

# A STUDY OF PEDESTRIAN AND CYCLIST INTERACTION IN THE 'PEDESTRIAN HEART' IN DARLINGTON

*R. Grassick, Dr. T.J.Stahl  
Darlington Cycling Campaign*

**Introduction:** A pedestrianisation scheme has been implemented in the centre of Darlington. At the outset, it was titled The Pedestrian Heart, though it was also made clear that motor traffic would continue to use the area. In particular, buses would use a circuit within the area, delivery vehicles would use all areas within restricted hours, and taxis would use restricted areas within restricted hours. It was not initially widely appreciated that cyclists would be permitted free access to the area. Before the creation of this area, youngsters on bicycles were causing nuisance by the manner in which they behaved, and they were alleged to be using bicycles to facilitate theft. This caused the police to express opposition to bicycle use in the planned Pedestrian Heart.

In a report to Cabinet in November 2004, Owen Wilson, the officer in charge of the Local Motion sustainable transport project, presented the accident data for several preceding years, both within the relevant area, and on the ring road onto which cyclists would be forced if they were not able to continue use of the centre. He informed Cabinet that advice from the Department for Transport, issued that year, was that:

*“For any new pedestrianisation scheme, there should be a presumption that cycling will be allowed unless an assessment of the overall risks dictates otherwise. In conducting this assessment, the risk to cyclists using alternative on-road routes should be taken into account. This is particularly important if the alternative routes are not safe or direct and cannot be made so.”*

Cabinet took the decision that, on completion of the scheme, cycling would be permitted for a six-month ‘trial period’, at the end of which a decision would be taken as to whether cycling would continue to be permitted.

During the construction work, large areas of the centre were inaccessible. As the work neared completion, and these areas opened up again, opposition was voiced to the presence of cyclists. This was particularly directed at those youngsters who were causing a nuisance, but there was also opposition to there being any cyclists at all. It was alleged that pedestrians found the need to constantly ‘dodge’ cyclists, who were perceived to be ‘weaving about’ and that there were many ‘near misses’. The alleged near misses were not supported by objective evidence. The language in which some of these views were expressed in the local press was extreme, using phrases such as ‘silent menace’, which would have triggered criminal action if expressed against an ethnic minority, but which was apparently considered editorially acceptable.

Meanwhile, the perception by cyclists was markedly different. When riding through the Pedestrian Heart, they found only indifference from pedestrians. They needed to

be constantly alert to the possibility of pedestrians suddenly changing direction, or being engrossed in conversation and unaware of their environment. To cyclists experienced on today's roads, such vigilance came naturally. In order to try to resolve this marked difference of perception, and to obtain some objective evidence, the authors, as members of Darlington Cycling Campaign, obtained permission to utilise the town centre CCTV system. This study reports the results.

**Authors: Richard Grassick** is a film-maker and documentary photographer. Trained in social science at York University, he has produced a number of social research-based films and photography works.

**Tim Stahl** has been an active cyclist for over fifty years. For 9 years of the 25 years that he was a consultant orthopaedic surgeon in the town, treating the results of accidents in a population of 240,000 (including Northallerton) he was also in administrative charge of the accident department, and was responsible for the design and introduction of the documentation on which the collection of accident data was based for some 15 years.

**Methodology and practical considerations:** We were able to visit the CCTV control room to choose the most appropriate camera(s) for the study. Our preferred option (a view of Northgate, where the pedestrian density is highest) was not feasible, as this camera is essential due to the level of criminal activity relating to the shops in that area. Our second option was granted – a view from high on the side of the King's Head Hotel building, looking up the slope to Bondgate, and also seeing the northern (Bondgate) end of High Row. Sufficient of Prebend Row was visible to enable us to determine whether cyclists were coming from, or going to, either the area of the Market, or Northgate. We were thus able to count the frequency of use of each route. The high position of the camera gave us a good appreciation of the course of each cyclist, and the distance between them and any pedestrians.

The cameras have a primary and over-riding security purpose, and we understood that there might be occasions on which they might suddenly be unavailable for our study. This happened only rarely and briefly, and did not affect the validity of the study. However, after going 'off-station' for security purposes, the camera sometimes failed to return to the same study frame. The chief effect of this was to reduce, or at times increase, the visible area.

As the cameras remained at all times at a wide angle, there was limited opportunity to gain any information about facial reactions to sudden events. Rather, reliance was placed on body language, a good indicator of interaction attitude.

The video tapes were then scrutinised by one or other of the authors on a machine which had a continuously-variable forward and reverse speed control. This facility proved crucial in the analysis of events. The authors of the study agreed a simple classification of interactions. During the course of the study, harmony of judgment of the classification was achieved. Where classification was considered borderline, they were reviewed jointly. There was no scrutiny by an independent observer.

The results were entered onto Excel spreadsheets, recording the following: Scrutineer, date and time of event, category of event (as defined below), points of entry and exit from frame, narrative where appropriate, and character of vehicle.

The categories were:

**0:** A cyclist proceeds without significant deviation from a smooth course, and no pedestrian is caused any deviation from their intended course.

**1:** The cyclist is obliged to deviate from their intended course by the unexpected behaviour of a pedestrian.

**2:** A pedestrian is obliged to deviate from their intended course by the unexpected behaviour of a cyclist, or is potentially startled by, or annoyed by, a cyclist or cyclists.

Periodically, usually at 30-minute intervals, counts of pedestrians were undertaken. This was a simple count of the number of pedestrians in the frame. Accuracy was limited by the long-focus and the reduced definition on a still shot (e.g. groups of people close together) but these factors were consistent throughout the study.

## Study Results

A total of exactly **19 hours** were recorded, encompassing a Saturday, Monday and Tuesday – October 13, 15 & 16, 2007. The hours were: Saturday: 10:00 to 14:05, Monday: 10:11 to 17:01, Tuesday: 10:07 to 17:24.

A total of **451 observations** were made. As some observations involved multiple vehicles (eg 3 cyclists together), this equates to **474** observations, when each is broken down to single vehicles as in the following table. The totals for vehicles, including cyclists and motorised wheelchairs, were:

TYPE	DATE			TOTAL
	13.10.07	15.10.07	16.10.07	
CYCLE	80	123	126	329
MW	22	44	30	96
PRIVATE CAR	1	0		1
MAIL VAN	1	2	3	6
DELIV VAN	1	0	13	14
ROAD SWP	0	12	0	12
REFUSE	0	2		2
MINIBUS/TAXI	0	1		1
COUNCIL ROAD VEH*	0	3	4	7
G4S SECURITY	0	1		1
SKATEBOARD	0	1		1
UTILITIES VAN			2	2
POLICE CAR			2	2

MW: Motorised Wheelchair

\* Including works vehicles, e.g. diggers, crane lorries

## Classification of observations

It is important to distinguish between **observations** and **interactions**. An **observation** is a single event on the analysis spreadsheet. It may relate to multiple cyclists. Each cyclist will, in passing through the frame, pass many pedestrians, each of which represents a potential **interaction**. Therefore, it is not possible (with this methodology) to analyse any particular classification in relation to the total **interactions**. To do this would require multiple close-up cameras. Rather, we have classified the data by **observation**.

### Totals

**Observations involving cyclists: 302 (involving 329 cyclists)**

**270 Category 0** (cyclist proceeds without significant deviation from a smooth course, and no pedestrian is caused any deviation from their intended course)

**27 Category 1** (cyclist required to change course or brake due to unexpected change of direction by pedestrian)

**5 Category 2** (pedestrian caused to change course, was inconvenienced by, or potentially annoyed by, cyclist)

Of the **category 1** observations, some were clear alterations of course or speed due to unexpected behaviour of pedestrians, but the majority were minor alterations of course.

Of the **category 2** observations, only 1 actually caused a pedestrian to slow slightly, because she had suddenly observed a cyclist, though he appeared to be aware of her. **At no time** did we see any pedestrian needing to 'dodge' a cyclist.

### Observations involving motorised wheelchairs: 96

We noted **3** examples of a motorised wheelchair user causing inconvenience to pedestrians, all at one location. At the corner of High Row and Bondgate (Bradford & Bingley Building Society), we observed **3** occasions on which the motorised wheelchair user was so close to the building that neither they nor anyone coming in the opposite direction, would have been able to see the other, and this caused pedestrians to stop or slow. Sometimes this was due to an accompanying pedestrian being on the outer side. As with our category 2 observations for cyclists, we did not observe any incident resulting from this. Where we saw an accompanying pedestrian on the inner side, we saw no problem.

## **Conclusion**

The use of a CCTV camera continuously observing a fixed frame, and with the time continuously displayed, obviates any possibility of recordings having been in any way manipulated or selective. We are therefore able to present this as objective evidence of pedestrian and cyclist behaviour.

In 19 hours of recording, followed by some sixty hours of analysis, involving observations, we have found only one example where a pedestrian slightly changed their behaviour. There were four other instances where we judged young cyclists, usually in groups, behaving in a manner that was **potentially** annoying, but not in any way dangerous.

**These recordings are available for any interested party to see.**

We believe that this study does not support the contention that pedestrians have to continuously dodge cyclists. The assertion that cyclists weave about is undoubtedly true, and is an inevitable and necessary behaviour in this environment, but carries no intrinsic danger – in truth, the weaving is the avoidance of danger.

As cyclists, we make no complaint of the unpredictable behaviour of pedestrians. We are all pedestrians and, when not on our bicycles, we behave in exactly the same way. We are able safely to accommodate pedestrian behaviour.

We are pleased to commend this assessment of the risks involved in the interaction of pedestrians and cyclists in Darlington's Pedestrian Heart to Darlington Borough Council, Sustrans, Cycling England, the Department of Transport, and Darlington Association on Disability, all of whom will receive copies.

Under the terms of the DfT guidance of 2004, we conclude that this **risk assessment** supports continued use of the pedestrianised area by cyclists, and that there should be no restriction as to time or area.