

road users monitoring report
2008



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Road User Monitoring 2008

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Executive Summary

In 2003, the Dublin Transportation Office (DTO) set up a Road User Monitoring Group, consisting of representatives of the DTO, Greater Dublin Area (GDA) local authorities and National Roads Authority. The purpose of the Group is to monitor the performance of the DTO Strategy as it relates to road users.

The first report of this Group, Road User Monitoring Report 2004 was published in September 2004. The 2004 report was intended to be the first in a series of annual Road User Monitoring Reports to be produced by the Group. This report, Road User Monitoring Report 2008 is the fifth of these reports.

The purpose of the report is to provide the DTO, and other transport agencies and local authorities in the Greater Dublin Area (GDA) with an overview of:

- Trends in road use by pedestrians, cyclists, cars, taxis, goods vehicles and buses
- Conditions currently experienced by road users in the GDA, including journey times and speeds
- Facilities for road users, including:
 - Parking
 - Travel information
 - Pedestrian crossing facilities
 - Cycle lanes and cycle parking facilities
- Road traffic accident casualties
- Environmental pollution attributable to road traffic

The Report provides a summary of facilities for buses and bus use, as monitored by the DTO on an annual basis and reported on in detail for each corridor in DTO Quality Bus Corridor (QBC) Monitoring Report

<http://www.dto.ie/web2007/qbcmon.htm>).

As this is the fifth Road User Monitoring Report, much of the information within it can be compared with data from 2004-2007, allowing for changes in conditions to be monitored between these years. Where historic survey data is available for certain indicators, comparisons are made between these data sets. Data indicators where no new information has become available are excluded from this report, but can be viewed in previous reports

<http://www.dto.ie/web2006/roadmon.htm>).

It is hoped that the Report will be of use primarily to local authority engineers, planners and managers. It is also aimed at those organisations involved in implementing road improvements, such as the National Roads Authority and those involved in policy development such as the DTO; the Department of Transport; the Department of the Environment, Heritage and Local Government.

It is intended that where certain indicators are identified in this report as performing poorly, that measures to improve this performance can be identified and implemented. This identification and implementation of these remedial measures is primarily the responsibility of local authorities.

The report may be used to inform policy development by local authorities, the DTO and the Department of Transport.

Main Findings

The Report uses the most recent data available for each of the agreed indicators relating to the performance of the various road based transport modes. Generally this data relates to 2007 however for some indicators the most recent data relates to 2008, and, where available, this data is used.

An analysis of NRA traffic counter data and supplemental traffic surveys, organised by DTO, also provide information on the:

- Variation of traffic flows on national roads by day of week ([G3 National Roads Traffic Flows By Day](#))
- Variation of traffic flows on national roads by month of year ([G3 National Roads Traffic Flows By Month](#))
- Variation of weekday peak traffic flows on national roads by month of year ([G3 National Roads Peak Var By Month](#))

Average daily traffic volumes on the M50 decreased by 3.7% in 2007, while traffic on the M1 and M4 increased by an average of 4% on 2006. During the period 07:00-08:00hrs, traffic flows in the M4 increased by 7.1% between 2006 and 2007. ([G3 National Roads Traffic Flows](#)).

Inbound traffic flows, in the morning peak (07:00-09:59hrs) along the canal cordon, in 2007, were almost identical with those in 2006, recording an increase of just 0.04%. Over the entire period from 1997-2007, traffic numbers fell by 14%. ([G3 Canal Cordon Traffic Flows](#))

Cyclists

Across the canal cordon, cycle flows during the morning peak increased by a dramatic 44% between 2004 and 2007. The increase between 2006 and 2007 was 17%. ([C2 Canal Cordon Cycle Flows](#)).

Pedestrians

Inbound pedestrian movements over the Canal Cordon have varied from a low of 15,565 in 1998 to a high, of 18,594 in 2007. Flows in 2007 were 8.7% higher than those recorded in 2006.

Bus

The Quality Bus Corridor (QBC) monitoring exercise, organised by the DTO recorded that bus average journey times in the morning peak were less than the corresponding car average journey times in 12 out of the 16 QBCs monitored, with significant (greater than 15%) variations on 8 QBCs ([B2: Comparative Bus & Car Journey Times](#)).

The DTO commissioned an audit of bus and cycle facilities in the GDA in summer 2007. The survey recorded 186.5kms of bus lane in the metropolitan area, representing approximately 18.5% of the total road network.

Luas

The 2007 Luas Census recorded growth in passenger boardings of 2.8% on the Green Line and 2.3% on the Red Line. Combined growth in boardings, between 2006-2007, was 3%, following 22% growth in the previous year.

Parking

Analysis of CSO data on car drivers to work provides an estimate of car parking spaces in the GDA. This is estimated at approximately 380,000.

Air Quality

Environmental air quality, as monitored by the EPA, indicates that the values of emissions monitored are compliant with EU directives. ([G11 Environmental Emissions](#))

Miscellaneous Data

Data relating to certain performance indicators is currently either unavailable, or not available in a consistent manner across the different local authority areas. Major data deficiencies include:

- Pedestrian crossing facilities.
- Taxi rank facilities.

1. Introduction

1.1 *Background*

The Dublin Transportation Office set up a Road User Monitoring Group in May of 2003. The purpose of the Road User Monitoring Group is to monitor the performance of the DTO Strategy against the objectives for each class of road user, as set out in *A Platform for Change*. The initial work of the Monitoring Group was to identify the DTO strategy objectives as they relate to road users. It then agreed appropriate performance indicators and measures for these objectives. The Monitoring Group consisted of representatives of all the Greater Dublin Area local authorities, the NRA and the DTO.

The work of the Road User Monitoring Group focuses on road transport modes, other than Luas - i.e. pedestrians, cyclists, taxis, road freight, car and motorcycle traffic. The Report also includes a summary of Quality Bus Corridor (QBC) monitoring results, which is undertaken by the DTO on an annual basis.

Road user monitoring work examines:

- a) The facilities available for these modes, and
- b) Use of these facilities

The first Road User Monitoring Report was published in September 2004. The 2008 monitoring report generally encompasses survey data for monitoring purposes collected by the DTO, NRA, local authorities and other agencies over the past 12 months or so. The report also includes older data, most of which is included in the 2004, 2005 2006 and 2007 Reports, to identify trends.

Any new data indicators in this report will form the benchmark against which future years monitoring can be measured. The intention is that the surveys presented in this report will be repeated on a regular basis (annually, bi-annually etc.), in order to determine trends in performance and usage of the road network over time.

It is intended that additional indicators will be reported upon as the data becomes available.

1.2 *Purpose of the Report*

The purpose of the Report is to monitor conditions experienced by the various road users, i.e. existence of facilities and use of the facilities. A benchmark already exists for data indicators reported in the 2004, 2005, 2006 and 2007 Reports, and where possible, comparisons are made with this benchmark data. In addition, where historic data is available for certain other indicators relating to road usage and conditions, comparisons are made between these data sets.

The report is aimed at local authority engineers, planners and managers. It is also aimed at those organisations involved in implementing road improvements, such as the National Roads Authority and those involved in policy development such as the Department of Transport and the Department of the Environment, Heritage and Local Government.

It is hoped that where performance under a certain indicator is identified in the report as poor, that this will be used in aiding local authority decision making and thereby facilitating the prioritisation of appropriate improvements. The report may also be used as a tool in policy development.

1.3 Structure of the Report

Section 2 sets out the DTO Strategy Objectives and Agreed Performance Indicators. It also sets out the survey data collected for monitoring purposes over the last year or so.

General traffic indicators are included in **Section 3**, cycling indicators in **Section 4**, pedestrian indicators in **Section 5**, taxi indicators in **Section 6**, car parking related indicators in **Section 7** and bus indicators in **Section 8**. The conclusions/ main findings of this monitoring report are included in **Section 9**.

2. DTO Strategy Objectives and Agreed Performance Indicators

2.1 *DTO Strategy Objectives*

In the vision statement of the current DTO Strategy contained in *A Platform for Change, 2000 - 2016*, the following objectives (inter-alia) are set out, under the "Quality of Life" heading:

- Reducing travel times and congestion;
- Ameliorating the direct environmental effects of transport - noise severance, air pollution and greenhouse gas emissions;
- Promoting cycling and walking as safe, sustainable and healthy means of transport;
- Improving transport safety.

More specific objectives for road users are also set out in *A Platform for Change*. The Road User Monitoring Group developed indicators to measure how Dublin is performing under the objectives set out below for the various road users.

➤ ***Car/ taxi/ other road vehicles (Ref: P10, P63, P64 A Platform for Change)***

- Reduce junction overloads on distributor road network
- Reduce car delays associated with congestion, particularly in sensitive areas
- Encourage freight traffic away from sensitive areas
- Continue to expand on-street parking controls
- Provide better information for road users
- Reduce taxi journey times relative to the car, where this does not impact unduly on bus services
- Provide sufficient taxi services to meet demand, especially where alternative public transport services are unavailable
- Reduce accidents and accident rate
- Ameliorate air pollution/ greenhouse gas emissions (car/ taxi/ truck fuel consumption etc)

➤ ***Cycling (Ref: P63 A Platform for Change)***

- Continue to develop the strategic cycle network
- Provision of recreational cycle facilities
- Cycle links to public transport and key destinations
- Adequate cycle parking facilities [at public transport and key destinations]
- Increase proportion of short trips (up to 6km) made by bicycle
- Reduce accidents and accident rate

➤ ***Pedestrians (Ref: P63 A Platform for Change)***

- Pedestrians are attracted to use pedestrian facilities
- Potential walking speeds of 5kph including junction delays
- Good walk links to public transport and key destinations
- Reduced waiting times and crossing distances at junctions
- Level crossing for pedestrians across junctions and accesses
- Additional pedestrian crossing facilities, including pedestrian refuges
- Wide footpaths where pedestrian flows are high
- Footpaths cleared of unnecessary street furniture
- Improved surface quality
- Pedestrian facilities suitable for mobility impaired and disabled persons
- Reduce accidents and accident rate

2.2 *Agreed Performance Indicators*

The Monitoring Group agreed performance indicators in June 2003. Subsequently some indicators have been modified slightly, or incorporated into other indicators. The list of performance indicators is set out below.

➤ *General Traffic*

Indicator Code	Indicator
G1	% of trips to work and school by walk, cycle, bus and car
G2	% of shopping trips by walk, cycle, bus and car
G3	Traffic flow on roads crossing M50 cordon, Canal cordon and at selected sites
G4	Traffic flow by vehicle type crossing M50 cordon, Canal cordon and at selected sites
G5	Average motor vehicle speed
G6	Reliability of journey times (for motor vehicles)
G7	Proportion of traffic signals operating as intended by LAs (traffic loops functioning, pedestrian buttons functioning etc)
G8	Percentage of time that roads are congested
G9	Number and length of roads with weight/ height/ width restrictions
G10	Road Accident Statistics: No. of personal injury road accidents, no. of road accident casualties by casualty type and by road user type
G11	Environmental emissions attributable to road traffic (NO ₂ , PM10, CO and VOC)
G12	Number of locations where road traffic noise levels exceed agreed standards
G13	Availability of roadside traveller information (including real time)
G14	Car user satisfaction

➤ *Cycle*

Indicator Code	Indicator
C1	Cycle modal share of journeys under 2 miles and under 4 miles
C2	Cycle flow on roads crossing M50 cordon, Canal cordon and at selected points
C3	Length of cycle network
C4	Cycle network features: e.g. number of cycle advance lanes, cycle crossing facilities
C5	Number of cycle parking spaces at selected sites
C6	Usage of cycle parking spaces
C7	Cyclist satisfaction

➤ *Pedestrians*

Indicator Code	Indicator
P1	Walk modal share for journeys under 2 miles and under 4 miles
P2	Number of pedestrians crossing Canal cordon
P3	Number of pelican crossings/ zebra crossings
P4	Number of signalised junctions with pedestrian signal facilities on every arm/ some arm/ no arms
P6	Average maximum wait time at signalised crossings (both at, and away from junctions)
P7	Pedestrian satisfaction

➤ *Taxi*

Indicator Code	Indicator
T1	Number of licensed taxis
T2	Number of taxi ranks
T3	Average wait time for taxis
T4	Average taxi occupancy
T5	Taxi user satisfaction

➤ *Parking*

Indicator Code	Indicator
PK1	Number of short stay (3hr or less) on-street car parking spaces
PK2	% of built up area where controlled on-street parking applies
PK3	Number of public off-street spaces
PK4	Number of dedicated disabled parking bays

The following indicators are used in monitoring of the QBC network:

➤ **Bus**

Indicator Code	Indicator
B1	Summary of QBC Progress
B2	Comparative Bus & Car Journey Times in the Morning Peak
B3	% Bus Lane

2.3 Monitoring Surveys

A set of surveys to supplement available data was carried out in November 2007. The surveys comprised of journey time surveys; classified link counts at the Metropolitan Area cordon, Outer (M50) cordon, Outer Orbital roads; classified junction turning counts at Town Centre junctions with supplemental cycle counts; City Centre cycle counts; pedestrian facility and wait time surveys at various town/ city centre junctions; city centre cycle facility and usage surveys and a Household Travel Survey. Dublin City Council was responsible for organising an Inner (Canal) Cordon survey in November 2007.

Note:

For the purposes of the surveying work carried out by the DTO, Light Goods Vehicles (LGVs) are defined as having 4 wheels or less. Heavy Goods Vehicles (HGVs) are defined as having more than 4 wheels.

3. General Traffic Indicators

G1 (A/B): Percentage of trips to work/education by walk, cycle, bus and car

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

G1 (B): Percentage of trips to education by walk, cycle, bus or car

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

G2: Percentage of shopping trips by walk, cycle, bus and car

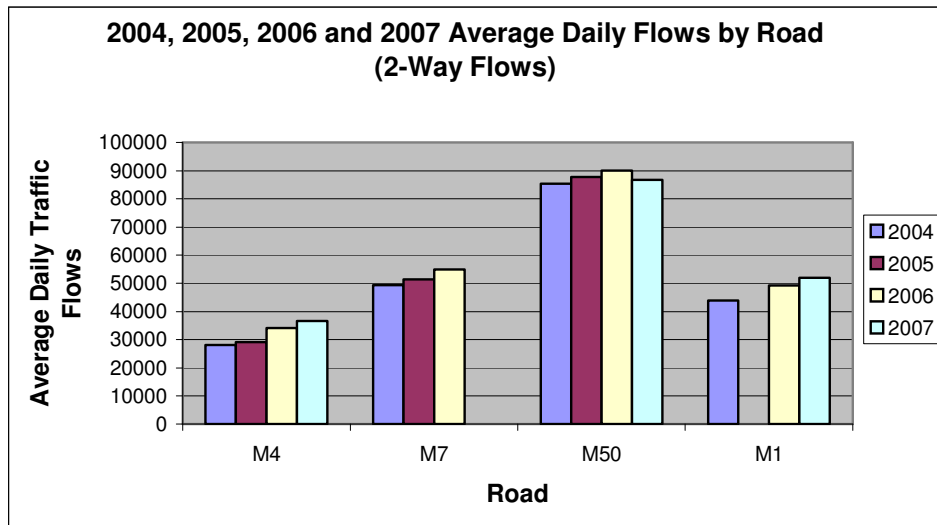
Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

G3: (A) Traffic flow on national primary roads

Figure 3.1 presents average daily traffic flow variations over a four-year period between 2004 and 2007. The graph demonstrates a significant increase in daily traffic flows over on all roads except the M50 (which experienced road works over the period). Of the four roads examined, traffic flows grew by an average of 3% between 2004 and 2005 and by 7% between 2005 and 2006. The largest increase recorded was on the M4, which experienced traffic growth of 17% between 2005 and 2006.

Average traffic volumes on the M50, over the first 6 months of the year decreased by 3.7% in 2007 on the previous year.¹ Traffic flows on the M1 increased by 5.5% coinciding with the opening of the port tunnel in December 2006.

Figure 3.1: 2004-2007 average daily traffic flows (national primary roads)²



Figures 3.2 presents weekday inbound and outbound traffic flow variations by time of day in 2006 at the following survey points on the national primary road network:

- 1) M1: Balbriggan South (NRA site M01-17) {northbound only as southbound traffic counters not fully operational throughout 2006}

¹ Counts are not available for a number of months in the year. Road works were also experienced

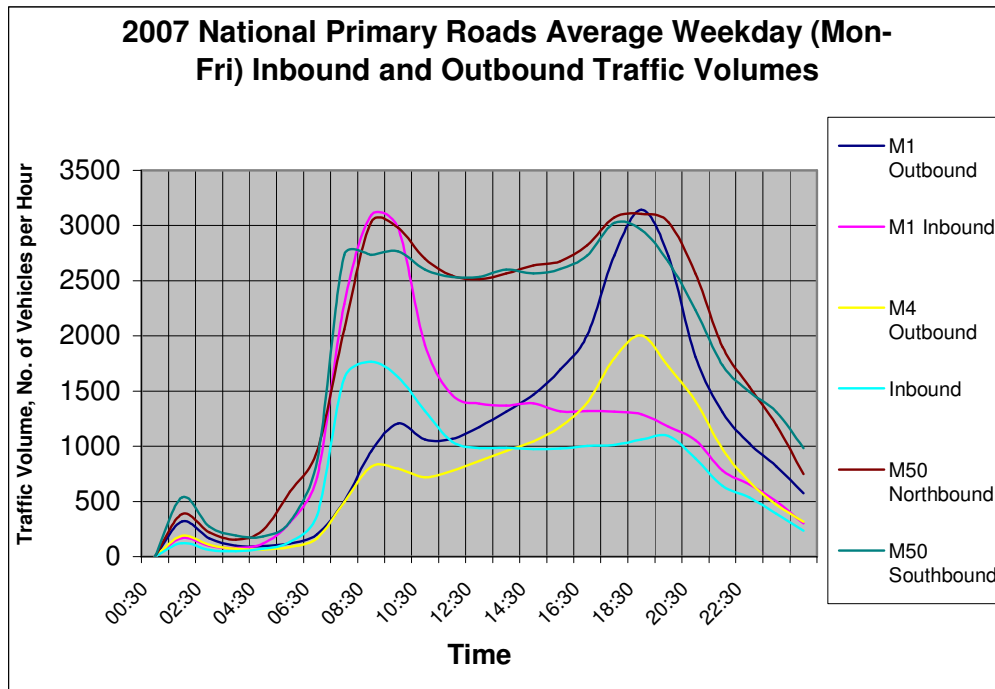
² Source: NRA Website, <http://www.nra.ie/Transportation/TrafficDataCollection/TrafficCounterData/>

- 2) M4: Maynooth West (NRA site M04-34)
- 3) M50: Blanchardstown Toll Area (NRA site M50-20)

As can be seen from **Figure 3.2**, inbound weekday flows on all roads on all roads peak between 07.00 and 09.00hrs then drop significantly before increasing again in the evening period. This figure also demonstrates a minor peak in outbound flows in the a.m. period between 08.00 and 09.00hrs, with a much larger peak in the evening between 17.00 and 18.00hrs.

Flows on the M50 in both directions demonstrate two distinct peaks. The a.m. peak in both directions between 07.00 and 08.00hrs. The p.m. peak occurs southbound between 16.00 and 17.00hrs and in the northbound direction between 17.00 and 18.00.

Figure 3.2: 2007 weekday traffic flows variations by time of day (national primary roads)³



Traffic weekday flows on national primary roads by hour of the day were compared to 2005 and 2006 flows and this is illustrated in **Figure 3.3**. The highest hourly increases on the M4 radial road were experienced between 07:00-08:00hrs, where increases of 7.1% were recorded between 2006 and 2007. Flows on the M50 in 2007 were lower than those recorded in 2006, however, numbers were reduced by road works.

³ Source: NRA Website, <http://www.nra.ie/Transportation/TrafficDataCollection/TrafficCounterData/>

Figure 3.3: 2005-2007 2-way weekday traffic flows variations by time of day (national primary roads) ⁴

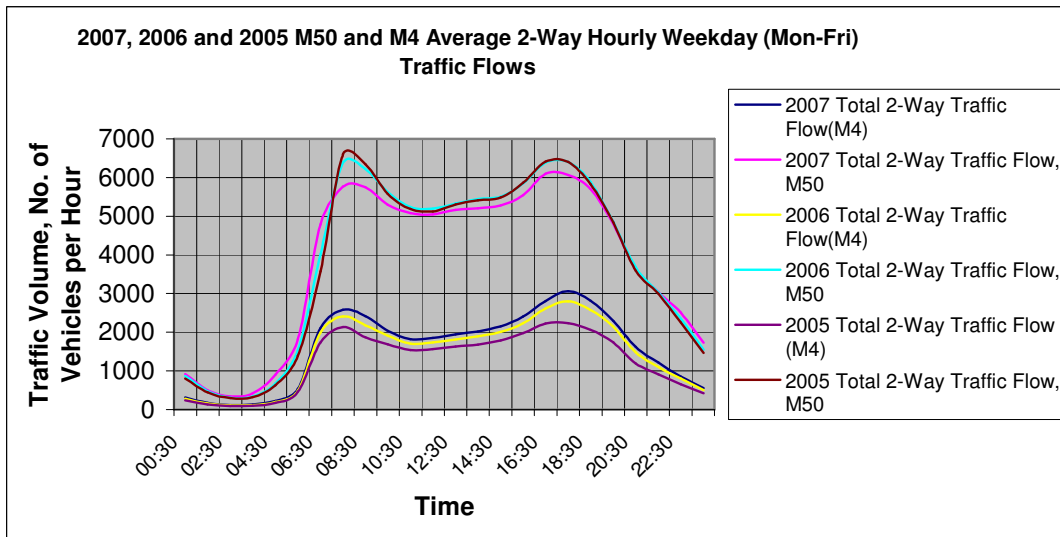
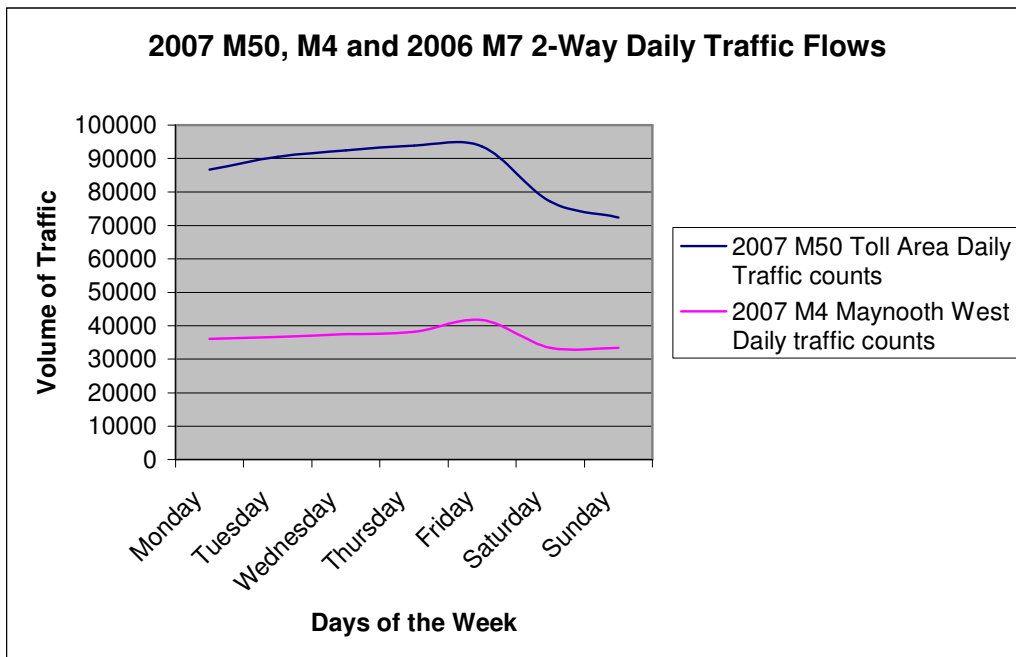


Figure 3.4 presents traffic flow variations by day of the week at the same survey points on the national primary road network listed above.

Figure 3.4: 2007 and 2006 traffic flows variations by day of week (national primary roads) ⁵



As can be seen from Figure 3.4, the highest flow on the M50 takes place on Thursdays (8.4% above average). On the M4 the peak is recorded on Friday (13.5% above average). Both

⁴ Source: NRA Website, <http://www.nra.ie/Transportation/TrafficDataCollection/TrafficCounterData/>

⁵ Source: NRA Website, <http://www.nra.ie/Transportation/TrafficDataCollection/TrafficCounterData/>

roads record lowest volumes on Sunday (16.5% lower than average on the M50, 9% lower than average on the M4).

Figure 3.5: 2006 and 2007 traffic flows variations by month of the year (national primary roads)⁶

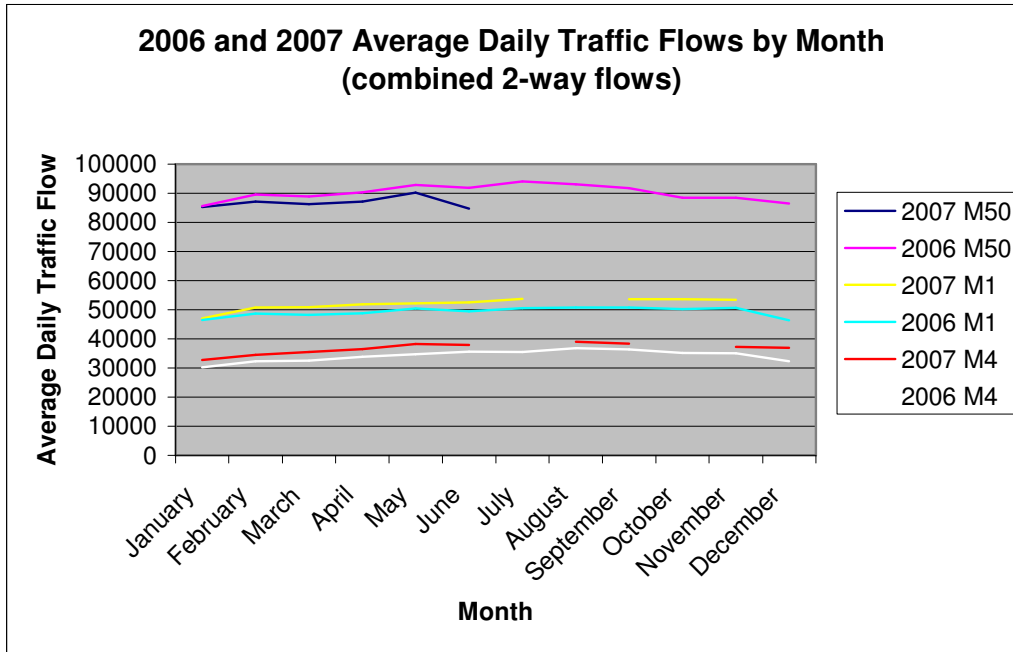


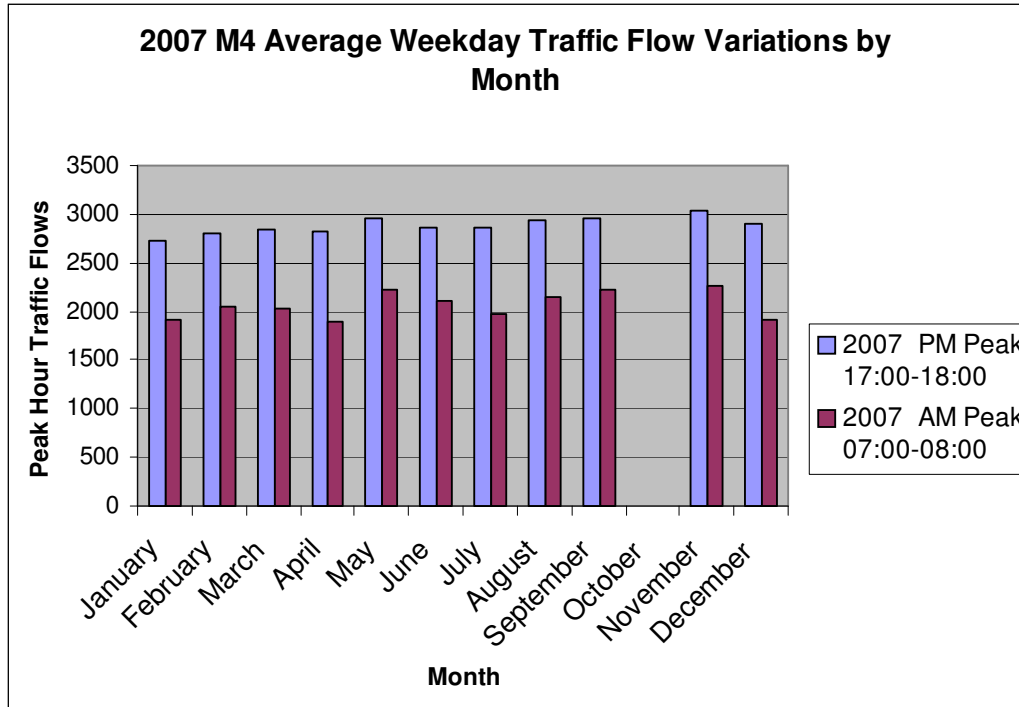
Figure 3.5 presents traffic flow variations by month of the year in 2006 and 2007 at the same survey points on the national primary road network listed above.

Typical flows on the national radial roads approaching Dublin are experienced in April. Flows on the national radial roads peaked in July for the M1 (3.5% above average) and August for the M4 (6.4% above the average). Flows on the M50 in the first half of 2007 peaked in May (3.9% above average). In general the lowest daily traffic flows are experienced in January (1.8% below average).

⁶ Source: NRA Website, <http://www.nra.ie/Transportation/TrafficDataCollection/TrafficCounterData/>

Figure 3.6 presents variations in weekday peak traffic flows by month of year in 2007 on a national primary radial road approaching Dublin (M4). Average flows on these roads are experienced in June. Highest flows are experienced in November, when flows were 5.5% above typical/ average flows. Lowest flows were recorded in January, when flows were 5.2% below the average.

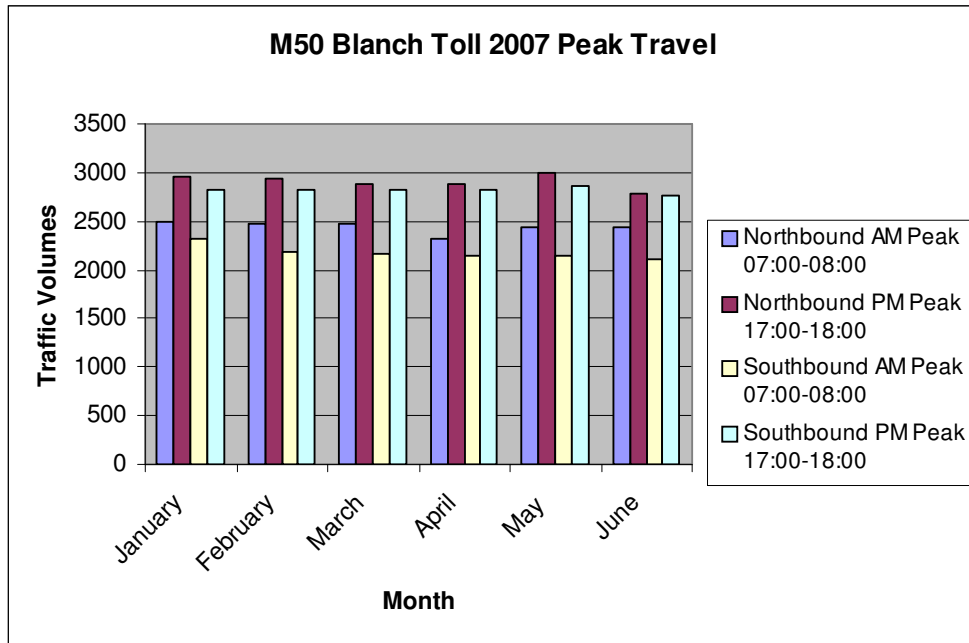
Figure 3.6: 2007 traffic flow variations by month of the year on the M4 (national primary road)



⁷ Source: NRA Website, <http://www.nra.ie/Transportation/TrafficDataCollection/TrafficCounterData/>

The monthly variation of weekday peak traffic flows on the M50 was also analysed. This is illustrated in *Figure 3.7*.

Figure 3.7: 2007 weekday peak hour traffic flow variations by month of year (M50)⁸



Data was only recorded for the first 6 months of 2007 due to road works on the M50 which began on July. Typical/ average flows were experienced in February, with monthly flows peaking in May (3.5% above 6 month/ average flows). Lowest monthly flows were experienced in June (4.3% below 6 month/ average flows).

The highest a.m. flows northbound and southbound occurred in January. The lowest a.m. flows occurred in a northbound direction in April while in a southbound direction the lowest a.m. flow occurred in June. The highest p.m. flows northbound and southbound occurred in May.

⁸ Source: NRA Website, <http://www.nra.ie/Transportation/TrafficDataCollection/TrafficCounterData/>

G3: (B) Traffic flow on roads crossing M50 Cordon

The M50 cordon count, organised by the DTO in November 2007, counted 2-way traffic flows on all roads crossing the M50 on a single Tuesday, Wednesday or Thursday weekday between 06:00 and 10:00hrs.

Figure 3.8: 2007 Weekday peak traffic flow variations (roads crossing M50), 6am-10am⁹

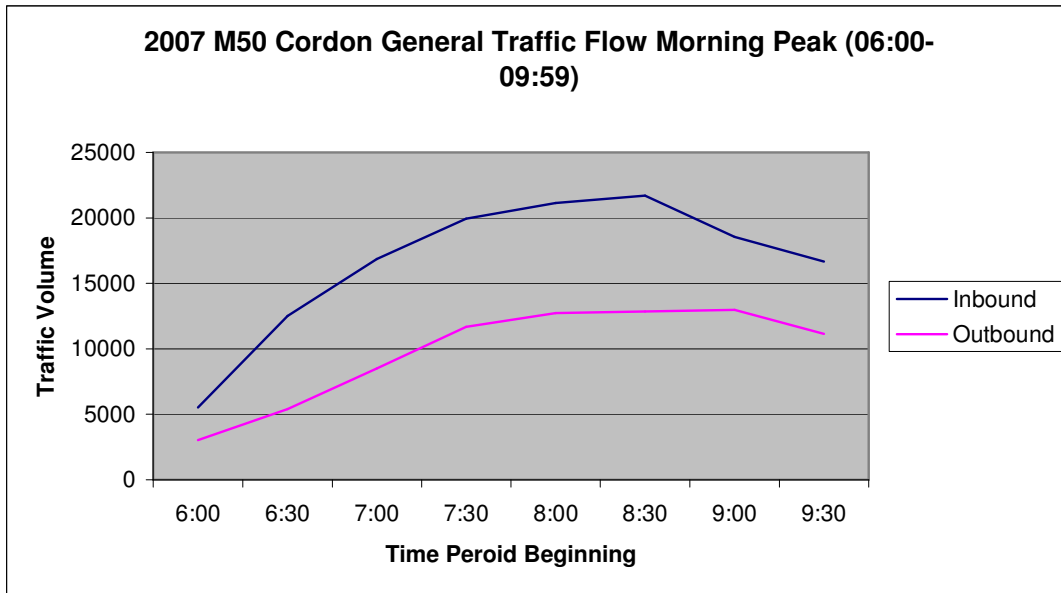


Figure 3.8 shows traffic flow variation across the sample of M50 cordon crossing points between 06.00 and 10.00hrs. Inbound traffic flows across the M50 are at their highest between 08.00 and 09.00hrs. During this period, recorded crossings exceed the average, (over the 4-hour period, 07.00 - 19.00hrs) by 31%.

Outbound flows across the M50 Cordon crossing points demonstrate a peak also, a small one in the period between 08.00 and 09.00hrs, which declines after 09.00hrs. During this peak, recorded crossings exceed the average (over the 4-hour period, 06.00 - 10.00hrs) by 33%.

⁹ DTO November 2007 surveys

Figure 3.9: 2007 traffic flow variations (junctions in town centre areas, 6am-10am)¹⁰

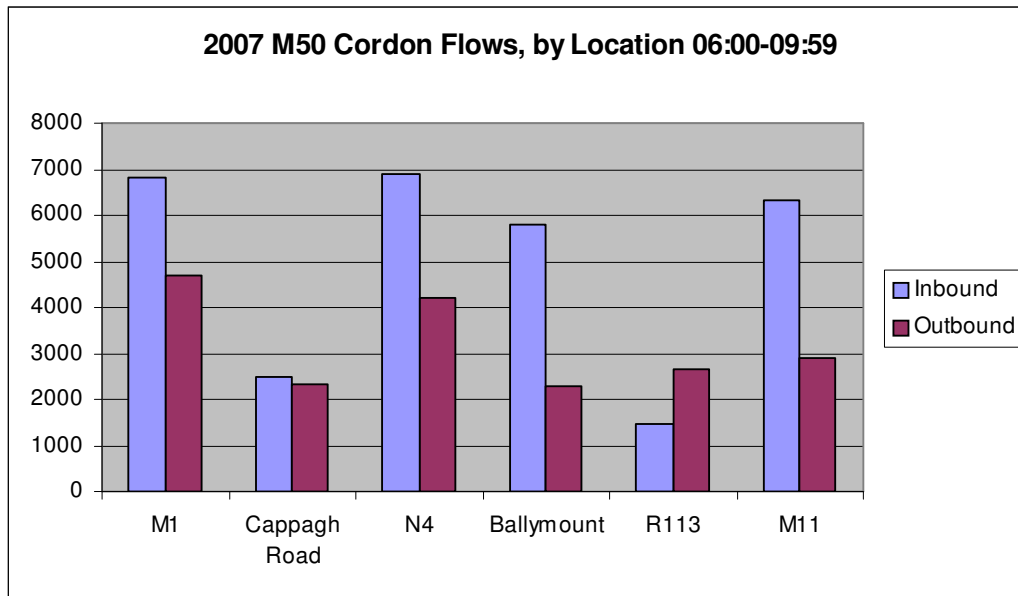
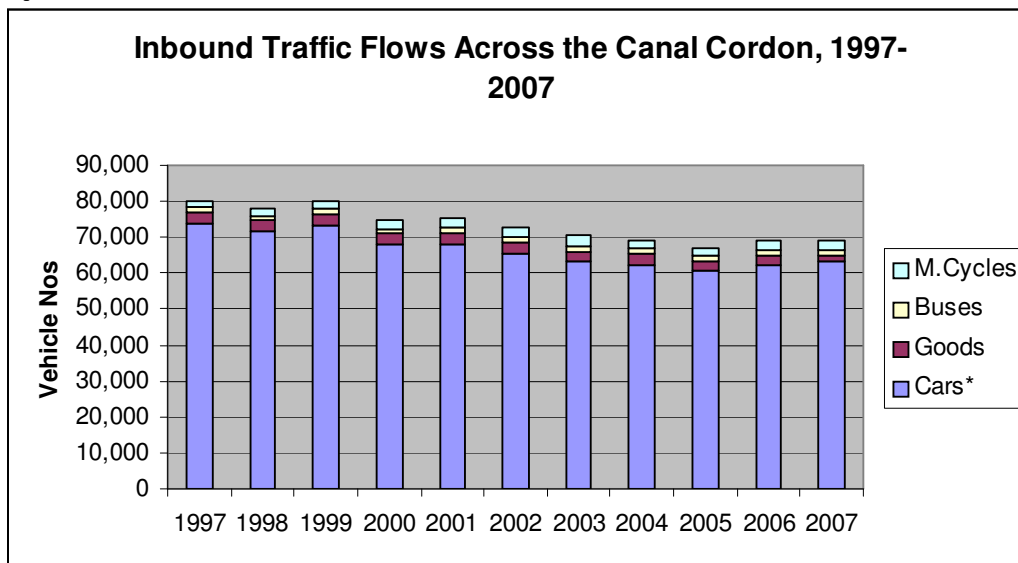


Figure 3.9 displays traffic volumes on a sample of roads crossing the M50 Cordon between 07.00 and 09.00hrs in November 2007. In the 4-hour period inbound traffic on all routes was 56% greater than the same period outbound.

G3: (C) Traffic flow on roads crossing City Centre Canal Cordon

Dublin City Council organises a Canal cordon count in November of each year. All roads crossing the Royal Canal and Grand Canal as well as other roads approaching the city centre from the west are surveyed. The count is undertaken over a 3hour period on two separate weekdays (Tuesday, Wednesday or Thursday)

Figure 3.10: 1997-2007 Inbound Traffic Flows Across Canal Cordon



*includes taxis

¹⁰ DTO November 2007 surveys

As can be seen from *Figure 3.10*, traffic flows in 2007, were almost identical with those in 2006, recording an increase of just 0.04%. It is interesting to note, however, that car movements are up slightly, while goods movements are down. Over the entire period from 1997-2007, traffic numbers have fallen by 14%.

G3: (D) Traffic flow on roads in town centre areas

Figure 3.11 presents traffic flow by vehicle type between the period 07:00 and 10:00hrs, for the surveyed road junctions at major town centres in the GDA. The graph is based on the type of traffic weather Goods, Bus or Car through junctions in the GDA. *Appendix A*.

Figure 3.11: 3-hour AM weekday traffic flow variations by traffic type (junctions in major Town Centres)

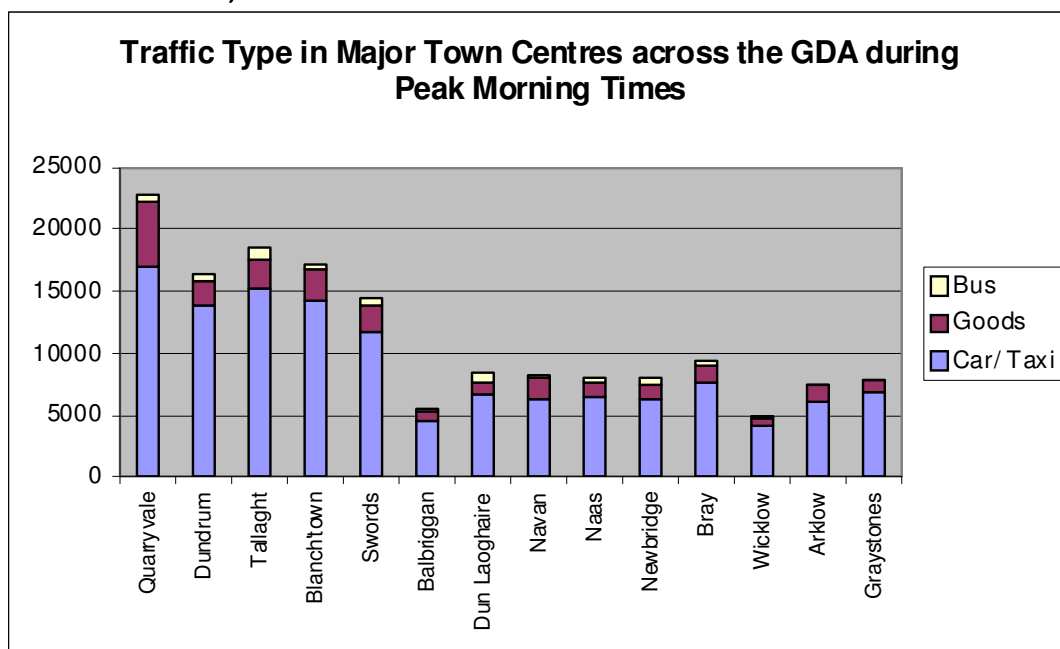
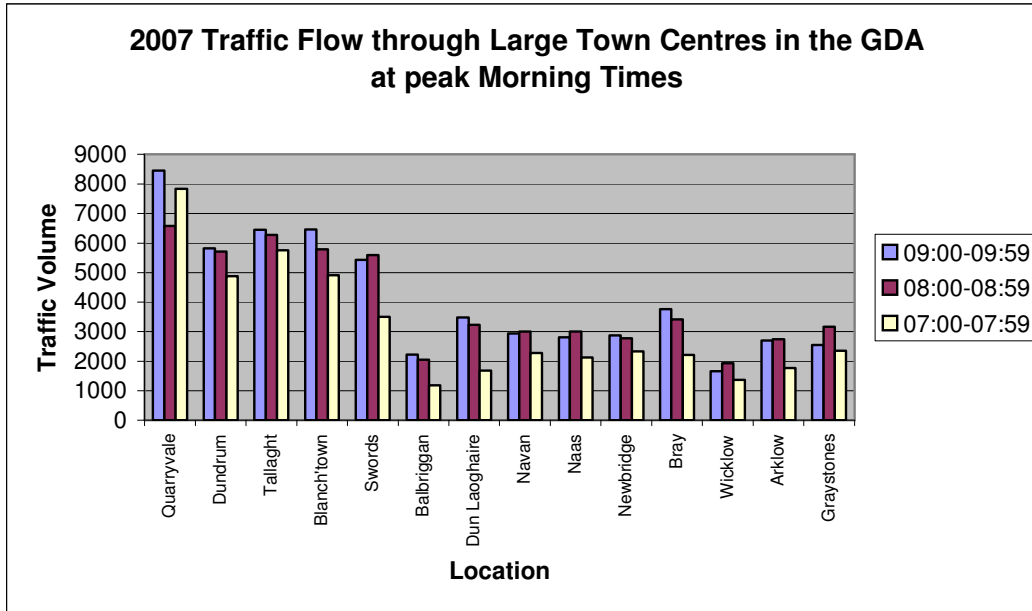


Figure 3.11 illustrates the traffic variation in morning peak (07:00-09:59hrs). Dun Laoghaire has the largest percentage of buses of its total Traffic (7.7%), while Tallaght has highest absolute number of Buses (1017). Some 23% of traffic in Quarryvale is for the transport of goods - the highest of all areas surveyed. The highest percentage use of cars/taxis was seen in Dundrum (85%) and Greystones (87%).

Figure 3.12 presents traffic counts at junctions in and approaching town centres by hourly period. The highest peaks in traffic are between 09:00 and 09:59hrs in locations within county Dublin. In outer locations such as Navan, Naas, Wicklow and Greystones peak traffic occurs between 08:00-08:59hrs.

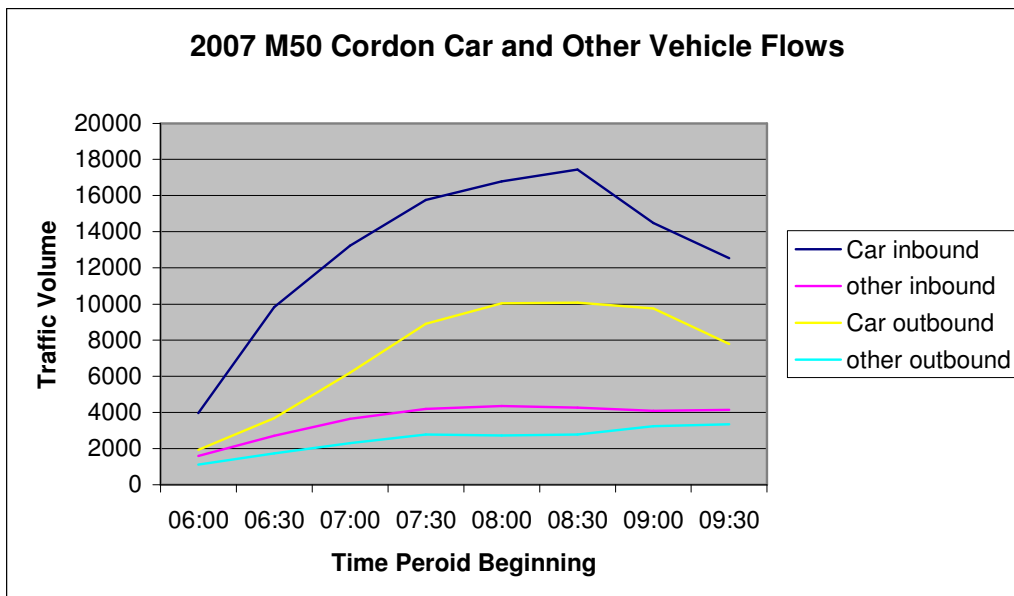
Figure 3.12: 2007 3-hour AM weekday peak traffic flow in town centres



G4: (A) Traffic flows by vehicle type crossing M50 cordon

The November 2007 DTO M50 cordon count, classified vehicles on roads crossing the M50 by vehicle type according to the following categories: Car, LGV, HGV, Dublin Bus, Other Bus, Taxi, Motor Cycle (& Pedal Cycle). The surveys were two-way (inbound and outbound) on a single Tuesday, Wednesday, or Thursday weekday between 07.00 and 19.00hrs. A sample of roads crossing the M50 were surveyed (3 national roads and 3 non-national roads)

Figure 3.13: 2007 weekday traffic flow variations of Cars (roads crossing M50)¹¹



As can be seen, the majority of 2-way vehicular flows across the sample M50 roads surveyed in the 06:00 to 10:00 time period relates to cars (73%). Car flows peak inbound and outbound at 08.30hrs.

¹¹ DTO November 2007 surveys

Other vehicles inbound are relatively stagnant where they begin to decline. Other vehicles outbound show a slow increase from 06:00 a.m. period to a peak around 10:00am.

Figure 3.14: November 2007 weekday traffic flow variations of Other Vehicles (roads crossing M50)¹²

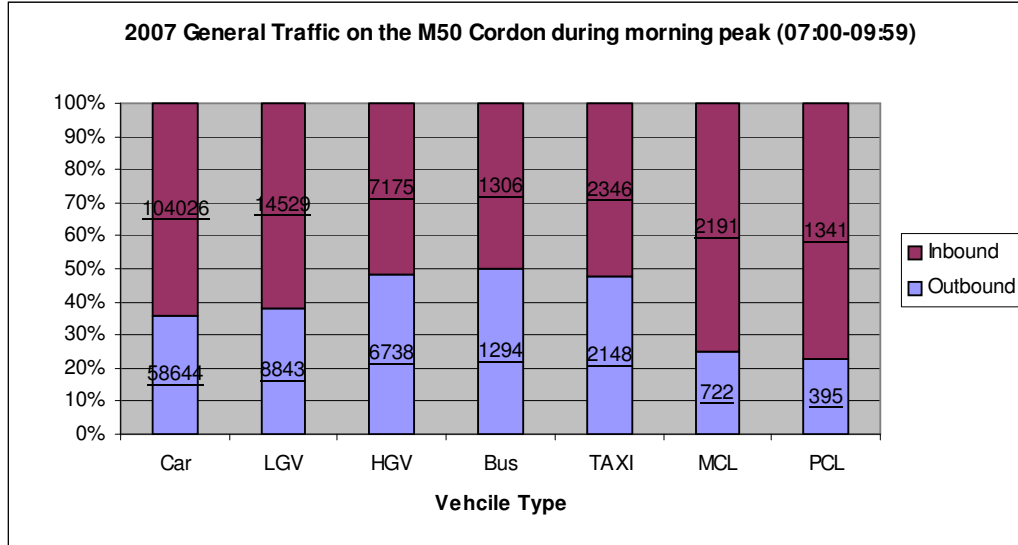


Figure 3.14 illustrates M50 cordon other vehicles by vehicle class. The above graph shows that after cars, LGVs are the most common vehicle type.

G4: (B) Traffic flows by vehicle type crossing City Centre Canal Cordon

Data on this indicator was provided in the 2007 report. Partial new data on this indicator is provided in G3, Traffic flow on roads crossing City Centre Canal Cordon, above.

G5/ G6: Average car speeds and journey times/ Reliability of car journey times

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

G8: Percentage of time that roads are congested

Data on this indicator is not available at present.

G9: Number and length of roads with weight/ height/ width restrictions

Data on this indicator is not available at present.

G10: (A) Number of personal injury road accidents

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

¹² DTO November 2007 surveys

G10: (B) Number of road accident casualties by casualty type

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

G10: (B) Number of accident casualties by road user type

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

G11: Environmental emissions attributable to road traffic (NO₂, PM10, CO and VOC)

The Environmental Protection Agency (EPA) and Dublin City Council carry out continuous multi-pollutant ambient air quality monitoring at various locations in the Dublin City area. There are no multi-pollutant monitoring sites in Meath, Kildare or Wicklow as urban areas within these counties do not automatically meet the criteria for the provision of these monitoring sites as specified by EU regulations. There are, however, a number of SO₂ and black smoke sites operated by Local Authorities in Kildare and Wicklow. The EPA also operate 3 mobile air monitoring units which are used to carry out air quality monitoring primarily in larger towns in order to determine whether fixed stations are necessary in these areas (mobile monitoring in these urban areas have indicated that pollutant levels do not require the provision of such sites). The EPA compile air quality monitoring data and produce the results in an annual report, the latest of which is Air Quality in Ireland, 2006. The multi-pollutant continuous monitoring sites monitor a wide range of emissions: Particulates (PM10), Lead, NO₂, NO_x, SO₂, CO, VOC (Benzene)

The primary source of NO₂, PM10, CO and to some extent VOC is road traffic.

The continuous monitoring sites in the Dublin City area fall into 3 categories, identified by the surrounding land uses: These are:

- City Centre: Wood Quay, College Green, Coleraine Street
- Background Urban: Phoenix Park
- Suburban: Rathmines, Ballyfermot, Marino

Table 3.4: Annual ambient air quality emission values which are directly attributable to road traffic (2004, 2005, 2006 and 2007 values)¹³

Location	City Centre								Suburban								Background							
	Wintavem St.				Coleraine St				Marino				Rathmines				Ballyfermot				Phoenix Park			
Pollutant	2004	2005	2006	2007	2004	2005	2006	2007	2004	2005	2006	2007	2004	2005	2006	2007	2004	2005	2006	2007	2004	2005	2006	2007
PM10 (µg/m ³)	20	20	19	18	20	20	21	18	14	14	16	10	17	17	19	17	14	15	17	15	12	12	14	12
NO ₂ (µg/m ³)	30	33	35	34	32	28	31	39						22	23	23	23	22	22	19				
CO (mg/m ³)	0.3	0.2	0.3	0.2	0.9	1.1	0.7	0.5																
C ₆ H ₆ (µg/m ³)	1.3	1.4												0.5	2.7	2.8								

¹³Source: EPA, Air Quality in Ireland 2007
http://www.epa.ie/downloads/pubs/air/quality/epa_air_quality_report_2007.pdf
 Source: EPA, Air Quality in Ireland 2006
http://www.epa.ie/downloads/pubs/air/quality/epa_air_quality_report_2006.pdf
 Source: EPA, Air Quality in Ireland 2005
<http://www.epa.ie/NewsCentre/ReportsPublications/AirQuality/FileUpload,10063.en.pdf>
 Source: EPA, Ambient Air Quality in Ireland 2004
<http://www.epa.ie/NewsCentre/ReportsPublications/AirQuality/FileUpload,8623.en.pdf>

PM10

Limits defined in Directive 1999/30/EC. Annual Mean limits of $40 \mu\text{g}/\text{m}^3$ came into effect in 2006. None of the monitoring stations recorded average values in excess of this limit. Over the 3-year period between 2004 and 2007, significant improvements were recorded at most monitoring stations with the greatest improvement occurring at Marino. All of the locations were compliant with the Stage 2 annual limits of $20 \mu\text{g}/\text{m}^3$ (to be achieved by 2010).

NO₂

Hourly and Annual Mean Limits defined in Directive 1999/30/EC. All stations were compliant, ($40 \mu\text{g m}^{-3}$), with the greatest improvement at Ballyfermot. The largest increase occurred in Coleraine St. Limit values come into force in 2010.

Carbon Monoxide (CO)

Limit defined in Directive 2000/69/EC. The limit value of $10 \text{ mg}/\text{m}^3$ applies to the maximum daily eight-hour mean concentrations. This limit was not exceeded at any of the fixed sites in 2006. Results were low compared to the limit value. The highest value recorded, at Coleraine St., of $0.5 \text{ mg}/\text{m}^3$, is below the lower threshold figure of $5 \text{ mg}/\text{m}^3$.

C₆H₆ (Benzene)

Limits defined in Directive 2000/69/EC. Under this directive, the annual mean level should not exceed the Upper Assessment Threshold of $5 \mu\text{g}/\text{m}^3$. Rathmines recorded a level of $2.8 \mu\text{g}/\text{m}^3$. This was the only station monitored to exceed the Lower Assessment Threshold of $2 \mu\text{g}/\text{m}^3$ indicating an increase in the level of benzene in the atmosphere. C₆H₆ values monitored do not represent an improvement over the 2003 situation.

G12: Number of locations where road traffic noise levels exceeds agreed standards
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Data on this indicator is not available at present.

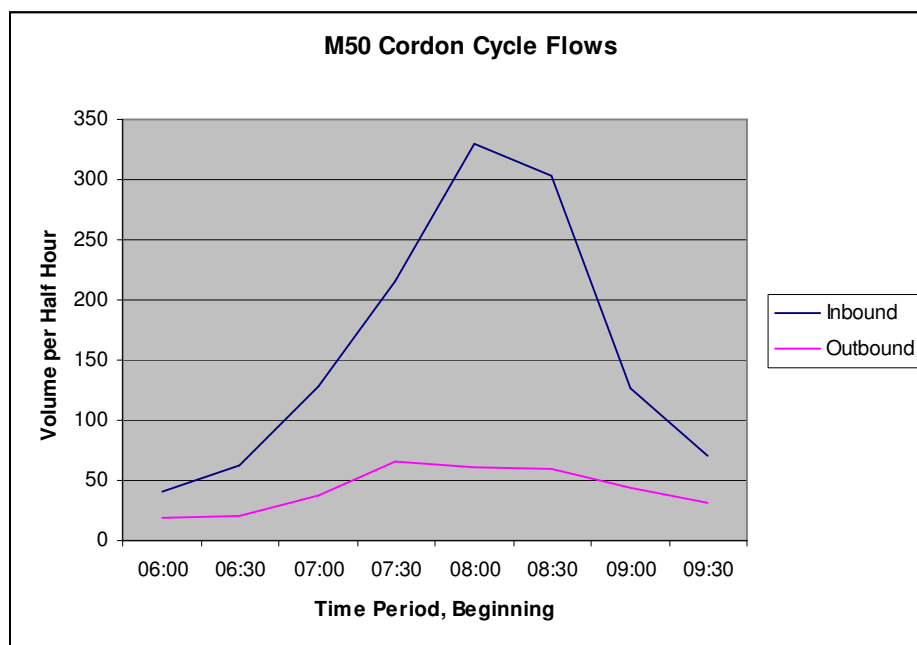
4. Cycling

C1: (A) Cycle flows across M50 cordon

The M50 cordon count, organised by the DTO in November 2007, counted 2-way cycle flows on a sample of roads crossing the M50 on a single Tuesday, Wednesday or Thursday weekday between 06:00 and 10:00hrs.

Figure 4.1 presents cycle flow variations across a sample of roads crossing the M50. Count site locations are illustrated in **Appendix A**. In total, 1279 inbound and 339 outbound cyclists were counted crossing the M50 Cordon in the 4-hour survey period. The morning peak period occurred between 07:30-08:00hrs.

Figure 4.1: November 2007 weekday cycle flow variations (all roads crossing M50) ¹⁴



C2: (B) Cycle flows crossing City Centre Canal cordon

Dublin City Council organises a Canal Cordon count in November of each year. All roads crossing the Royal Canal and Grand Canal as well as other roads approaching the city centre from the west are included in this annual survey. The count is undertaken over a 4-hour period on two separate weekdays (Tuesday, Wednesday or Thursday). Inbound and outbound cyclists were surveyed between 06:00 and 10:00hrs each day.

Figure 4.2 presents inbound cycle flow variations between 07:00 and 10:00hrs in 1997-2007 based on the average flow over 2 days across all canal cordon-crossing points. Count site locations are illustrated in **Appendix A**.

During the AM peak cyclist numbers increased by 44% between 2004 and 2007. The increase between 2006 and 2007 was 17%.

¹⁴ Source: DTO November 2007 surveys

Figure 4.2: November 1997-2007 morning peak weekday cycle flows across the Canal Cordon ¹⁵

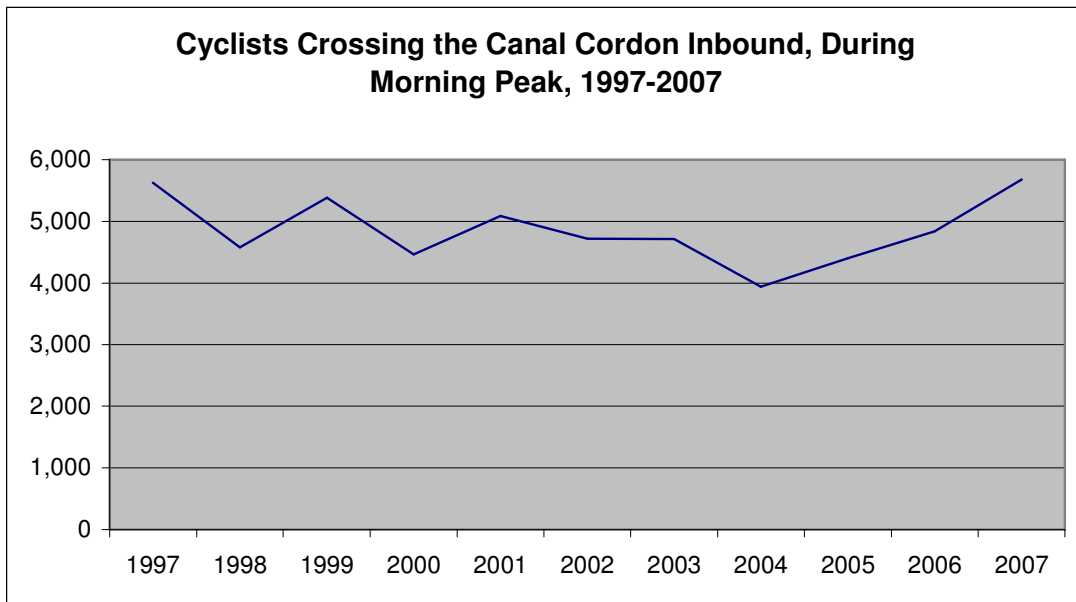
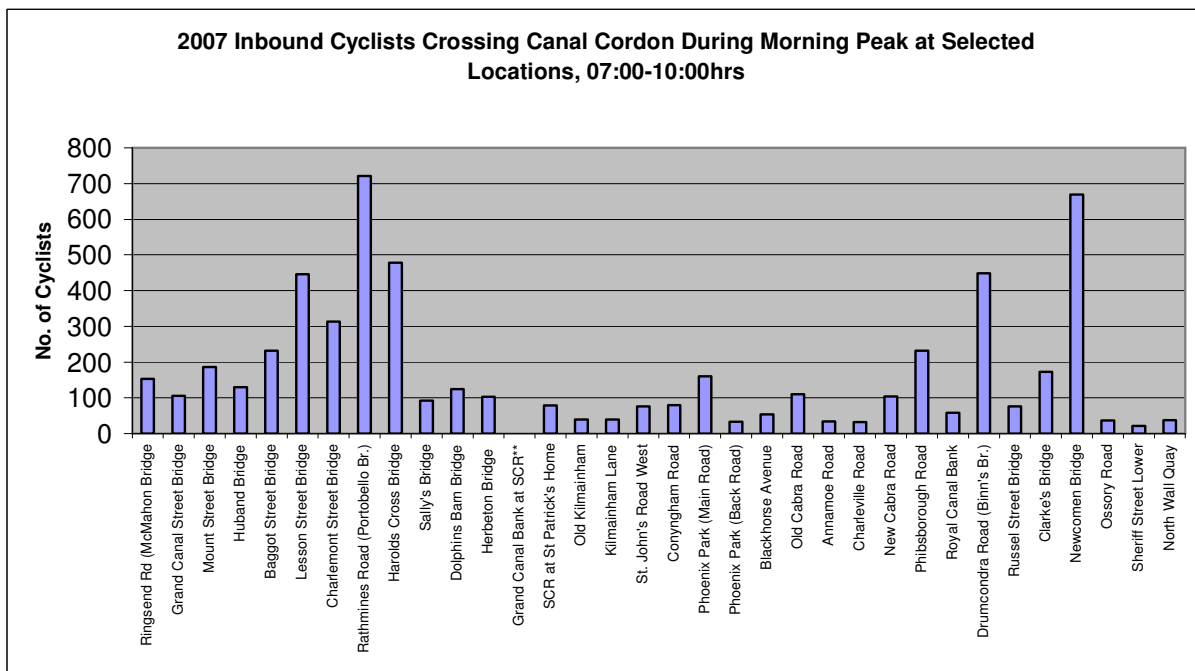


Figure 4.3 illustrates inbound morning peak (07:00-10:00hrs) cycle flows across the Canal cordon by location. On the north side of the city, Newcomen Bridge and Drumcondra Road are the main corridors for cyclists, with 11.8% and 7.9% of overall cycle flows respectively. On the south side, Rathmines Road and Harold’s Cross Bridge are the main corridors with a 12.7% and 8.4% share respectively.

Figure 4.3: November 2007 12-hour weekday cycle flows across the Canal Cordon ¹⁶



¹⁵ Source: DCC 2004, 2007 surveys

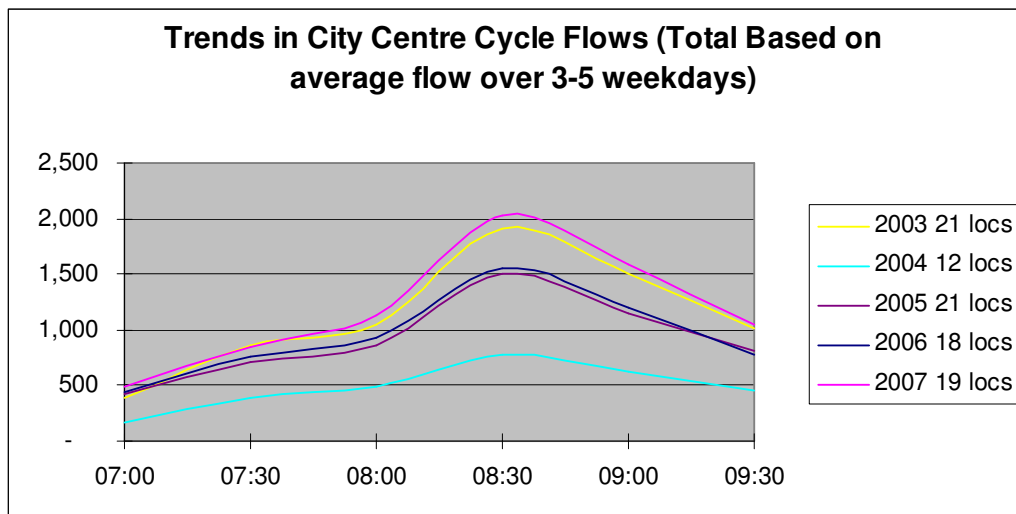
¹⁶ Source: DCC 2007 survey

C2: (C) Cycle link counts at City Centre locations

As part of the November 2007 Surveys organised by the DTO, two-way cycle only link counts were undertaken at a total of 20 locations in the city centre. Some or all of these locations were also surveyed in 2005, 2006 and 2007. The cycle counts were undertaken on 5 separate weekdays (either a Tuesday, Wednesday or Thursday) between 07:00 and 10:00hrs. Count site locations are illustrated in *Appendix A*.

Figure 4.4 illustrates the variation in cycle flows by half-hour time period over the 3-hour survey period (average flows over the 5-day survey period). Two-way cycle flows peak during the half hour period beginning at 08.30hrs.

Figure 4.4: November 2007 AM peak weekday cycle flows at City Centre count locations ¹⁷



¹⁷ Source: DTO November 2003-2007 surveys

Figure 4.5: November 2004, 2006 and 2007 3-hour AM peak weekday cycle flow comparisons by city centre location¹⁸

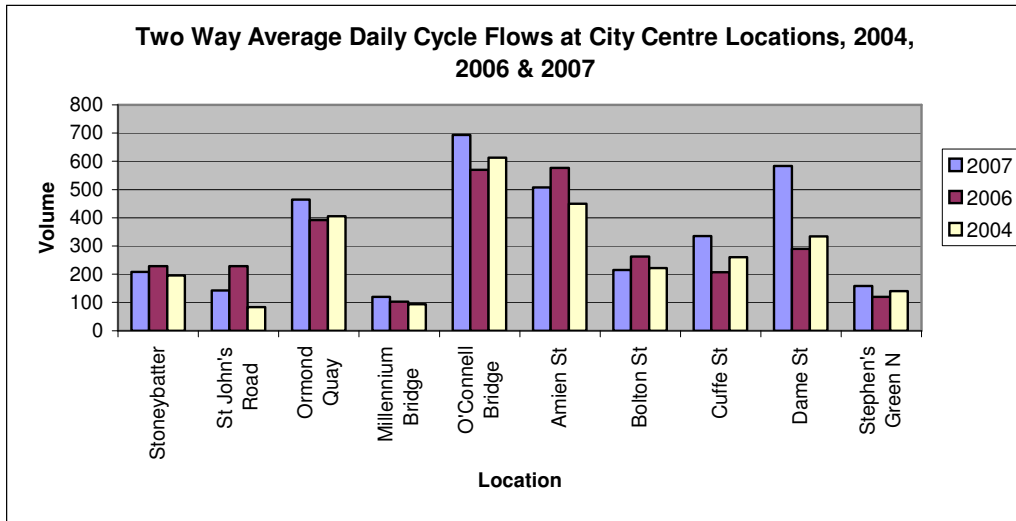


Figure 4.5 illustrates the change in the number of cyclists at a variety of city centre locations between 2004, 2006 and 2007. There has been a 15% rise in the number of cyclists recorded in 2007, when compared with 2006. The largest increase occurred on Dame Street (101%) while the largest decrease occurred on Saint John's Road (-37%).

Figure 4.6: November 2007 3-hour AM peak weekday cycle flow comparisons by city centre location¹⁹

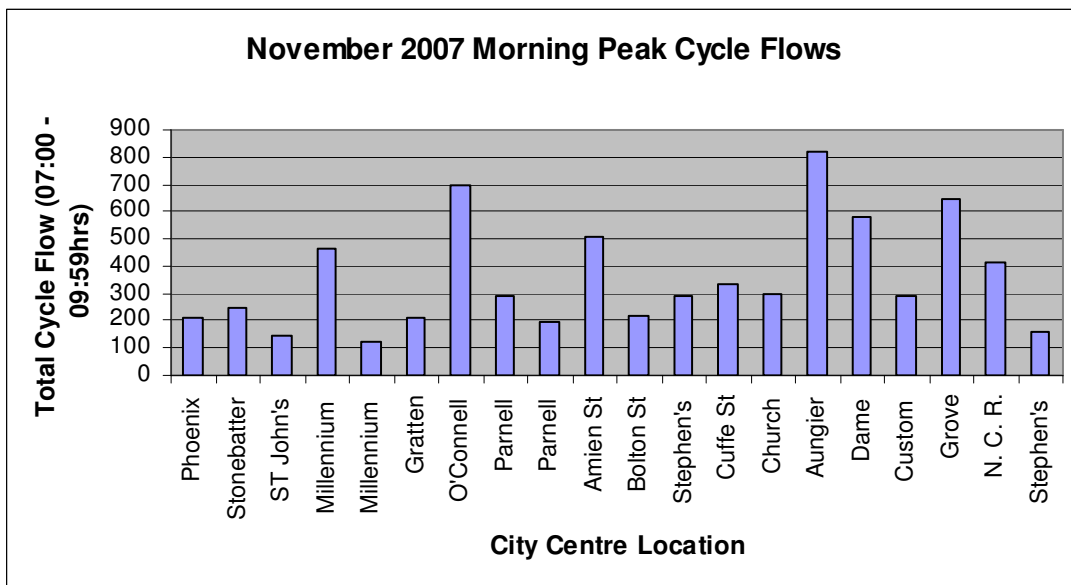


Figure 4.6 presents a view of the a.m. location of cyclists in the city. Of the areas surveyed, O'Connell Bridge (693) and Amiens St (507) on the Northside and Aungier St (823) and Grove Road (643) on the Southside are the busiest areas for cyclists during this time period.

¹⁸ Source: DTO November 2004, 2006, 2007 surveys

¹⁹ Source: DTO November 2007 surveys

C2: (D) Cycle flow on roads in town centre areas

Junction cycle counts in and approaching town centres were organised by the DTO and were carried out in November 2007. The counts were carried out on 5 separate weekdays (either a Tuesday, Wednesday or Thursday) between 07:00 and 10:00hrs in and approaching the following centres in the Metropolitan Area of Dublin as defined by the Regional Planning Guidelines. The results are displayed in *Table 4.1, below*.

Table 4.1: November 2007 AM weekday peak traffic flow comparisons by Town Centre (Town Centre Junctions)

Location	Location No.	Junction	Time Period Beginning						Total: 07:00 - 09:59
			07:00	07:30	08:00	08:30	09:00	09:30	
South Dublin Co. Co.									
Quarryvale	1	Coldcut Road / Fonthill Road	6	8	9	13	7	3	45
	2	Fonthill Road / Quarryvale Entry Rbt	10	16	21	21	18	13	99
	3	Coldcut Road / Quarryvale Entry Rbt	3	12	13.5	12	6	2	49
	4	Coldcut Road / South entrance to Liffey Valley S.C	8	17	19	11	7	5	65
Quarryvale Total:			27	52	62	56	37	23	257
Dundrum	5	Dundrum Bypass (R117)/ Taney Road (R112)	19	33	39	75	55	39	260
	6	Sandyford Road/Wyckham Way	6	10	16	26	15	7	80
	7	Dundrum Bypass (R117)/Wyckham Way	6	18	14	31	20	10	98
Dundrum Total:			31	61	69	132	90	55	437
Tallaght	8	Belgard Road / Main Street	8	16	14	16	8	7	68
	9	Belgard-Sq-Nth / Belgard-Sq-east	10	15	17	21	12	8	82
	10	Belgard-Sq-Nth / Belgard-Sq-west	9	12	15	16	5	3	59
	11	Belgard-Sq-Sth / Belgard-Sq-east	0	1	3	2	1	0	7
	12	Belgard-Sq-Sth / Belgard-Sq-west	4	13	4	13	6	3	44
Tallaght Total:			30	56	52	67	32	21	259
Fingal Co. Co.									
Blanch'town	13	Blanchardstown T.C. 1	12	15	11	63	6	6	113
	14	Blanchardstown T.C. 2	1	1	2	2	1	0	7
	15	Blanchardstown T.C. 3	4	7	12	36	7	6	71
	16	Blanchardstown T.C. 4	19	26	30	119	23	13	229
Blanchardstown Total:			36	50	55	220	36	25	420
Swords	17	Dublin Street/ Malahide Road	4	7	8	15	8	4	44
	18	Bridge Street/ Main Street	5	4	5	12	4	4	33
	19	Dublin Street/ Forest Road	6	2	7	10	4	2	31
	20	Church Road/ Brackenstown Road	0	2	2	1	3	8	16
	21	Bridge Street/ Watery Lane	3	5	4	11	7	4	34
Swords Total:			18	19	25	49	26	21	158

Balbriggan	22	R122/ R132	2	4	2	1	2	0	11
	23	R132/ R127	5	5	4	5	5	5	28
	Balbriggab Total:		7	9	6	7	6	5	39
Dun Laoghaire Rathdown Co. Co.									
Dun Laoghaire	24	York Road/ Cumberland Street	4	7	5	12	17	10	55
	25	Georges Street Lower/ Marine Road	2	5	9	14	13	8	50
	26	Georges Street Lower/ Park Road	2.5	6	14	16	16	14	69
	27	Marine Road/ Queens Road	4	6	11	7.5	10	6	44
Dun Laoghaire Total:		13	23	39	50	57	38	219	
Meath Co. Co.									
Navan	28	N3/ N51/ R153	4	10	10	14	11	7	55
	29	N51/ R161	2	5	3	7	4	2	24
	Navan Total:		7	15	13	21	15	9	78
Kildare Co. Co.									
Naas	30	R407 Sallins Road/ R445 Main Street	9	8	8	5	7	5	41
Newbridge Co. Co.									
Newbridge	32		3.25	3.25	4	4	2.75	1	18
	33	R416/ R445/ R445 junctions (2 junctions, all junction arms)	9.25	11.75	14.75	22	10	4.5	72
	Newbridge Total:		13	15	19	26	13	6	91
Wicklow Co. Co.									
Bray	34	Dublin Road/ Upper Dargle Road	10	21	18	20	18	16	103
	35	Main Street/ Quinsborough Road	8	21	18	16	10.5	7.75	81
	36	Main Street/ Vevay Road	5.5	12.75	9.75	8.25	8	5	49
	Bray Total:		24	55	46	44	36	29	234
Wicklow	37	R751/ R750 (<i>Single Days Count</i>)	0.5	1	0.5	1.25	0.25	0.25	4
	Wicklow Total:		1	1	1	1	0	0	4
Arklow	38	N11/ R750	4.25	5.25	5	0.75	1.75	2.25	19
	39	N11/ R747	3	3.75	2.5	1	1	1	12
	Arklow Total:		7	9	8	2	3	3	32
Greystones	40		0.25	1.25	2.25	0.25	0.75	0.75	6
	41	R761/ R762 (2 junctions, all junction arms)	0.5	0.75	1.25	0	0.75	0.75	4
	Greystones Total:		1	2	4	0	2	2	10
Summary Information, All Town Centre Junction Counts:									
			224	382	410	681	363	245	2305

Figure 4.7: November 2007 AM weekday peak traffic flow comparisons by Town Centre (Town Centre Junctions)²⁰

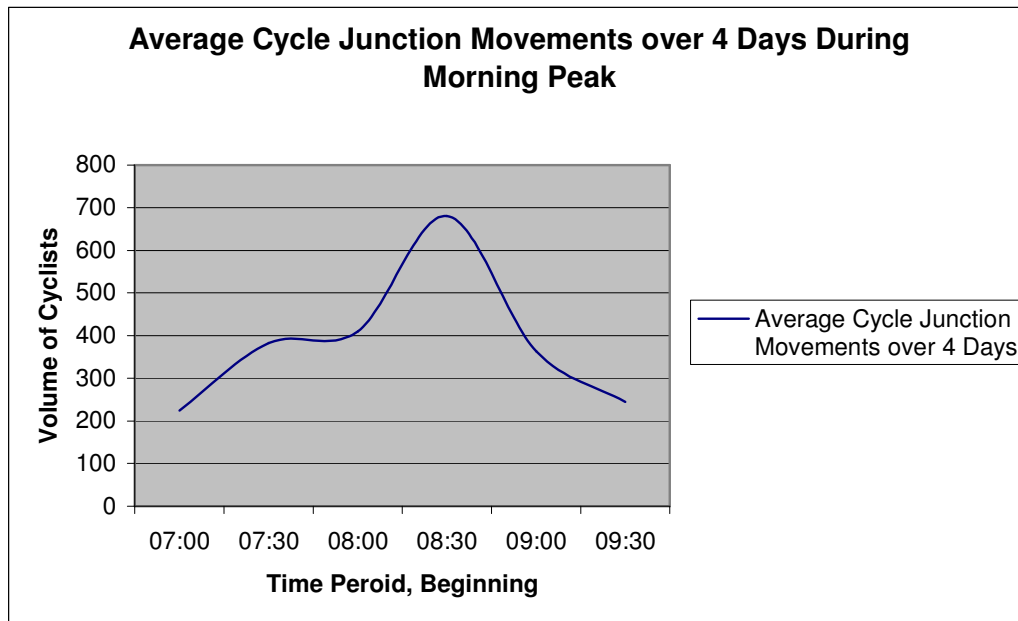


Figure 4.7 presents the number of cyclists at 41 town centre junctions in five county councils (South Dublin, Fingal, Dun Laoghaire Rathdown, Meath, Kildare. and Wicklow) within the GDA during the a.m. peak (07.00 - 09.59hrs). As with the city centre counts, the peak of number of cyclists was recorded during the half hour time period beginning 08:30hrs.

C3: Length of Cycle Network

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

C4: Cycle Network Features

Data on this indicator was provided in the 2007 report. No additional data on this indicator has been published in the interim.

C5: Number of cycle parking spaces at selected sites

There are c. 2000 parking spaces for cycles in an area Parnell Square to Stephen’s Green and from Amiens St./ Westland Row to Capel St./Parliament St on 2-bike Sheffield stands or equivalent²¹.

There are 1146 spaces for parking bicycles (other than those within the city centre quarter described above) adjacent to existing cycle lanes / tracks within the region.

C6: Usage of cycle parking spaces

DTO undertook surveys of cycle parking usage (occupancy and turnover) in May/ June 2004. The results of these surveys were included in the 2005 Road User Monitoring Report.

C7: Cyclist satisfaction

Data not available.

²⁰ Source: *DTO November 2007 survey*
²¹ Communication from DCC 12 December, 2008

5. Pedestrians

P2: Number of pedestrians crossing City Centre Canal Cordon

Dublin City Council organises a Canal cordon count in November of each year. All roads crossing the Royal Canal and Grand Canal as well as other roads approaching the city centre from the west are included in this annual survey. The count is undertaken over a 12-hour period on two separate weekdays (Tuesday, Wednesday or Thursday). Inbound pedestrians were counted between 07:00 and 16:00hrs each day and outbound cyclists between 16:00 and 19:00hrs.

Figure 5.1 presents inbound pedestrian flows, during the morning peak in November. Count site locations are illustrated in *Appendix A*.

Across all the Canal Cordon crossing points, inbound pedestrian numbers have varied from a low of 15,565 in 1998 to a high, of 18,594 in 2007. Flows in 2007 were 8.7% higher than those recorded in 2006.

Figure 5.1: November 1997- 2007 AM Peak inbound pedestrian flow²²

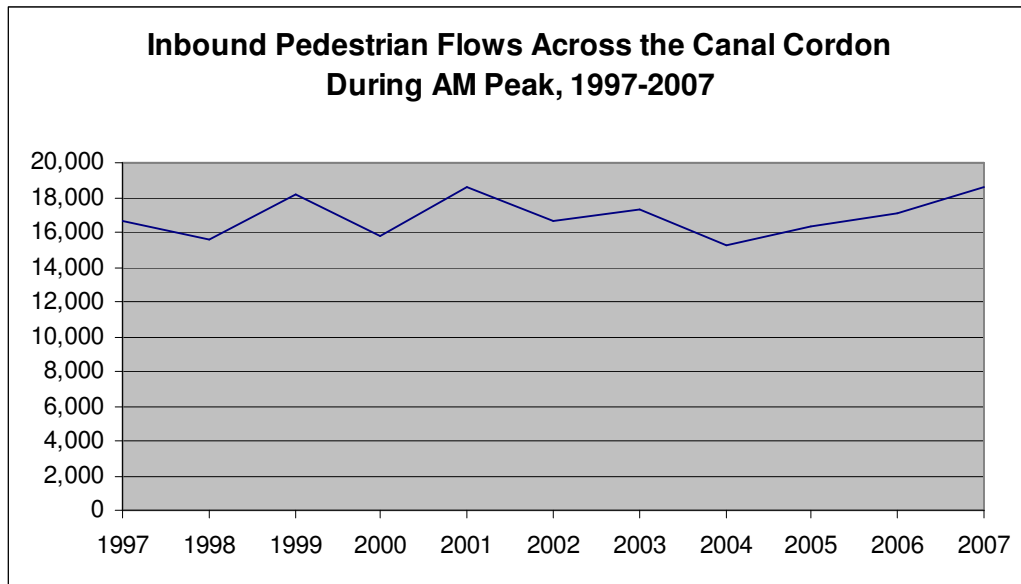
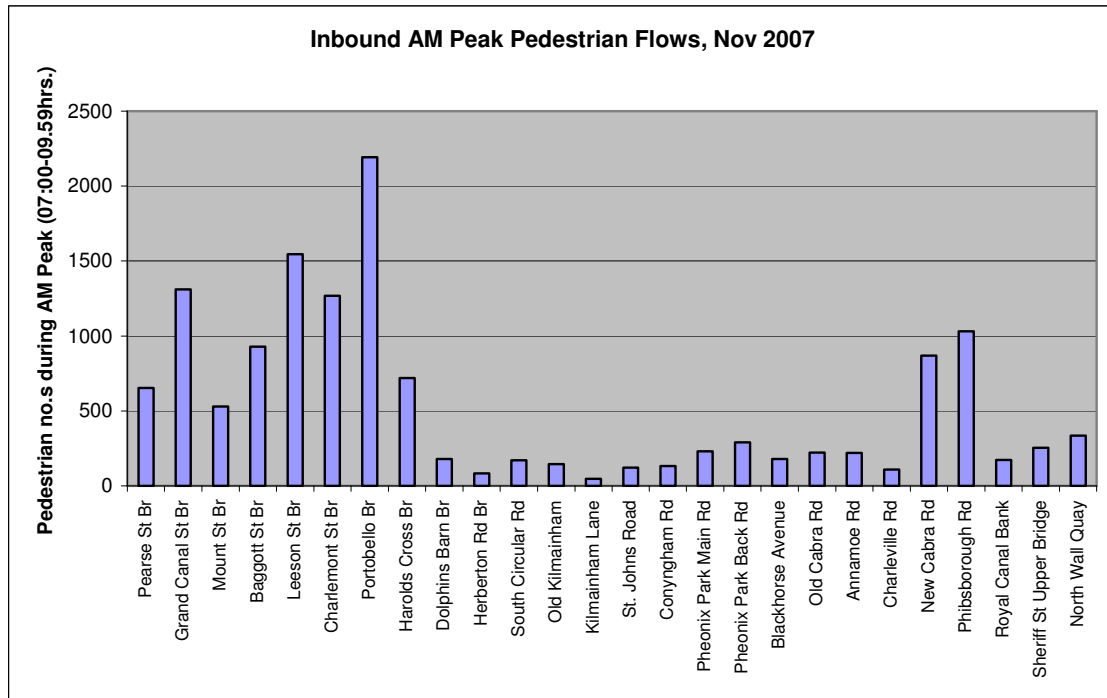


Figure 5.2 breaks down inbound am peak pedestrian flows in 2007 by a selected number of locations. As can be seen, pedestrian flows over Portobello Bridge are highest, at 16% of total flow, or 2,194 pedestrians.

²² Source: DCC November 1997-2007 surveys

Figure 5.2: November 1997- 2007 AM Peak inbound pedestrian flow²³



P3 : Number of pelican/ zebra crossings

Data not available.

P4 : Number of signalised junctions with pedestrian facilities

Data not available.

P6: (A) Pedestrian facility and waiting time surveys at major junctions in Dublin City Centre

The DTO organised a survey of pedestrian facilities at major city centre junctions in April/ May 2008. These survey locations are presented in a map in *Appendix A*.

In total, 22 junctions were selected in the City Centre, all of which were junctions between roads of a regional/ regional, regional/ national or national/ national classification. Pedestrian wait time surveys were surveyed at the same time of year in 2004 and 2007 at all 22 of the junctions surveyed. Pedestrian wait time surveys at 9 of the junctions surveyed in 2006 were also surveyed in 2005.

The surveys checked the existence of various signalised pedestrian crossing facilities across each of the arms of the junction and where signalised pedestrian crossing facilities were present, the maximum waiting times experienced by pedestrians while crossing at the signalised pedestrian crossings was recorded. Surveys were undertaken between 07:00 to 10:00hrs on a Tuesday, Wednesday or Thursdays.

The surveys of maximum pedestrian waiting times were undertaken as follows:

Surveyor waited at the first crossing point for the orange/ red man to appear, pressed pedestrian signals activation button and simultaneously started the stopwatch and waited on that side until the green man appeared. The stopwatch was then stopped and the time shown

²³ Source: DCC November 1997-2007 surveys

on the clock recorded. This represented the 'pedestrian waiting time'. This exercise was repeated on 2 separate occasions for all arms in each crossing direction to record 2 sets of waiting times per direction of crossing for each junction arm during the 07:00 to 10:00hrs period.

Where there was an interruption to the crossing (e.g. pedestrian island), and the surveyor was unable to complete the full crossing of the junction arm within the green signal time, then the pedestrian signals activation button was immediately pressed upon reaching the island while simultaneously starting the stopwatch (while waiting on the island) and then stopped as soon as the green man appears. This was repeated in the same manner where more than 2 interruptions to the junction arm crossing were involved. In all situations involving interrupted junction arm crossings the full combined time was recorded to derive the pedestrian waiting time. All sites with such interruptions (pedestrian/ centre islands) were noted.

Table 5.1 shows out the pedestrian facilities present and the maximum waiting time recorded at each junction arm for the surveyed junctions in the City Centre. The average maximum waiting time for each junction (i.e. average of the maximum waiting times in both directions across all signalised junction arms) is also indicated.

Table 5.1: Pedestrian facilities and pedestrian wait time survey results at selected major junctions in the City Centre²⁴

Location No.	Junction (City Centres)	No. of arms	No. of arms with dropped kerb	No. of arms with ped. signals present	No. of arms with audible signals present	No. of arms with tactile paving present	No. of arms with ped. gaurdrails	Are all Junction Crossing Movements feasible with Ped Crossing Facilities?	Maximum Waiting Time across a Single Junction Arm	Average Maximum Waiting Time across all Signalised Junction Arms
1	Leeson St Lower/ Earlsfort Terrace *	4	4	4	0	4	0	Yes	02:13	01:51
2	North Circular Rd/ Old Cabra Rd*	4	4	4	4	4	2	Yes	02:08	01:50
3	Westmorland St/ College St*	3	3	3	3	3	0	Yes	*03:13	*02:03
4	Dame St/ South Great Georges St*	3	3	3	3	3	0	Yes	*03:06	*01:54
5	High St/ Nicholas St*	4	4	3	2	4	2	Yes	04:37	02:40
6	Parnell Rd/ Crumlin Rd*	4	3	3	3	3	2	Yes	03:06	02:18
7	Parnell St/ Gardiner St Lower *	4	4	2	2	3	1	No	02:04	01:38
8	Amiens St/ Seville Place *	4	2	1	0	1	1	No	01:54	01:54
9	Dorset St Lower/ Gardiner St Upper*	4	3	3	3	3	3	Yes	03:18	02:10
10	North Strand Row/ Poplar Row	4	3	2	2	2	0	No	02:00	01:28
11	Church St/ King St North	4	4	4	2	4	2	Yes	04:08	02:14
12	Dorset St Upper/ Granby Row	4	4	2	2	2	0	No	02:04	01:47
13	Parnell St/ O'Connell St	4	4	4	3	4	1	Yes	03:18	02:09
14	Custom House Quay/ Tara St Bridge	4	4	4	4	4	1	Yes	02:12	01:55
15	Thomas St/ Bridgefoot St	4	2	2	2	2	1	No	03:11	02:17
16	Aston Quay/ D'Olier St	5	5	5	4	4	4	Yes	03:49	02:16
17	Pearse St/ Macken St	4	3	1	1	1	0	No	01:58	01:55
18	Westland Row/ Lincoln Place	3	3	3	0	3	0	Yes	03:31	02:28
19	Cuffe St/ Wexford St	4	4	4	3	4	0	Yes	02:47	02:05
20	St. Stephens Green / Dawson St	3	3	3	3	0	0	Yes	*01:10	*01:02
21	South Circular Rd/ Clanbrassil St	4	4	2	2	2	0	No	01:54	01:54
22	Pembroke Rd/ Northumberland Rd	4	3	3	2	3	2	No	02:25	01:58

	Total no. of arms	Total no. with dropped kerb	Total no. with ped. signals	Total no. with audible signals	Total no. with tactile paving	Total no. with ped. gaurdrails	Total no. with all movements feasible:	Maximum Value:	Average Value:
	85	89%	76%	58%	74%	26%	64%	04:37	02:02

*Highlighted times indicates that a pedestrian signal was not out of order.

²⁴ Source: DTO July/ August 2008 Surveys

As can be seen from the above table, 76 or 89% of the junction arms surveyed had dropped kerbs, 50/ 85 or 58% had audible signals present, 63/ 85 or 74% had tactile paving in place.

65/ 85 or 76% of the junction arms surveyed had signalised pedestrian crossing facilities present. It was possible to make crossings (either directly or indirectly) of the full junction at 14/ 22 or 64% of the junctions surveyed.

The maximum waiting time across a single junction arm measured at the 22 junctions surveyed was 4:37 minutes, recorded at the junction of High Street/ Nicholas Street. This time was measured in a westbound direction across the Nicholas Street arm of the junction. This represents the maximum actual waiting time that could be experienced by a pedestrian (i.e. if the pedestrian arrived at the junction just as the pedestrian green man turned orange/ red) while crossing any of the signalised junction arms surveyed.

The average maximum waiting time (average of the maximum waiting times in both directions across all signalised junction arms) across the sample of 22 major junctions was 2:02 minutes. This represents an increase over the corresponding 2007 value of 1:59 minutes.

Table 5.2 provides a comparison between the 2005, 2006, 2007 and 2008 pedestrian wait time survey results for the 9 major junctions surveyed in all 3 years. As can be seen from this table, maximum pedestrian wait times at junction arm increased at 6 of the 9 junctions surveyed between 2004 and 2007. Maximum waiting times across all signalised junction arms increased at 8 of the 9 junctions surveyed between 2004 and 2007.

Table 5.2: 2004-2007 pedestrian wait time comparison at selected major junctions in the City Centre²⁵

Location No.	Junction (City Centres)	2008 Maximum Waiting Time across a Single Junction Arm	2007 Maximum Waiting Time across a Single Junction Arm	2006 Maximum Waiting Time across a Single Junction Arm	2005 Maximum Waiting Time across a Single Junction Arm	2005 - 2008 Difference Max Waiting Time across a Single Junction Arm
1	Leeson St./ Earlsfort Terrace/ St. Stephens Green	02:13	02:23	02:20	02:19	(00:06)
2	North Circular Rd/ Old Cabra Rd./ Prussia St.	02:08	02:08	02:18	01:42	-(00:26)
3	College St. / Westmoreland St.	*03:13	02:07	02:31	02:46	-(00:27)
4	Dame St/ South Great Georges St	*03:06	01:59	01:54	01:58	-(01:08)
5	High St/ Winetavern St./ Christ Church	04:37	04:03	03:59	04:22	(00:05)
6	Crumlin Rd./ Dolphin Rd./ Parnell Rd.	03:06	03:06	03:06	03:01	(00:04)
7	Parnell St/ Gardiner St Lower	02:04	02:08	01:54	01:54	-(00:10)
8	Amiens St./ Portland Row	01:54	01:55	01:53	01:53	-(00:01)
9	Dorset St./ Gardiner St.	03:18	03:20	03:12	03:13	-(00:05)
		2008 Max Value	2007 Max Value	2006 Max Value	2005 Max Value	Max Value
		04:37.0	04:03.0	03:59.0	04:22.0	0:10

P6: (C) Pedestrian wait time at junctions in outer town centre areas

The DTO organised a survey of pedestrian facility and pedestrian waiting times at major junctions in outer town centres in November 2007.

Surveys were undertaken between 07:00 to 10:00hrs on a single Tuesday, Wednesday or Thursdays, using the same survey methodology as described in P6 (A) above.

Table 5.3 illustrates the results of the pedestrian facility surveys at the town centre junctions surveyed. Of the 21 junctions surveyed, 14 of the junctions in November 2007 had signalised pedestrian facilities on all arms of the junction.

²⁵ Source: DTO July/ August 2008 Surveys

Table 5.3: 2007 pedestrian wait times in Town Centres ²⁶

Location No.	Location	Junction	No. of Junction Arms with Pedestrian Crossing Facilities	Are all Junction Crossing Movements feasible with Ped Crossing Facilities?	Maximum Waiting Time across a Single Junction Arm	Average Maximum Waiting Time across all Signalised Junction Arms
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South Dublin Co. Co.

A4	Quarryvale	Coldcut Road/ Liffey Valley Access	5 of 5		01:55	01:27
<i>Quarryvale Summary Information:</i>			<i>No. with Ped Crossing Facilities at all arms</i>	<i>Total</i>	<i>Of: Max Value</i>	<i>Average Value</i>
			1 out of 1		01:55	01:27

A5	Dundrum	Taney Cros	8 of 8		02:02	02:02
A7		Sandyford Road/ Overend Way	7 of 7		02:08	01:25
<i>Balbriggan Summary Information:</i>			<i>No. with Ped Crossing Facilities at all arms</i>	<i>Total</i>	<i>Of: Max Value</i>	<i>Average Value</i>
			2 out of 2		02:08	02:02

A8	Tallaght	Belgard Road/ Main Road	4 of 4		02:11	01:30
<i>Tallaght Summary Information:</i>			<i>No. with Ped Crossing Facilities at all arms</i>	<i>Total</i>	<i>Of: Max Value</i>	<i>Average Value</i>
			1 out of 1		02:11	01:30

Fingal Co. Co.

A17	Swords	Malahide Road/ Dublin Road/ Main Street	3 of 3	Yes	01:37	01:35	
A18		Bridge Street/ Main Street	3 of 3	Yes	02:01	01:56	
A19		Dublin Road/ Forest Road	2 of 3	Yes	01:56	01:53	
A21		Rathbeale Road/ Watery Lane	3 of 3	Yes	01:52	01:45	
<i>Swords Summary Information:</i>			<i>No. with Ped Crossing Facilities at all arms</i>	<i>Total</i>	<i>Of: Max Value</i>	<i>Average Value</i>	
			3 out of 4	4	4	02:01	01:56

A22	Balbriggan	A22 R122/ R132	3 of 3	Yes	01:53	01:28	
<i>Balbriggan Summary Information:</i>			<i>No. with Ped Crossing Facilities at all arms</i>	<i>Total</i>	<i>Of: Max Value</i>	<i>Average Value</i>	
			1 out of 1	1	1	01:53	01:28

Dun Laoghaire Rathdown Co. Co.

A24	Dun Laoghaire	York Road/ Cumberland Street	4 of 4	Yes	01:38	01:33
A25		Georges Street Upper/ Marine Road	2 of 3	Yes	02:05	01:34

²⁶ Source: DTO Surveys, November 2007

A26		Georges Street Upper/ Park Road	4 of 4	Yes	01:35	01:34	
A27		Marine Road/ Queens Road	4 of 4	Yes	02:04	02:01	
Dun Laoghaire Summary Information:			No. with Ped Crossing Facilities at all arms	Total	Of:	Max Value	Average Value
			3 out of 4	4	4	02:05	02:01

Meath Co. Co.

A28	Navan	N3/ N51/ R153 (<i>Single Days Count</i>)	1 of 4	No	02:30	02:30	
Navan Summary Information:			No. with Ped Crossing Facilities at all arms	Total	Of:	Max Value	Average Value
			0 out of 1	0	1	02:30	02:30

Kildare Co. Co.

A30	Naas	R407 Sallins Road/ R445 Main Street	2 of 3	Yes	02:08	02:08	
A31		R445/ R448	3 of 3	No	02:20	02:20	
Naas Summary Information:			No. with Ped Crossing Facilities at all arms	Total	Of:	Max Value	Average Value
			1 out of 2	1	2	02:20	02:20

A37	Newbridge	Main Street / Dublin Road / Canning Place Athgarvan Road	5 of 5		01:26	01:26	
Naas Summary Information:			No. with Ped Crossing Facilities at all arms	Total	Of:	Max Value	Average Value
			1 out of 1			01:26	01:26

Wicklow Co. Co.

A34	Bray	Dublin Road/ Upper Dargle Road	2 of 3	Yes	01:28	01:17	
A36		Main Street/ Vevay Road	2 of 3	Yes	01:30	01:30	
Bray Summary Information:			No. with Ped Crossing Facilities at all arms	Total	Of:	Max Value	Average Value
			0 out of 2	2	2	01:30	01:30

A33	Wicklow	Main Street / Herbert Road / Quinsborough Road	4 of 4		02:00	01:54	
A32		Dublin Road / Castle Street / Upper Dargle Road	3 of 4		02:15	02:00	
Bray Summary Information:			No. with Ped Crossing Facilities at all arms	Total	Of:	Max Value	Average Value
			1 out of 2			02:15	02:00

			Total No. with Ped Crossing Facilities at all arms	Total	Of:	Max Value	Average Value
			14 out of 21			02:30	01:50

6. Taxi

T1: Number of licensed taxis

Data not available.

T2: Number of taxi ranks

Data not available.

T3: Average wait time for taxis

Data not available.

T4: Average taxi occupancy

Data not available.

T5: Taxi user satisfaction

Data not available.

7. Parking

PK1: No. of short stay (3hrs or less) on-street car parking spaces by L.A. area

Data not available.

PK2: % of built up area where controlled on-street car parking applies by L.A. area

Data not available.

PK3: No. of public off-street spaces by L.A. area

Data not available.

PK4: No. of dedicated disabled parking spaces by L.A. area

Data not available.

PK5: Car parking at work places

Examining the CSO data for car drivers to work, an estimate of the number of parking spaces available to those in work can be made. The spaces in the Table below include on-street spaces or other off-site car parking spaces available to car drivers to work.

Table 7.1: Car Parking at Workplaces

Area Band	Spaces
Inside Canals	60,820
Between Canals & M50	135,773
Between M50 & Metropolitan Area Boundary	116,979
GDA Rural Hinterland (including smaller towns)	47,114
GDA Large Growth Towns	22,007

Source: CSO 2006 Census POWCAR data (car drivers)

8. Bus

B1: Summary of QBC progress

Monitoring of Quality Bus Corridors is organised by the DTO and undertaken in November of each year. The results of this monitoring exercise are reported on in detail for each corridor on an annual basis. The latest report, providing detailed results of this monitoring programme can be viewed on the DTO website at <http://www.dto.ie/web2007/qbcmmon.htm>.

Table 8.1 is a summary of the progress that has been made from November 1997 to November 2007 in respect of the increase in bus service supply and resultant patronage.

Table 8.1: Summary of Progress 1997 - 2007²⁷

QBC Monitoring Nov 1997 / Nov 2007 Cars Crossing Canal Cordon by Corridor BAC Buses Crossing Canal Cordon by Corridor BAC Bus Passengers Crossing Canal by Corridor 0700 - 1000				
Corridor	Mode	Nov-97	Nov-07	% Change
Stillorgan	CARS	5794	3328	-42.56
	BUSES	40	120	200.00
	BUS PAX	1787	4935	176.16
Blanchardstown	CARS	5963	4780	-19.84
	BUSES	83	132	59.04
	BUS PAX	4573	6453	41.11
Lucan	CARS	6104	4910	-19.56
	BUSES	71	106	49.30
	BUS PAX	4303	5675	31.88
Finglas / Swords	CARS	5678	4897	-13.75
	BUSES	112	146	30.36
	BUS PAX	5670	7535	32.89
North Clondalkin	CARS	1555	1989	27.91
	BUSES	46	33	-28.26
	BUS PAX	2079	1904	-8.42
Malahide	CARS	4620	2579	-44.18
	BUSES	133	161	21.05
	BUS PAX	4747	8685	82.96
Tallaght	CARS	3314	1965	-40.71
	BUSES	72	99	37.50
	BUS PAX	4098	3621	-11.64
Rathfarnham	CARS	3605	2813	-21.97
	BUSES	76	54	-28.95
	BUS PAX	3285	2860	-12.94
Total	CARS	36633	27261	-25.58
	BUSES	633	851	34.44
	BUS PAX	30542	41668	36.43

²⁷ Source: DTO QBC Monitoring, November 2007

Table 8.2 shows the changes in the last 12 months. There has been a marginal increase in the supply of buses and a 2.82% reduction in passengers.

Table 8.2: Summary of Progress 2006 - 2007

QBC Monitoring Nov 2006 / Nov 2007 Cars Crossing Canal Cordon by Corridor BAC Buses Crossing Canal Cordon by Corridor BAC Bus Passengers Crossing Canal by Corridor 0700 - 1000				
Corridor	Mode	Nov-06	Nov-07	% Change
Stillorgan	CARS	3616	3328	-7.96
	BUSES	113	120	6.19
	BUS PAX	5753	4935	-14.22
Blanchardstown	CARS	4927	4780	-2.98
	BUSES	134	132	-1.49
	BUS PAX	6433	6453	0.31
Lucan	CARS	4801	4910	2.27
	BUSES	105	106	0.95
	BUS PAX	5931	5675	-4.32
Finglas / Swords	CARS	4651	4897	5.29
	BUSES	144	146	1.39
	BUS PAX	7968	7535	-5.43
North Clondalkin	CARS	1784	1989	11.49
	BUSES	43	33	-23.26
	BUS PAX	2222	1904	-14.31
Malahide	CARS	2388	2579	8.00
	BUSES	160	161	0.63
	BUS PAX	8111	8685	7.08
Tallaght	CARS	1959	1965	0.31
	BUSES	80	99	23.75
	BUS PAX	3910	3621	-7.39
Rathfarnham	CARS	2866	2813	-1.85
	BUSES	50	54	8.00
	BUS PAX	2879	2860	-0.66
Total	CARS	26992	27261	1.00
	BUSES	829	851	2.65
	BUS PAX	43207	41668	-3.56

B2: Comparative Bus & Car Journey Times in the Morning Peak

Table 8.3 shows summary findings for comparative bus and car journey times for city bound morning peak journeys.

There are comparisons available for all the 16 QBCs monitored. The table details the section of each QBC over which the comparisons are made.

Bus average journey times in the morning peak were less than the corresponding car average journey times in 12 out of the 16 QBCs monitored, with significant (greater than 15%) variations on 8 QBCs.

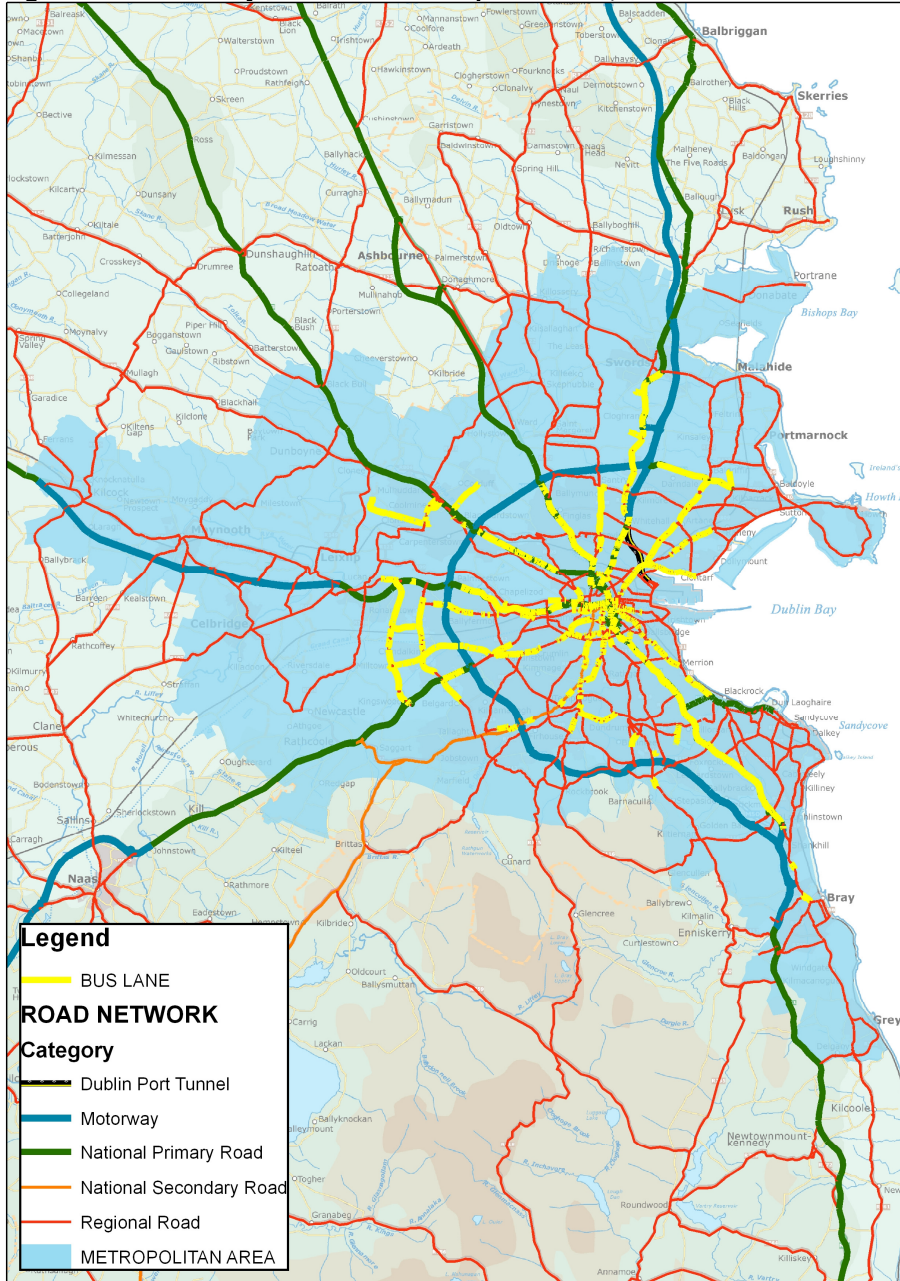
Table 8.3: Comparative Bus and Car Journey Times

QUALITY BUS CORRIDOR MONITORING NOVEMBER 2007 SUMMARY OF AM PEAK COMPARATIVE BUS AND CAR JOURNEY TIMES					
Corridor	Section Measured	Bus Average Journey Time	Car Average Journey Time	Time Difference	% Difference
Clontarf	Clontarf Bus Garage to Fairview	7:41	16:12	8:31	110.8%
Finglas	Finglas to Dorset Street Lower	15:54	28:52	12:58	81.5%
Blanchardstown	Blanchardstown Bypass to Manor Street	34:23	49:56	15:33	45.2%
Rock Road	Blackrock to Merrion Square	21:24	31:41	9:17	43.4%
Bray	Bray to Foxrock Church	24:44	34:55	10:11	41.2%
Howth Road	Raheny to Fairview	13:33	17:40	4:07	30.4%
Malahide	Greencastle Road to Amiens Street	19:47	25:35	5:48	29.3%
South Clondalkin	Grange Castle to Bachelors Walk	62:34	72:11	9:37	15.4%
Crumlin Road	Drimnagh Road to Patrick Street	22:45	25:51	3:06	13.6%
Stillorgan	Foxrock Church to Leeson Street	28:49	31:23	2:34	8.9%
Lucan	Foxhunter to Bachelors Walk via Chapelized Bypass	33:07	34:57	1:50	5.4%
Rathfarnham	Rathfarnham to Camden Street	32:24	33:13	0:49	2.5%
North Clondalkin	Coldcut Road to Cornmarket	30:15	28:03	(2:12)	(7.3%)
Tallaght	West of M50 to Camden Street	35:54	31:28	(4:26)	(12.3%)
Swords	Airside Business Park to Dorset Street Lower	37:13	31:39	(5:34)	(14.9%)
Ballymun	Ballymun to Dorset Street Lower	28:18	20:28	(7:50)	(27.7%)

B3: % Bus Lane

The DTO commissioned an audit of bus and cycle facilities in the GDA in summer 2007. The survey counted 186.5KMs of bus lane in the metropolitan area. This represents approximately 18.5% of the road network²⁸. The provision of bus lanes is illustrated in **Figure 8.1** below.

Figure 8.1: Bus Priority in the Dublin Metropolitan Area, 2007



²⁸ Comprising: motorway, primary, secondary and regional roads and Port Tunnel

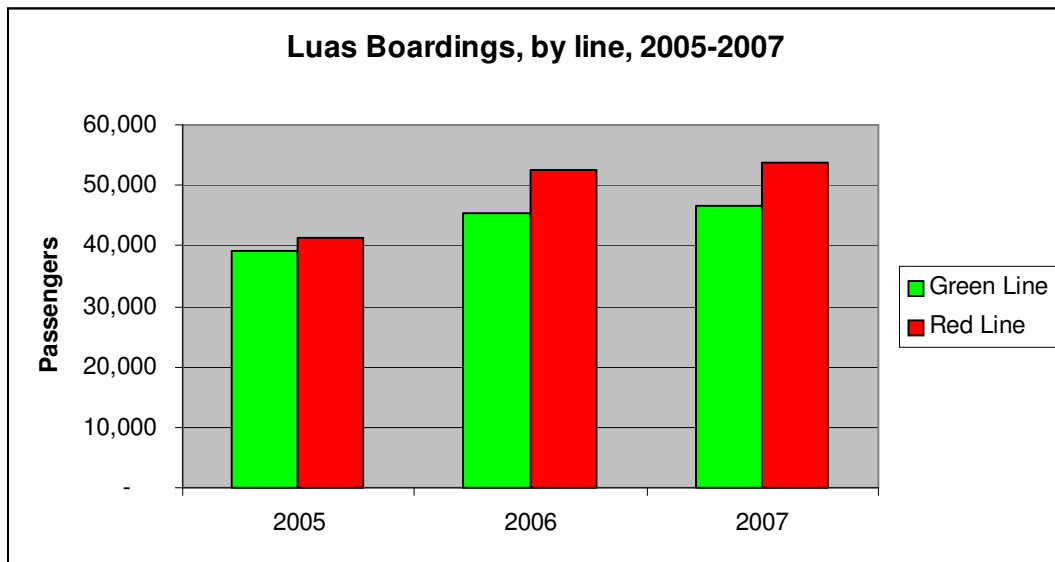
9. Luas

The 2007 Annual Luas Census was undertaken on Thursday 15th November (Green Line) and Thursday 22nd November (Red Line). It recorded 46,776 passenger boardings on the Green Line, representing a growth of 2.8% from 2006 (see figure 9.1, below). This follows growth of 16% between 2005-2006.

Some 53,655 passenger boarding were recorded on the Red Line. This represents a growth in passenger boardings of 2.3%, from 2006, following growth of 27% in 2005-2006 (see figure 9.1, below)

Combined growth in boardings, between 2006-2007, was 3%, following 22% growth in the previous year.

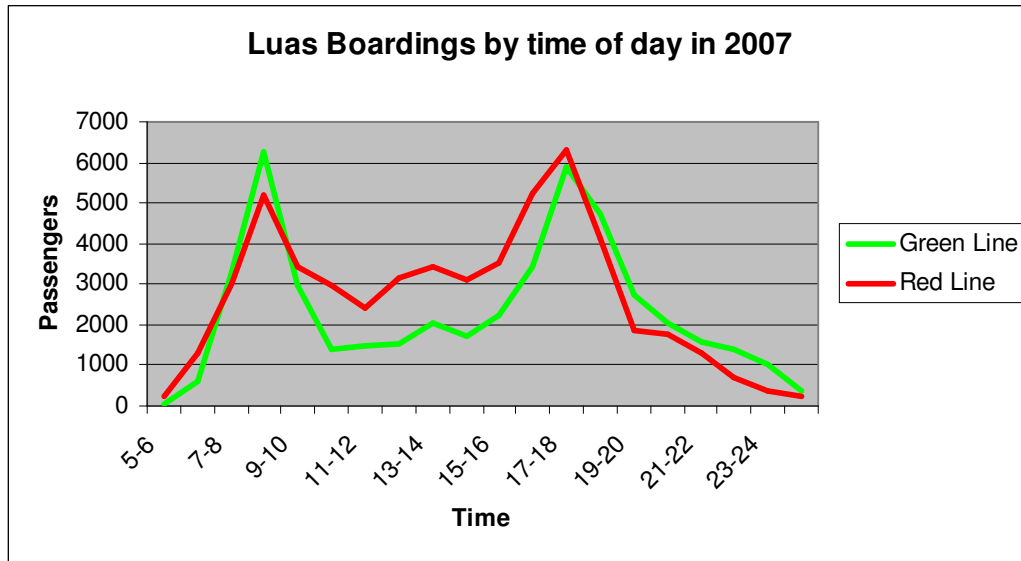
Figure 9.1: Luas Boardings



Source: Luas Census 2007

Looking at the patterns of demand across the day, it is interesting to note demand on the Green Line is more peaked than that on the Red Line. Peak boardings on the Green line are 292% greater than average while, for the Red Line, peak boardings are 211% above average (see figure 9.2, below). Boardings on the Red line during the inter-peak (10:00-16:00) were significantly higher than the Green Line.

Figure 9.2: Luas Hourly Pattern of Demand



Source: Luas Census 2007

10. Conclusions and Next Steps

10.1 *General Traffic Indicators*

Traffic flows

Average daily traffic volumes on the M50 decreased by 3.7% in 2007 during the first six months of the year (significant road works were experienced), while traffic on the M1 and M4 increased by an average of 4% on 2006.

Inbound traffic flows, in the morning peak (07:00-09:59hrs) along the canal cordon, in 2007, were almost identical with those in 2006, recording an increase of just 0.04%. Over the entire period from 1997-2007, traffic numbers fell by 14%.

Road Accident Casualties

The 2007 report provides data on the number of road accidents by local authority area. There is no new data to report on this indicator.

Air Quality

Environmental air quality, as monitored by the EPA, indicates that over all of PM10 the values were within the Stage 2 annual limits of 20 µg/m³ (to be achieved by 2010). Similarly, values of NO₂, CO, C₆H₆ were compliant with EU directives.

10.2 *Cyclists*

Across the canal cordon, cycle flows during the morning peak increased by a dramatic 44% between 2004 and 2007. The increase between 2006 and 2007 was 17%.

10.3 *Pedestrians*

The average maximum waiting time (average of the maximum waiting times in both directions across all signalised junction arms) across the sample of 22 major junctions was 2:02 minutes. This represents a slight increase over the corresponding 2007 value of 1:59 minutes.

Some 76 or 89% of the junction arms surveyed had dropped kerbs, 50/ 85 or 58% had audible signals present, 63/ 85 or 74% had tactile paving in place.

Inbound pedestrian movements over the Canal Cordon have varied from a low of 15,565 in 1998 to a high, of 18,558 in 2007. Flows in 2007 were 18,594, an 8.7% increase on 2006.

10.4 *Taxi*

The 2005 report provides data on the number of taxis by local authority area. There is no new data to report on this indicator.

10.5 *Parking*

Very limited information is currently available on on-street and off-street parking supply in the GDA. Analysis of CSO data on car drivers to work provides an estimate of car parking spaces in the GDA. This is estimated at approximately 380,000.

10.6 Bus

There DTO's QBC Monitoring survey compares bus and car journey times for 16 QBCs. Bus average journey times in the morning peak were less than the corresponding car average journey times in 12 out of the 16 QBCs monitored, with significant (greater than 15%) variations on 8 QBCs.

The DTO commissioned an audit of bus and cycle facilities in the GDA in summer 2007. The survey counted 186.5KMs of bus lane in the metropolitan area, representing approximately 18.5% of the total road network.

10.7 Luas

The 2007 Luas Census recorded growth in passenger boardings of 2.8% on the Green Line and 2.3% on the Red Line. Combined growth in boardings, between 2006-2007, was 3%, following 22% growth in the previous year.

10.8 Next Steps

It is hoped that this report will be used as a tool in the decision making processes of local authorities, the NRA and government departments in identifying changes that will better benefit road users, particularly those using sustainable modes of transport.

It is also hoped that the data deficiencies identified will act as a prompt to all relevant agencies to collect the required data in a consistent manner to enable better monitoring of trends, as they impact on transport users, over time.

Recommended actions include:

- Agreement between local authorities and the DTO on data deficiencies and how best to collect missing data in future.
- The initiation of a continuous Greater Dublin Area (or National) Travel Survey, to monitor people's travel behaviour, needs and attitudes throughout the day, week and year.

If agencies or others require a more detailed breakdown of any of the data contained in the Report, they should contact the Dublin Transportation Office at the following e-mail address: postmaster@dto.ie

Detailed information relating to **Section 8, Bus** is contained in the QBC Monitoring Report, which is available (<http://www.dto.ie/web2007/qbcmon.htm>).

Appendix A: Town Centre Classified Junction Counts

Count No.	Town	Junction
1	Quarryvale	Coldcut Road / Fonthill Road
2		Fonthill Road / Quarryvale Entry Rbt
3		Coldcut Road / Quarryvale Entry Rbt
4		Coldcut Road / South entrance to Liffey Valley S.C
5	Dundrum	Dundrum Bypass (R117)/ Taney Road (R112)
6		Sandyford Road/Wyckham Way
7		Dundrum Bypass (R117)/Wyckham Way
8	Tallaght	Belgard Road / Main Street
9		Belgard-Sq-Nth / Belgard-Sq-east
10		Belgard-Sq-Nth / Belgard-Sq-west
11		Belgard-Sq-Sth / Belgard-Sq-east
12		Belgard-Sq-Sth / Belgard-Sq-west
13-16	Blanchardstown	4 junctions around town centre
17	Swords	Dublin Street / Malahide Road
18		Bridge Street / Main Street
19		Dublin Street / Forest Road
20		Church Road / Brackenstown Road
21		Bridge Street / Watery Lane
22	Balbriggan	R122/R132
23		R132/R127
24	Dun Laoghaire	York Road / Cumberland Street
25		Georges Street Lower / Marine Road
26		Georges Street Lower / Park Road
27		Marine Road / Queens Road
28	Navan	N3/N51/R153
29		N51/R161
30	Naas	R407 Sallins Road / R445 Main Street
31		R445/R448
32	Bray	Dublin Road / Upper Dargle Road
33		Main Street / Quinsborough Road
34		Main Street / Vevay Road
35	Wicklow	R751/R750
36 & 37	Newbridge	R416/ R445/ R445 junctions (2 junctions, all junction arms).
38 & 39	Arklow	N11/ R750 (all junction arms - see attached map) N11/ R747 (all junction arms - see attached map)
39 & 40	Greystones	R761/ R762 (2 junctions, all junction arms)

DTO AM Peak (07:00-09:59hrs.) Counts on Orbital Roads, November 2007

Location	Car/ Taxi	Goods	Bus
Quarryvale	16954	5190	722
Dundrum	13894	1945	571
Tallaght	15207	2244	1017
Blanch'town	14333	2347	477
Swords	11695	2198	600
Balbriggan	4477	830	133
Dun Laoghaire	6586	1151	647
Navan	6220	1799	206
Naas	6454	1262	229
Newbridge	6310	1207	458
Bray	7685	1385	310
Wicklow	4053	720	184
Arklow	6077	1278	160
Greystones	6839	945	106

DTO AM Peak (07:00-09:59hrs.) Metropolitan Area Counts, November 2007

Location	07:00	07:30	08:00	08:30	09:00	09:30
Quarryvale	4150	3693	3193	3381	4301	4148
Dundrum	2063	2813	2832	2881	2986	2835
Tallaght	2578	3172	3154	3120	3248	3196
Blanch'town	2309	2601	2562	3224	3243	3211
Swords	1324	2177	2516	3070	2812	2619
Balbriggan	571	605	925	1122	1242	975
Dun Laoghaire	691	987	1372	1854	1861	1619
Navan	1016	1263	1371	1631	1536	1407
Naas	906	1225	1380	1623	1499	1312
Newbridge	971	1356	1438	1339	1552	1319
Bray	960	1247	1463	1951	2005	1754
Wicklow	500	866	1017	916	909	749
Arklow	768	1006	1258	1476	1500	1198
Greystones	873	1478	1516	1648	1411	1134

Appendix B: Classified Link Counts (M50 Cordon)

Count No.	Area	Link
1	Baldoyle	Main Street immediately south of Wille Nolan Road
2		Brookstone Road, immediately south of Grange Road/ Willie Nolan Road junction
3	Donaghmede	Grange Road immediately south of Hole in the Wall Road/ Grange Road roundabout
4	Darndale / Balgriffin	Malahide Road immediately south of N32/ Malahide Road roundabout
5	Clonshaugh	Clonshaugh Road immediately south of N32
6		M1 between M50 and Coolock Lane
7	Santry	R132/ Swords Road at M50 overbridge
8	North Ballymun	R108 Ballymun Road south of M50
9	Finglas	R122 at M50 bridge
10		N2 immediately south of M50 roundabout
11		Cappagh Road at M50 bridge
12	Blanchardstown	N3 Navan Road immediately east of M50
13	Castleknock	Castleknock Road at M50 bridge
14		Carpenterstown Road at M50 bridge
15		Diswellstown at M50 bridge
16		R109 Lower Road at M50 bridge
17	Clondalkin north	N4 immediately east of M50
18		Coldcut Road at M50 bridge
19		Cloverhill Road at M50 bridge
20	Clondalkin south	R134/ Nangor road at M50 bridge
21		Naas Road immediately east of M50
22		Ballymount immediately east of M50
23		Greenhills Road at M50 bridge
24	Tallaght	N81/ Tallaght Road immediately east of M50
25		R114/ Firhouse Road east of M50
26		R113 immediately east of M50
27		R115/ Stocking Lane at M50 bridge
28	Rathfarnham	R116/ Edmonstown Road at M50 bridge
29		Whitechurch Road immediately north of College Road junction (at M50 bridge)
30	Ballinteer	Kellystown Road at M50 bridge
31		Harolds Grange Road at M50 bridge
32		Brehon Field Road, immediately west of Ballinteer Road roundabout
33		Ballinteer Road immediately north of Brehon Field Road roundabout
34	Sandyford	Sandyford Road at M50 bridge
35		Drummartin Road north of M50 roundabout
36		Leopardstown Road east of M50 roundabout
37		Glenamuck Road at M50 bridge
38	Rathmichael/ Loughlinstown	R116/ Mullinastil Road link between Rathmichael Road junction and Stonebridge Road junction (at M50 bridge)
39		M11 at Stonebridge Road overbridge

DTO M50 Cordon Flows, Selected Roads

Time	Inbound	Outbound
06:00	5543	3031
06:30	12532	5410
07:00	16867	8491
07:30	19950	11695
08:00	21138	12755
08:30	21706	12860
09:00	18577	12988
09:30	16681	11137

Appendix C: City Centre cycle only link counts

Count No.	Link
1	Phoenix Park (Chesterfield Avenue), just north of Coyningham Road / Parkgate Street entrance
2	Stoneybatter, north of North King Street junction
3	St John's Road west, immediately east of Steeven's Lane
4 / 4A	Quays northside, just east of Millennium bridge/ Millennium bridge southbound
5 / 5A	Quays southside just west of Millennium bridge/ Millennium bridge northbound
6	Grattan Bridge (linking Capel St and Parliament Street)
7	O'Connell Street Bridge
8	Parnell Sq East (north of Parnell Street)
9	Parnell Street immediately west of O'Connell Street/Parnell Street junction
10	Amiens Street between Beresford Place and Store Street
11	Bolton Street west of Capel Street
12	St Stephens Green West, north of Cuffe Street
13	Cuffe Street east of Stephens Green
14	Church Street upper north of North King Street
15	Aungier Street north of Cuffe Street
16	Dame Street west of St Gt Georges Street
17	Custom House Quay east of Butt Bridge
18	Grove Road (Grand canal) west of Rathmines Road lower
19	North Circular Road west of Berkeley Road
20	St Stephens Green north, west of Kildare Street

DTO Cycle Counts, November 2007

Location No.	Location	Direction To	Half Hourly Cycle Flow						Total Link Flow, 07:00 - 09:59hrs	2007 Total 2-Way Link Flow, 07:00 - 09:59hrs
			Time Period Beginning							
			07:00	07:30	08:00	08:30	09:00	09:30		
C1	Phoenix Park	W	3	5	7	5	3	1	24	207
		E	9	16	37	47	45	28	183	
C2	Stonebatter	S	17	29	37	56	46	38	222	249
		N	3	5	6	4	5	3	26	
C3	ST John's Road W	E	7	14	20	25	16	7	90	143
		W	11	15	8	8	8	4	53	
C4	Millennium Bridge	E	32	47	61	112	71	49	372	465
C5	Millennium Bridge	W	10	12	15	24	20	11	92	
C4A	Millennium Bridge	S	2	4	7	10	8	11	42	121
C5A	Millennium Bridge	N	3	7	7	25	24	13	79	
C6	Gratten Bridge	N	1	2	1	1	3	2	10	214
		S	13	21	40	54	50	27	204	
C7	O'Connell Bridge	N	20	37	40	82	72	55	306	693
		S	33	48	62	93	91	61	387	
C8	Parnell Square E	N	2	3	4	2	4	4	19	288
		S	25	42	46	69	50	37	269	
C9	Parnell Street	E	7	15	20	41	39	28	150	194
		W	7	9	4	9	8	6	44	
C10	Amien St	S	16	39	71	135	114	67	443	507
		N	5	7	12	17	16	7	65	
C11	Bolton St	E	10	12	18	31	32	15	119	215
		W	7	13	17	28	21	10	96	
C12	Stephen's Green W	N	10	10	25	77	67	52	242	292
		S	5	5	7	11	11	11	50	
C13	Cuffe St	E	11	22	35	74	69	38	249	335
		W	5	7	8	24	25	17	86	
C14	Church Street Upper	S	17	31	38	70	46	32	235	296
		N	5	9	11	19	12	4	61	
C15	Aungier Street	N	25	58	76	208	143	97	606	823
		S	13	26	38	59	47	34	217	
C16	Dame Street	E	27	44	65	131	78	58	403	583
		W	9	17	21	49	50	33	180	
C17	Custom House Quay	W	1	0	1	2	2	2	8	292
		E	29	54	45	67	61	28	283	
C18	Grove Road	E	36	69	97	205	125	62	593	643
		W	5	9	12	10	9	5	51	
C19	N. C. R.	E	33	50	82	92	56	39	352	411
		W	7	19	12	10	6	4	58	
C20	Stephen's Green N	E	4	2	3	11	9	11	40	163
		W	5	9	16	32	30	31	123	

Appendix D: NRA Counts

Hour Ending	M4, 2004	M4, 2005	M4, 2006	M4, 2007	M50, 2004	M50, 2005	M50, 2006	M50, 2007
01:00	207	240	283	310	783	803	868	920
02:00	114	131	152	168	437	447	472	494
03:00	83	91	106	120	288	294	305	343
04:00	84	100	119	134	296	319	331	421
05:00	137	172	195	222	484	632	678	903
06:00	353	459	489	538	1290	1394	1542	1823
07:00	1552	1733	1992	2108	3334	3578	4011	4793
08:00	2166	2130	2410	2581	6624	6605	6383	5765
09:00	1854	1868	2176	2422	6419	6344	6219	5745
10:00	1632	1688	1913	2038	5575	5579	5621	5300
11:00	1504	1538	1706	1818	5178	5184	5236	5081
12:00	1501	1560	1737	1850	5152	5126	5195	5048
13:00	1562	1631	1816	1945	5289	5306	5331	5166
14:00	1614	1682	1896	2019	5376	5410	5443	5203
15:00	1709	1790	2006	2157	5465	5481	5508	5283
16:00	1893	1977	2232	2401	5835	5867	5846	5548
17:00	2144	2222	2615	2807	6404	6406	6384	6094
18:00	2173	2229	2800	3063	6402	6399	6401	6066
19:00	2032	2065	2578	2815	5750	5823	5880	5704
20:00	1681	1731	2139	2297	4715	4836	4857	4802
21:00	1142	1192	1480	1615	3501	3596	3676	3634
22:00	864	910	1097	1216	2885	2997	3028	3035
23:00	607	653	798	856	2144	2244	2349	2501
00:00	449	422	507	551	1393	1460	1548	1727
Total	29057	30214	35242	38051	91019	92130	93112	91399

Appendix E: DCC Count Data

DCC Inbound AM Peak (07:00-09:59hrs.) Canal Cordon Flows

Year	Cars*	Goods	Buses	P.Cycles	M.Cycles	Peds.
(Nov)	No.	No.	No.	No.	No.	No
1997	73,561	3,283	1,459	5,628	1,816	16,679
1998	71,536	3,090	1,350	4,579	1,845	15,565
1999	73,147	3,112	1,454	5,384	2,267	18,157
2000	67,935	3,000	1,521	4,464	2,558	15,808
2001	68,003	3,004	1,522	5,085	2,845	18,558
2002	65,657	2,828	1,576	4,714	2,920	16,609
2003	63,509	2,651	1,563	4,711	2,656	17,305
2004	62,475	3,057	1,537	3,941	2,249	15,241
2005	60,600	2,711	1,601	4,404	2,187	16,332
2006	62,489	2,291	1,680	4,839	2,395	17,114
2007	63,269	1,445	1,740	5,676	2,429	18,594

* includes taxis

DCC Canal Cordon Cycle Counts, 07:00-09:59hrs, 2007

Location	2007 Total 2-Way Link Flow, 07:00 - 09:59hrs
Phoenix Park	207
Stonebatter	249
ST John's Road W	143
Millennium Bridge	465
Millennium Bridge	121
Gratten Bridge	214
O'Connell Bridge	693
Parnell Square E	288
Parnell Street	194
Amien St	507
Bolton St	215
Stephen's Green W	292
Cuffe St	335
Church Street Upper	296
Aungier Street	823
Dame Street	583
Custom House Quay	292
Grove Road	643
N. C. R.	411
Stephen's Green N	163