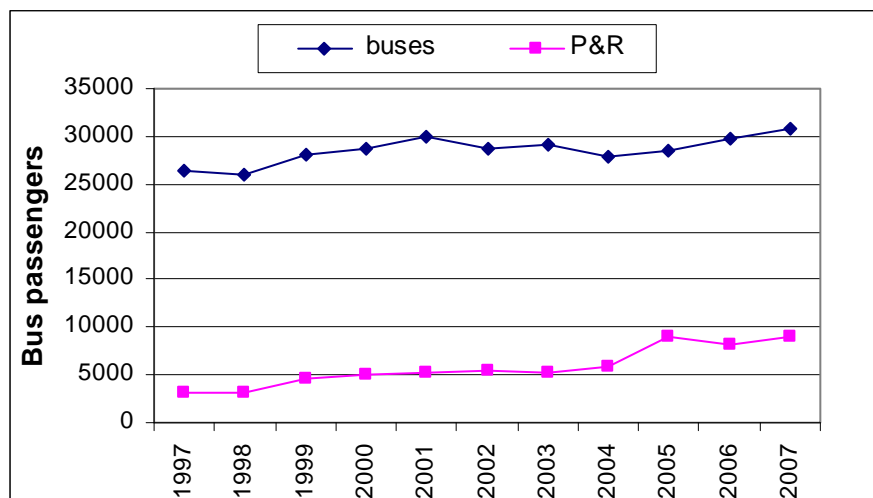
Between 1997 and 2007 surveys were undertaken on a cordon around the Outer Ring Road to collect data on bus and passenger numbers. The surveys were carried out each year over a 12 hour period (07:00 – 19:00) on weekdays in June and July.

ORR Bus Cordon Data

Passengers	Service buses	P&R buses	Total
1997	26353	3114	29467
1998	26092	3187	29279
1999	28182	4670	32852
2000	28693	5070	33763
2001	29875	5200	35075
2002	28651	5477	34128
2003	29029	5312	34340
2004	27773	5854	33627
2005	28571	8977	37548
2006	29725	8184	37909
2007	30833	9074	39907

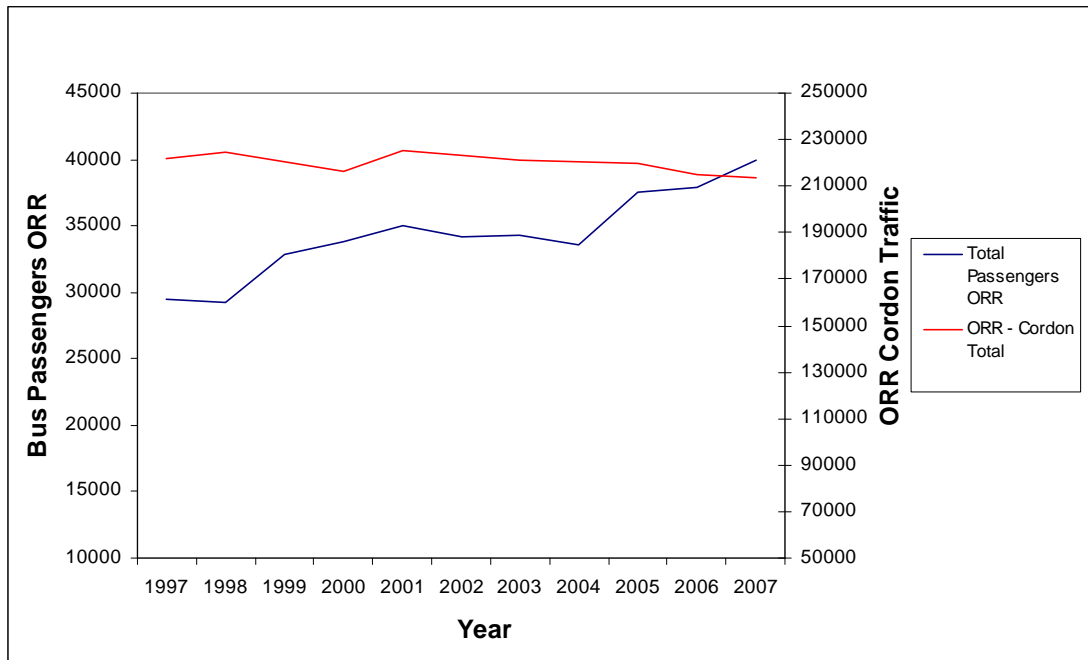
The data suggests that total number of bus passengers crossing the Norwich cordon has increased by around 10,400 per day in the ten years between 1997 and 2007. This represents an overall increase of 34%. The figures also show a big increase in park and ride passengers over this period and in 2007 over 9000 passengers crossed the cordon. This is the largest number since monitoring began. In the last 5 years, new park and ride sites have opened at Sprowston, Harford and Thickthorn. There has been an increase of over 1100 service bus passengers in 2007.

ORR Bus Cordon



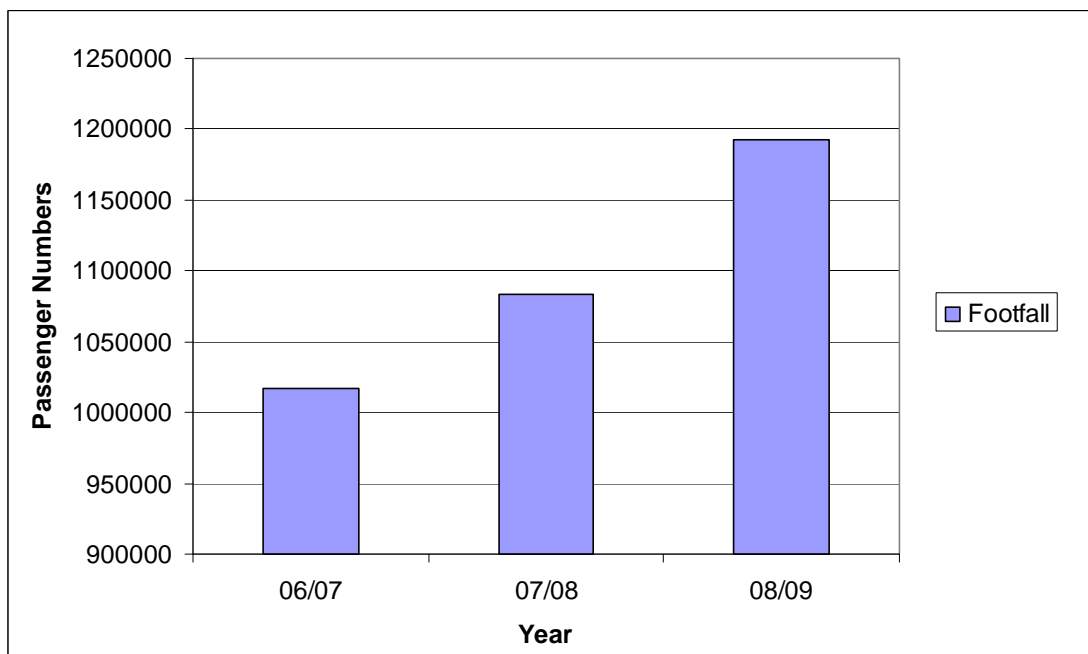
The following graph shows a comparison between bus passenger numbers and traffic crossing the Outer Ring Road cordon. The figures show that while traffic flows have been falling, bus passenger numbers have been increasing. A possible reason for this is the increasing quality of bus provision in the Norwich area.

Bus Passengers / Traffic Crossing ORR Cordon



The new Norwich Bus Station opened in 2005. The following graph shows how usage of the information centre has increased over the last three years. This represents an increase of 17% over the period. During the 09/10 period the counter in the information centre malfunctioned hence the data has not been used.

Bus Station Information Centre Footfall



Modal Share Monitoring Data

Modal Share monitoring has been undertaken in Norfolk by conducting telephone interviews with representative samples of people. Each year two or

three districts in Norfolk were surveyed. In order to keep the sample size as high as possible, the data only refers to weekday trips. Data for Norwich and Broadland, collected in 2000 / 03, and data for South Norfolk from 2001 / 04 can be combined to get information relating to the area covered by the Norwich Area Transportation Strategy (NATS). This is shown in the tables below.

Journey to Work

Commuting trips made by residents of NATS area	2000/2001	2003/2004
Walking	12%	9%
Cycling	10%	11%
Public transport	10%	10%
Powered two wheeler	2%	3%
Homeworking	5%	5%
Car	61%	62%
	100%	100%

Although homeworking does not involve a trip, it has been included in the table because it features in the NATS modal split target. For 2003 / 04 car (62%) is the most popular mode for commuting in the NATS area. Walking shows the greatest change in modal share over the period with a decline of 3%.

Journey to School

Journey to school by residents of NATS area	2000/2001	2003/2004
Walking	32%	46%
Cycling	6%	6%
Public transport	5%	8%
Car	57%	40%
	100%	100%

Walking is the most popular mode for the journey to school (46%) in 2003 / 04 and has increased it's share by 14%. Car was the most popular mode in 2000 / 01, however this shows a considerable decline in share (17%) putting it in second place. If sustained this represents a significant change in travel choice for the journey to school.

All Journeys

All weekday journeys by residents of NATS area	2000/2001	2003/2004
Cycling	5%	5%
Bus and P&R	7%	9%
Car driver	49%	46%
Car passenger	17%	17%
Homeworking	1%	1%
Powered two wheeler	1%	1%
Rail	1%	0%
Taxi	1%	1%
Walking	17%	19%
	100%	100%

Rounding errors may mean that percentages do not sum to 100%

For all journeys in the NATS area car is the most popular mode followed by walking. Walking shows an increase in share of 2% in 2003 / 04 whilst there is a 3% decrease in car drivers. There is also a 2% increase in bus use.

Cycle Counts

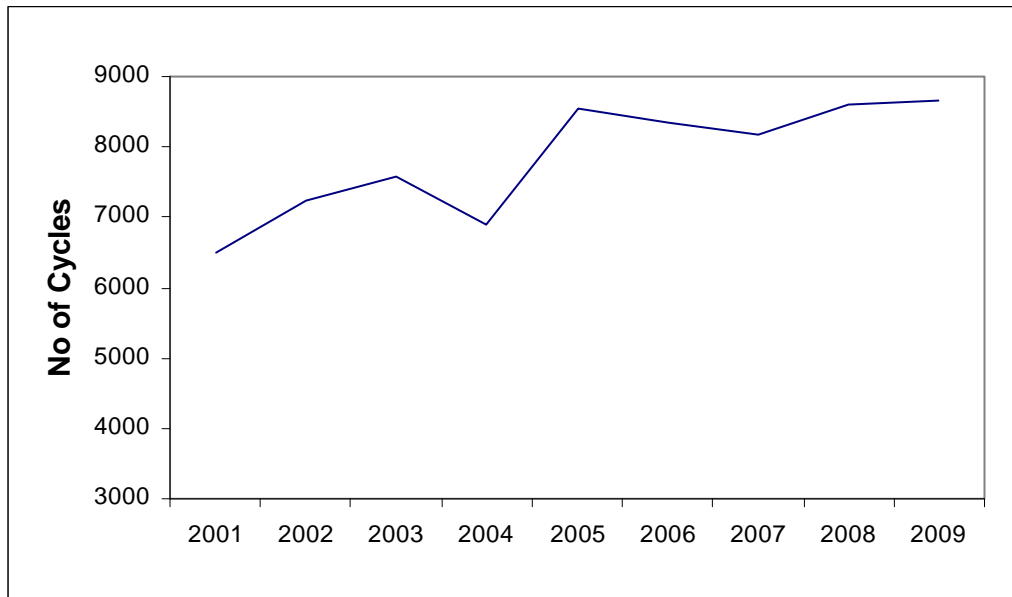
Manual cycle and pedestrian counts are undertaken on the off road routes that cross the Inner Ring Road. The cycle data is comprehensive and, when combined with the on road traffic counts, provides a good estimate of the total cycles crossing the cordon. All the off road cycle counts have taken place over 2 days and the average figure used. Bad weather can affect cycle numbers on a particular day and this helps to balance out this effect thus making the figures more reliable.

The table overleaf shows the number of motor vehicles and cycles crossing the Inner Ring Road cordon. In the autumn of 2005 the new Chapelfield Development opened and two new cycle / pedestrian crossings now access this. These are now counted as part of the cordon and are shown in the table. The numbers of cycles crossing the cordon increased in 2009 for the third year in a row and the number of motor vehicles has also been falling. The proportion of cycles to motor vehicles is now 10.3%, the highest over the last four years.

Cycle Data from Multi-modal Cordon

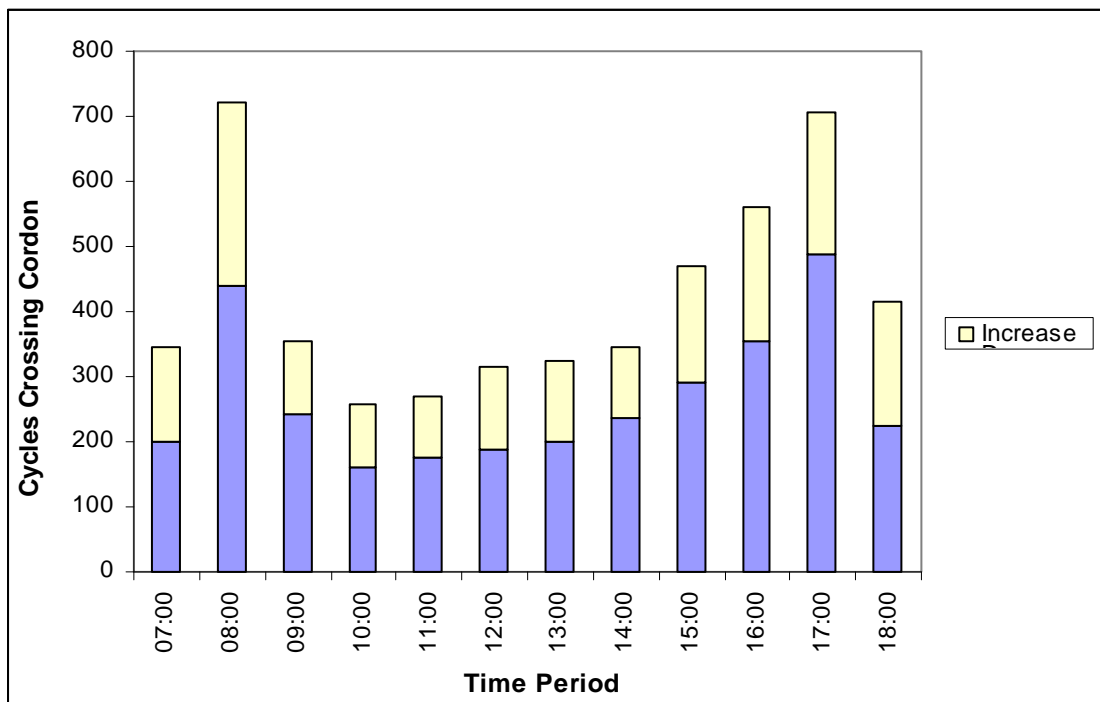
12 hour counts	All motor vehicles				Cycles			
	2006	2007	2008	2009	2006	2007	2008	2009
Ber Street	4061	3789	3614	3642	127	91	114	101
Finkelgate	6018	5950	5878	5938	132	129	180	147
Surrey Street	2578	2236	2197	2310	88	65	82	86
All Saints Green	5054	5079	4823	4760	367	352	298	321
St. Stephens Street	4733	5184	4721	4746	785	580	583	575
St. Stephens Underpass					250	211	256	265
Chapelfield / Wessex St					55	89	99	155
Chapelfield Development Crossing					74	67	68	85
Chapelfield Underpass					114	105	187	174
Chapelfield Crossing					378	383	424	398
Cleveland Road / Chapelfield North	13935	13760	13196	13138	432	457	444	461
Grapes Hill Footbridge					296	307	333	279
Grapes Hill Underpass					298	383	500	482
Barn Road / Grapes Hill					568	485	645	415
St. Benedicts	4603	5088	4569	4099	568	600	651	508
Westwick Street	4734	4777	4894	5131	174	134	148	101
St. Crispins Road					586	603	556	692
Oak Street	1897	2140	1731	1756	343	298	323	252
Duke Street	5333	6322	6418	6183	273	312	242	250
Winterton Lane					195	208	175	238
Calvert Street	2176	1419	1105	994	169	159	132	181
Magdalen Street	3705	3535	3294	3429	856	883	783	980
Whitefriars	15164	12763	12111	11709	210	207	240	229
Bishopgate					352	429	324	497
Prince of Wales Road	12205	12868	12108	12577	423	462	586	473
King Street North	3733	3799	3466	3617	224	189	233	301
Total	89929	88709	84125	84029	8334	8184	8603	8642
Cycle Proportion 2006 - 2009					9.3%	9.2%	10.2%	10.3%

No of Cycles Crossing the Inner Ring Road Cordon



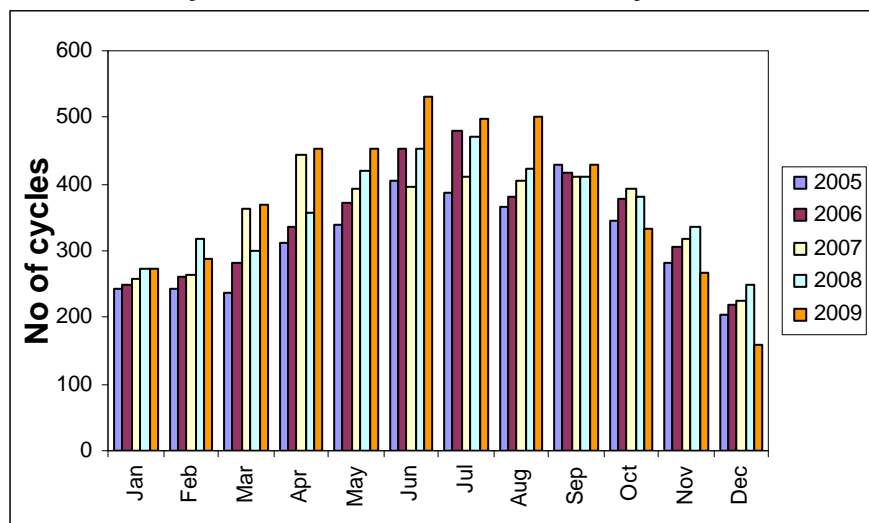
The graph above shows increasing levels of cycling and that each day around 2100 more cycles are crossing the Inner Ring Road cordon than in 2001.

Profile of Cycles Crossing Inner Ring Road Cordon 2001 - 2009



This graph shows the numbers of cyclists crossing the Inner Ring Road cordon over the day. The morning and evening peaks are clearly demonstrated indicating that people are commuting into the city centre on cycles. It can be seen that there have been significant increases since 2001 in all time periods across the day.

Automatic Cycle Counter on Marriotts Way



The automatic cycle counter on Marriotts Way cycle path is located just north of the Inner Ring Road. The graph shows that around 500 cycles a day use this route in the summer months. This path is used by both commuter and leisure cyclists alike and the data indicates cycling levels have risen since 2005.

Norwich ACC Sites

	2005	2006	2007	2008	2009
Marriotts Way	316	345	357	366	379
Dereham Road	163	170	170	174	179
Thorpe Road	77	72	70	65	54
Old Catton Cycle Path	150	140	133	151	142
Hethersett Cycle lane	60	68	79	94	99
Average	153	159	162	170	171
Growth		4%	2%	5%	1%

Automatic cycle counters are situated at various locations around Norwich, some of which have only been recently installed. These provide more reliable data than single day manual counts. These figures represent annual average weekday flows. It can be seen that flows vary considerably on the different routes. The data indicates that overall flows show a constant but small increase since 2005.

Pedestrian Counts

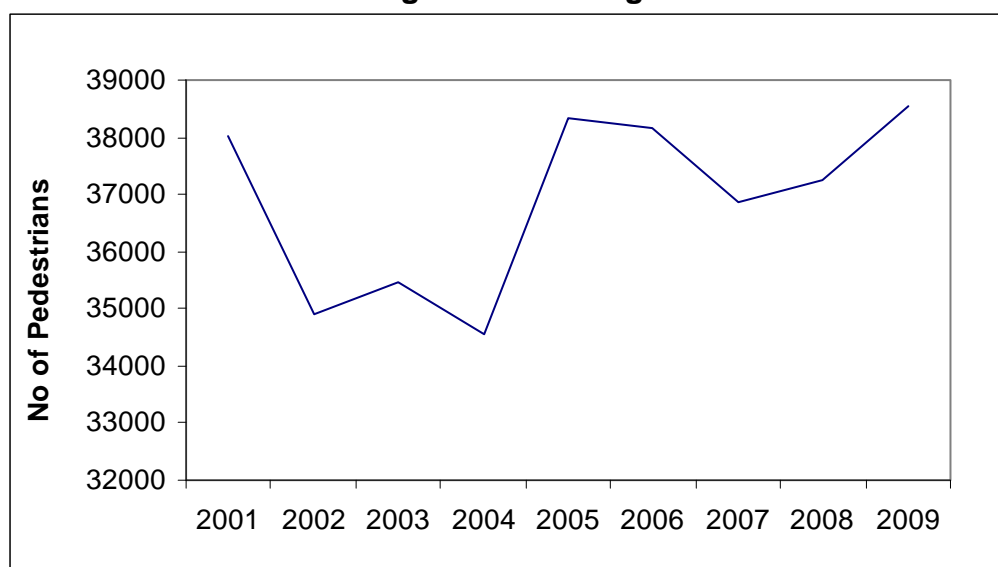
The pedestrian data collected on the Inner Ring Road cordon is from a sample of key sites. As these counts are repeated, this will give an indication of changes over time. However, they will not give an idea of the total number of pedestrian trips crossing the cordon. Even if all the possible ring road sites were counted, it is unlikely that the total cordon crossing numbers would be reliable. This is because many would be the final walking leg of at the end of a longer car or rail journey.

Inner Ring Road Cordon Pedestrian Count Data

12hr pedestrian counts	2005	2006	2007	2008	2009
Chapelfield Crossing	3313	2863	2640	2684	2464
Grapes Hill Footbridge	2808	2660	2738	2967	2727
Grapes Hill Underpass	928	782	854	901	863
Barn Road & Grapes Hill	3012	2525	2444	2467	2480
St. Crispins Road Crossing	883	924	977	917	893
Duke Street	1903	1960	1987	1574	1543
Winterton Lane	1382	1364	1239	1076	1223
Calvert Street	1679	1603	1586	1535	1618
Magdalen Street	7814	7174	7831	7141	7548
Bishopgate	1677	1784	1624	1344	1869
St. Stephens Street	10377	11461	9931	11328	11617
Wessex Street	988	1265	1261	1686	2135
Chapelfield Development	515	964	1116	925	938
Chapelfield Underpass	1067	818	658	700	636
Total	38342	38145	36882	37242	38550
		05-06	06-07	07-08	08-09
Growth per annum		-0.5%	-3.3%	1.0%	3.5%

The table above shows the numbers of pedestrians crossing the cordon from 2005 onwards. In autumn of 2005 the new Chapelfield Development opened and two new crossings (Wessex Street and Chapelfield Development) now access this. These are in part responsible for the overall increase in numbers and show a significant rise in 2005 / 06 as the new development came into full use. Figures show a 3.5% rise in 2009.

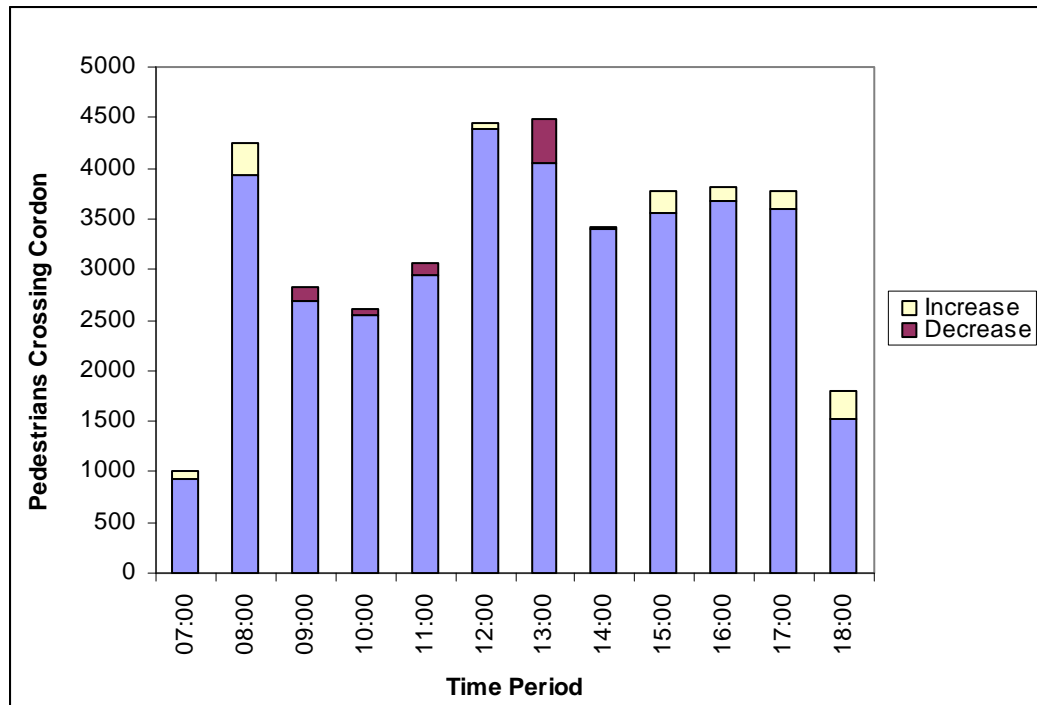
No of Pedestrians Crossing the Inner Ring Road Cordon



The graph demonstrates how pedestrian levels have varied since 2001. It shows that in 2009 the highest number of pedestrians crossed the cordon

since monitoring began. The old Norfolk and Norwich Hospital closed in 2002 and this is a likely reason for the reduction in pedestrian numbers until Chapelfield opened in 2005.

Profile of Pedestrians Crossing Inner Ring Road Cordon 2001 - 2009



The graph above shows the profile of pedestrians crossing the Inner Ring Road Cordon over the day. It can be seen that the morning and evening peaks are much less pronounced than for cycle profile. This profile bears a greater similarity to the motor cordon than that of the cycles. High levels of walking occur throughout the working day indicating that people are walking into the city centre for shopping and leisure purposes as well as commuting. Some time periods show increases, particularly at either end of the day.