



Fact Sheet

**London Road Safety Unit
 LAAU topic 2005-2**

April 2005

Pedal cyclist casualties in Greater London

This fact sheet shows the scale and nature of road traffic collisions resulting in injury to pedal cyclists (P/C) in Greater London in 2003 (the latest year for which finalised data is available). Information is also provided on the longer-term trends between 1981 and 2003.

It provides background information to support the Government and Mayor of London's target to reduce road casualties by the year 2010. The target in London for P/C casualties is a 40% reduction in those killed or seriously injured (KSI) by 2010 from a baseline of the average number of casualties for 1994-98.

The data provided is for personal injury road traffic collisions occurring on the public highway, and reported to the Police in accordance with the *Stats 19* national reporting system. The pedal cycle category applies to those being ridden in the carriageway, a cycleway or pavement, and also applies to toy cars and toy tricycles in the carriageway. The category also includes electrically assisted pedal cycles.

London's pedal cyclist casualty rate

In Greater London in 2003 there were 31,811 road traffic collisions, resulting in 38,430 casualties. Of these collisions, 3,039 (10%) involved injury to pedal cyclists, and resulted in 3,056 casualties (8% of all casualties). In Great Britain in 2003, there were 290,607 casualties recorded, of which 17,033 were pedal cyclists (6%). 18% of all pedal cycle casualties in Great Britain were injured in Greater London.

Table 1 shows P/C casualties by gender, severity and severity ratio (the percentage of fatal and serious injuries to all injuries) in Greater London in 2003. Of the 3,056 P/C casualties in Greater London in 2003, 2,616 (85.6%) suffered slight injury, 421 (13.8%) were seriously injured and 19 (0.6%) were killed. 79% (2,406) of casualties were male and 21% (650) were female.

Table 1: Pedal cyclist casualties by gender, severity & severity ratio in Greater London 2003

	Severity of casualty			Total	Severity ratio
	Fatal	Serious	Slight		
Male	12	335	2,059	2,406	14%
Female	7	86	557	650	14%
Total	19	421	2,616	3,056	14%

Annual trends 1981 to 2003

The following section shows changes in the number of pedal cycle casualties recorded in Greater London from 1981 to 2003. It should be noted that the City of London has been excluded from this long-term analysis, as its collision data was only available from 1986 onwards.

Figure 1 and Table 2 show the number of pedal cycle casualties by year and severity from 1981 to 2003.

Pedal cycle casualties have fluctuated over this period, going from a peak of 5,246 in 1982 to a low of 4,001 in 1987 (a 24% decrease). Numbers rose again to 5,102 in 1989, but since then the general trend has been downward, falling to an all time low of 2,985 in 2002 (a 43% reduction on the 1982 high). There was a very slight increase of 7 casualties (0.2%) in 2003 over 2002.

When comparing the 2003 figures with the 2010 target baseline (1994-98

average) there were decreases in both serious and slight casualties (-24% and -32% respectively). Fatal casualties increased by 29% although numbers remained relatively low (19 compared with the 94-98 average of 14). Fatal P/C casualties accounted for 7% of all fatal casualties in 2003. Overall P/C casualties of all severities decreased by 31% and KSI casualties fell by 23% from the 1994-98 average to 2003. Despite the overall decrease in KSI injuries, the severity ratio increased slightly over the last three years, 14% in 2001, 2002 and 2003 compared with the 1994-98 average of 13%.

To view these changes in casualty numbers in perspective, it is important to look at them in relation to changes in pedal cycle usage. This is considered in more detail on page 6.

Fig 1: Pedal cyclist casualties by year and severity in Greater London (excl. City) 1981 to 2003

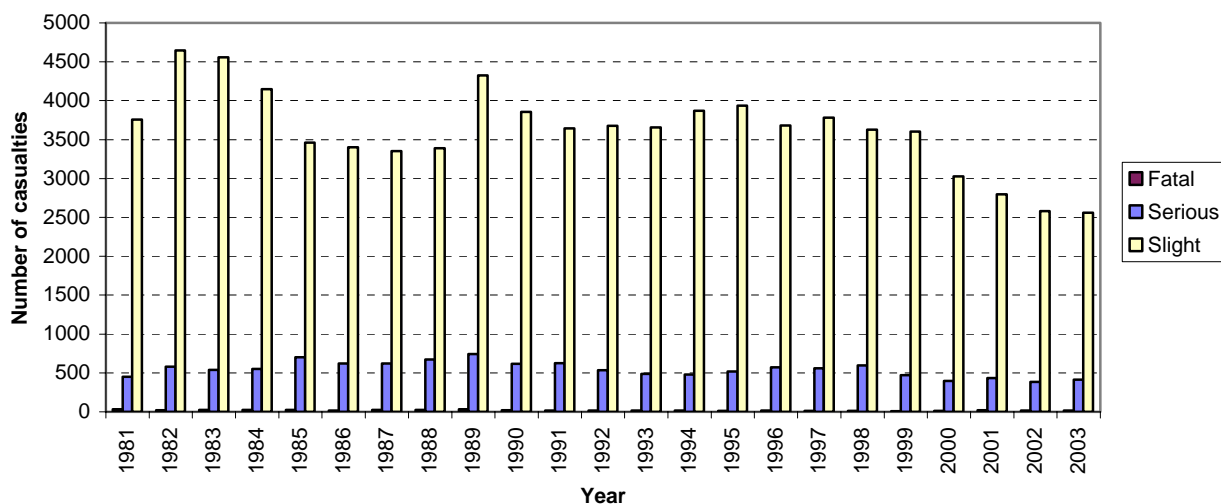


Table 2: Pedal cyclist casualties by year and severity in Greater London (excl. City of London) 1981 to 2003

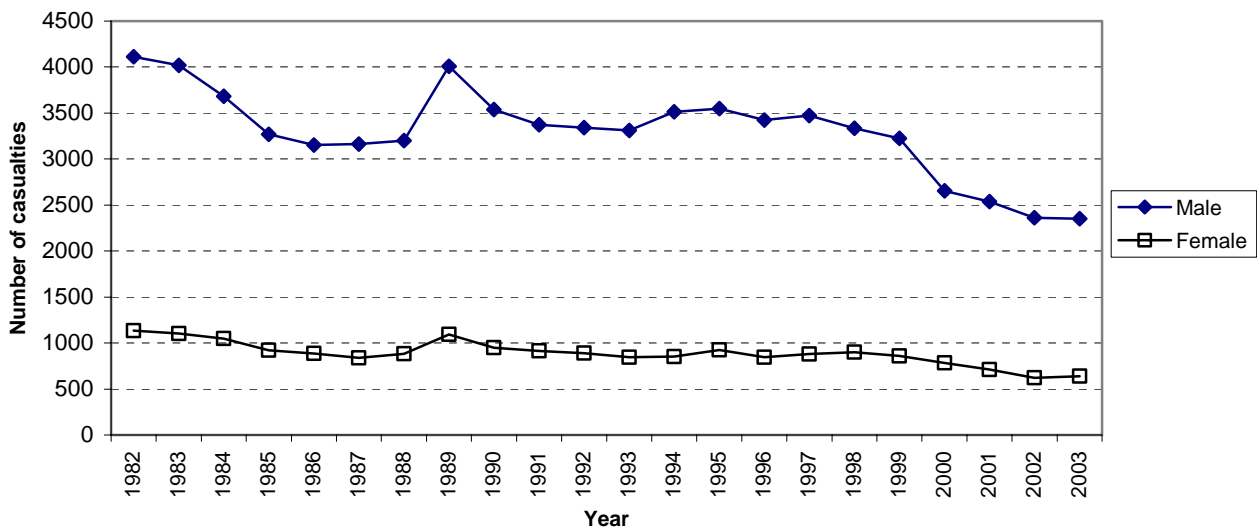
Year of accident	Severity of casualty				Total	Severity ratio
	Collisions	Fatal	Serious	Slight		
1981	4,173	31	452	3,758	4,241	11%
1982	5,200	20	580	4,646	5,246	11%
1983	5,091	26	540	4,556	5,122	11%
1984	4,703	26	553	4,149	4,728	12%
1985	4,164	26	703	3,461	4,190	17%
1986	4,015	18	621	3,399	4,038	16%
1987	3,979	25	622	3,354	4,001	16%
1988	4,062	24	674	3,389	4,087	17%
1989	5,080	33	742	4,327	5,102	15%
1990	4,461	19	615	3,854	4,488	14%
1991	4,259	17	623	3,646	4,286	15%
1992	4,198	17	537	3,677	4,231	13%
1993	4,128	17	485	3,655	4,157	12%
1994	4,336	15	480	3,871	4,366	11%
1995	4,450	14	521	3,937	4,472	12%
1996	4,246	18	571	3,682	4,271	14%
1997	4,323	11	560	3,781	4,352	13%
1998	4,208	12	595	3,627	4,234	14%
1994 to 1998 average	4,312.6	14.0	545.4	3,779.6	4,339.0	13%
1999	4,057	10	469	3,604	4,083	12%
2000	3,414	13	399	3,026	3,438	12%
2001	3,228	21	434	2,795	3,250	14%
2002	2,973	18	387	2,580	2,985	14%
2003	2,975	18	414	2,560	2,992	14%
% change 1994-98 average to 2003	-31%	29%	-24%	-32%	-31%	-

Gender

Figure 2 shows pedal cycle casualties by gender in Greater London (excluding the City of London) from 1982 to 2003. The greatest proportion of P/C casualties was male, with an average of 79% per year over the period. The male-female split has remained constant during this time.

Both male and female P/C casualties have shown a general downward trend, although the fluctuations are more marked in males. Both sexes decreased by 43% from 1982 to 2003. Male P/C casualties decreased by 32% from the 1994-98 average to 2003, while females decreased by 27%.

Fig 2: Pedal cyclist casualties by gender in Greater London (excl. City) 1982 to 2003



Age

Table 3 and Figure 3 show P/C casualties by year and age (banded) in Greater London from 1981 to 2003.

While the percentage of casualties in the 60 years and over age band has remained quite constant over this time period (averaging 4% per year), the proportions in the under 16, 16-24 and 24-59 year groups have shown marked changes.

On average, 20% of P/C casualties were under the age of 16. However, numbers in this age group have been decreasing steadily with the percentage falling from 31% (1,311 casualties) of the total in 1981 to 13% (389 casualties) in 2003.

Casualties in this group decreased by 50% from the 1994-98 average to 2003.

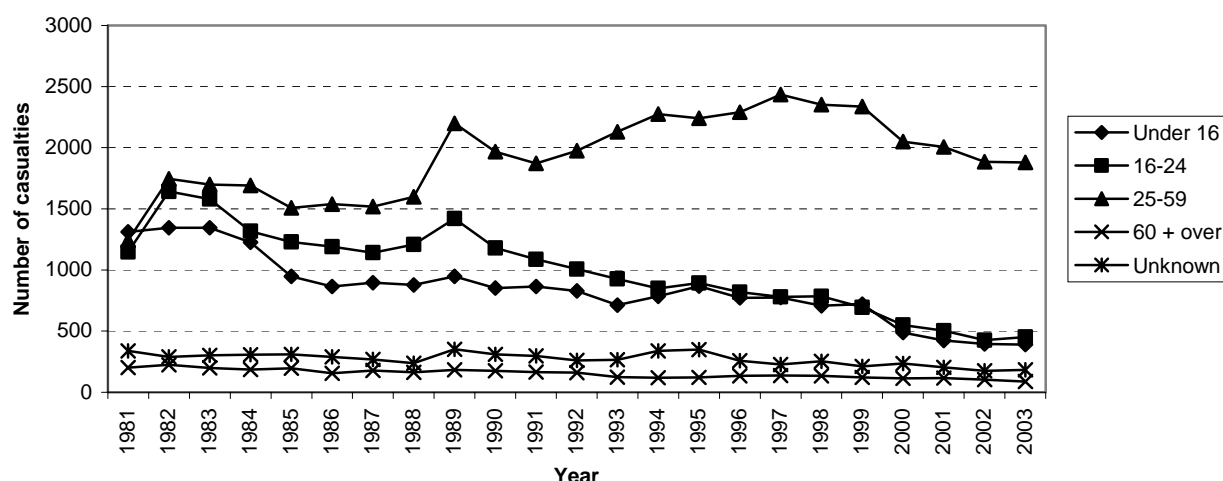
A similar pattern is apparent in the 16-24 year group, with the percentage of casualties in this group falling from 27% in 1981 to 15% in 2003. There was a decrease of 45% from the 1994-98 average to 2003.

The situation in the 25-59 year age group shows the opposite trend, with the percentage of casualties rising from 29% in 1981 to 63% in 2003. Numbers of casualties in this group were on an upward trend from 1,243 in 1981 to a peak of 2,434 in 1997. However, numbers have been falling since then, and there was a decrease of 19% between the 1994-98 average and 2003.

Table 3: Pedal cyclist casualties by year and age (banded) in Greater London (excl. City of London) 1981 to 2003

	Casualty age banded					Total	% aged	% aged	% aged	% aged
	Under 16	16-24	25-59	60 + over	Unknown		< 16	16-24	25-59	60+
1981	1,311	1,147	1,243	202	338	4,241	31%	27%	29%	5%
1982	1,346	1,641	1,745	224	290	5,246	26%	31%	33%	4%
1983	1,344	1,579	1,698	200	301	5,122	26%	31%	33%	4%
1984	1,227	1,316	1,690	187	308	4,728	26%	28%	36%	4%
1985	948	1,228	1,508	196	310	4,190	23%	29%	36%	5%
1986	865	1,190	1,538	156	289	4,038	21%	29%	38%	4%
1987	897	1,140	1,518	178	268	4,001	22%	28%	38%	4%
1988	879	1,209	1,599	163	237	4,087	22%	30%	39%	4%
1989	948	1,421	2,199	184	350	5,102	19%	28%	43%	4%
1990	853	1,181	1,968	175	311	4,488	19%	26%	44%	4%
1991	865	1,086	1,873	165	297	4,286	20%	25%	44%	4%
1992	828	1,008	1,974	160	261	4,231	20%	24%	47%	4%
1993	712	927	2,130	123	265	4,157	17%	22%	51%	3%
1994	785	849	2,275	118	339	4,366	18%	19%	52%	3%
1995	867	894	2,241	122	348	4,472	19%	20%	50%	3%
1996	772	819	2,290	133	257	4,271	18%	19%	54%	3%
1997	775	779	2,434	138	226	4,352	18%	18%	56%	3%
1998	708	786	2,353	133	254	4,234	17%	19%	56%	3%
1994 to 1998 average	781.4	825	2,318.6	128.8	284.8	4,339.0	18%	19%	53%	3%
1999	720	694	2,336	122	211	4,083	18%	17%	57%	3%
2000	489	551	2,049	113	236	3,438	14%	16%	60%	3%
2001	423	503	2,006	115	203	3,250	13%	15%	62%	4%
2002	395	426	1,884	104	176	2,985	13%	14%	63%	3%
2003	389	452	1,879	89	183	2,992	13%	15%	63%	3%
% change 1994-98 average to 2003	-50%	-45%	-19%	-31%	-36%	-31%	-	-	-	-

**Fig 3: Pedal cyclist casualties by year and age (banded) in Greater London (excl. City)
1981 to 2003**



City of London

Data for the City of London is only available on the LAAU ACCSTATS database from 1986 onwards. Table 4 and Figure 4 show P/C casualties in the City of London from 1986 to 2003.

Overall P/C casualty numbers in the City are relatively low, however, the general trend was upward from 1987, reaching a

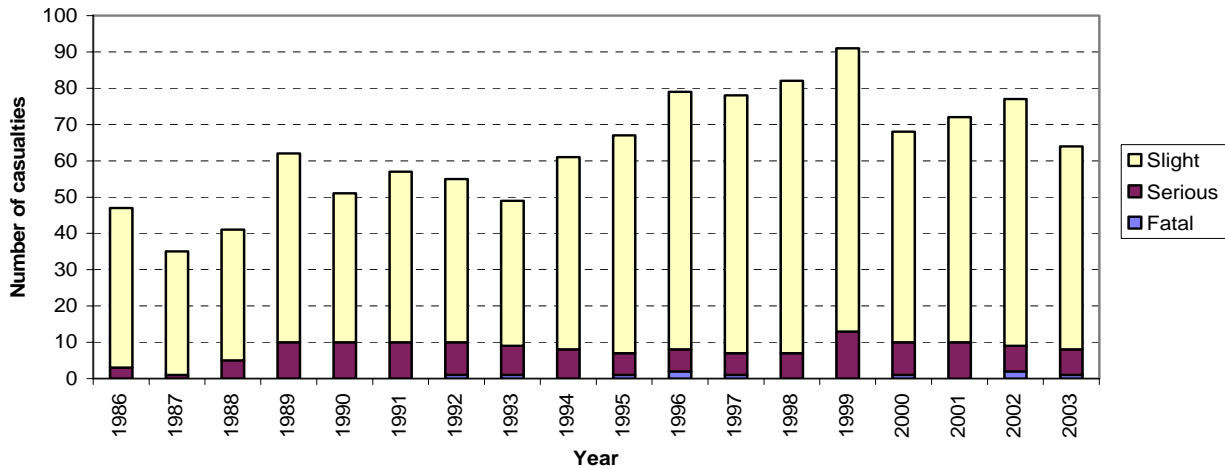
peak of 91 in 1999. Numbers fell in 2000 and then rose slightly in 2001 and 2002, falling again in 2003 to 64.

In terms of progress towards the 2010 target, a comparison of the 2003 figures with the 1994-98 average shows an overall reduction of 13% in all P/C casualties, but an 8% increase in KSI casualties.

Table 4: Pedal cyclist collisions and casualties by year, severity and severity ratio in the City of London 1986 to 2003

Year of accident	Severity of casualty				Total	Severity ratio
	Collisions	Fatal	Serious	Slight		
1986	47	0	3	44	47	6%
1987	35	0	1	34	35	3%
1988	40	0	5	36	41	12%
1989	62	0	10	52	62	16%
1990	51	0	10	41	51	20%
1991	57	0	10	47	57	18%
1992	54	1	9	45	55	18%
1993	49	1	8	40	49	18%
1994	61	0	8	53	61	13%
1995	67	1	6	60	67	10%
1996	79	2	6	71	79	10%
1997	78	1	6	71	78	9%
1998	82	0	7	75	82	9%
1994 to 1998 average	73.4	0.8	6.6	66	73.4	10%
1999	90	0	13	78	91	14%
2000	68	1	9	58	68	15%
2001	72	0	10	62	72	14%
2002	77	2	7	68	77	12%
2003	64	1	7	56	64	13%
% change 1994-98 average to 2003	-13%	25%	6%	-15%	-13%	-

Fig 4: Pedal cyclist casualties by year and severity in the City of London 1986 to 2003



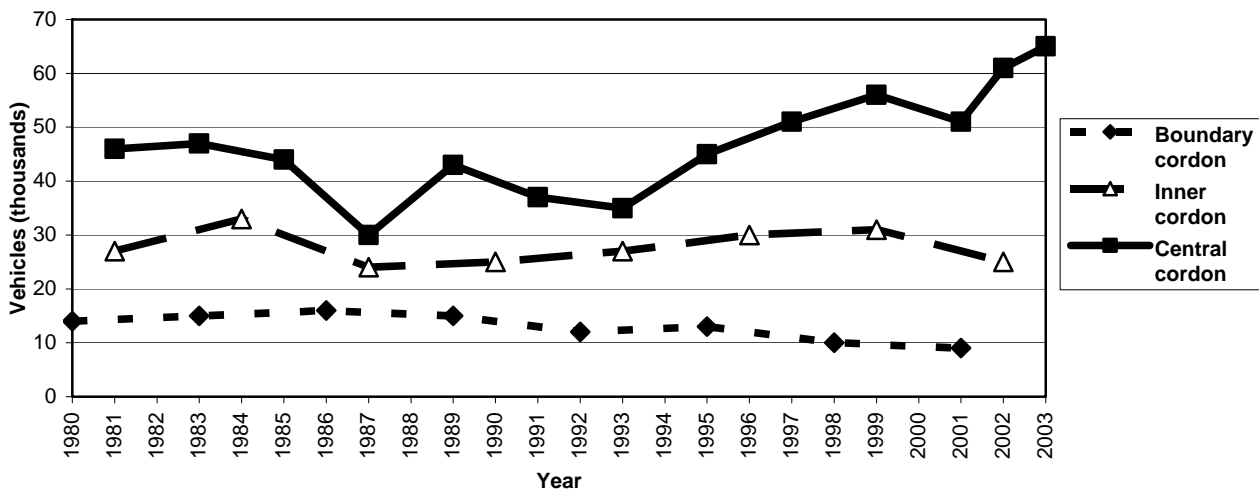
Pedal cycle usage in Greater London

In order to gain a clearer picture of the extent of the P/C collision problem in London, it is important to look at casualty numbers in relation to pedal cycle movements.

Regular surveys of radial traffic movements in London are carried out which give useful indicators of the change in travel over time. These surveys measure 24-hour radial vehicle flows crossing the Greater London boundary and inner and central London cordons. Each cordon is measured every two to three years.

Figure 5 shows the radial cordons, combined 24-hour pedal cycle movements between 1980 and 2003. P/C movements across both the boundary and inner cordons have reduced over this period (-36% and -7% respectively). Numbers across the boundary cordon have been falling quite steadily from a high of 16,000 in 1986 to a low of 9,000 in 2001. Numbers across the inner cordon rose steadily from a low of 24,000 in 1987 to 31,000 in 1999 and then fell to 25,000 in 2002. P/C movements across the central cordon have been on a general upward trend for the last ten years, reaching a high of 65,000 in 2003. Cycle usage in this central area has increased by 41% between 1981 and 2003.

Fig 5: Radial 24 hour pedal cycle movements in London, both directions combined, 1980-2003



Pedal cyclist casualties in Greater London during 2003

The following section provides a more detailed analysis of P/C casualties in Greater London in 2003, including the City of London. This is the most recent year for which finalised data was available at the time of writing.

How many?

During 2003 there were 31,811 road traffic collisions resulting in personal injury reported to the Police in the Greater London area. Of these collisions 3,039 (10%) involved injury to pedal cyclists and resulted in 3,056 pedal cyclist casualties.

The majority of P/C casualties (85.6%) were slightly injured, with 13.8% suffering serious injury and less than 1% being killed. Most casualties (79%) were male.

What is the cost?

Based on the average cost of P/C casualties as detailed in DfT *Highways Economics Note No.1*, at June 2003 prices, the cost to the community of P/C casualties is estimated at around

£117.5 million (approximately £123 million at June 2004 prices). The 3,056 P/C casualties recorded in 2003 averaged 8.4 per day, with a subsequent cost to the community of approximately £323,000 per day.

How old?

Table 5 and Figure 6 show the number of P/C casualties by five-year age bands, gender, severity and severity ratio in Greater London, 2003.

82% of P/C casualties of known age were aged between 10 and 44 years, with over 50% between the ages of 20 and 39 years. The highest numbers occurred in the 25-29 years (17%) and 30-34 years (16%) age groups, which accounted for one third of all P/C casualties. This was the case for both male and female casualties.

The highest severity ratios were found in the 0-4 and 75-79 years age groups (40% and 36% respectively). This might be due in part to the very low numbers of casualties in these groups (each less than 1% of known age), but also highlights the vulnerability of the young and old to more serious injury.

Fig 6: Pedal cyclist casualties by age-band and severity in Greater London 2003

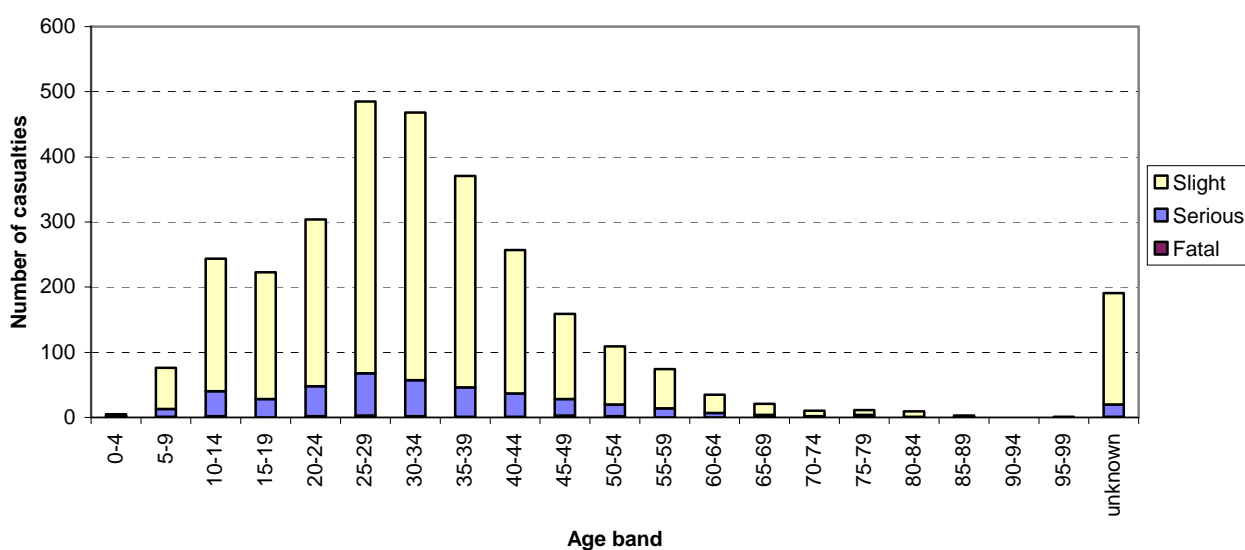


Table 5: Pedal cyclist casualties by age-band, gender, severity and severity ratio in Greater London 2003

Casualty age	Casualty gender		Severity of casualty				Total	% of known age	Severity ratio
	Male	Female	Fatal	Serious	Slight				
0-4	5	0	0	2	3	5	0.2%	40%	
5-9	62	14	1	12	63	76	2.7%	17%	
10-14	218	26	2	38	204	244	8.5%	16%	
15-19	205	18	0	28	195	223	7.8%	13%	
20-24	224	80	2	46	256	304	10.6%	16%	
25-29	331	154	3	65	417	485	16.9%	14%	
30-34	360	108	2	55	411	468	16.3%	12%	
35-39	294	77	1	45	325	371	12.9%	12%	
40-44	212	45	1	36	220	257	9.0%	14%	
45-49	131	28	3	25	131	159	5.5%	18%	
50-54	85	24	2	18	89	109	3.8%	18%	
55-59	55	19	0	14	60	74	2.6%	19%	
60-64	26	9	0	7	28	35	1.2%	20%	
65-69	18	3	0	4	17	21	0.7%	19%	
70-74	8	2	0	2	8	10	0.3%	20%	
75-79	9	2	0	4	7	11	0.4%	36%	
80-84	7	2	1	0	8	9	0.3%	11%	
85-89	3	0	0	1	2	3	0.1%	33%	
90-94	0	0	0	0	0	0	0.0%	-	
95-99	0	1	0	0	1	1	0.0%	0%	
Total (age known)	2,253	612	18	402	2,445	2,865	100%	15%	
Total (age unknown)	153	38	1	19	171	191	-	10%	
Total	2,406	650	19	421	2,616	3,056	-	14%	

Table 6: Pedal cyclist casualties by severity and ethnic group in Greater London 2003

Ethnic Group	Severity of casualty				Total	% of known ethnic group	Severity ratio
	Fatal	Serious	Slight				
White-Skinned European	7	255	1,476	1,738	78%	15%	
Dark-Skinned European	1	13	97	111	5%	13%	
Afro-Caribbean	1	31	232	264	12%	12%	
Asian	2	15	66	83	4%	20%	
Oriental	3	3	18	24	1%	25%	
Arab	0	2	11	13	1%	15%	
Total (ethnic group known)	14	319	1,900	2,233	100%	15%	
Ethnic group unknown	5	102	716	823	-	13%	
Total (ethnic group unknown)	19	421	2,616	3,056	-	14%	

Ethnicity

Table 6 shows the number of P/C casualties by ethnic group (based on the 6-point identification code used by the Police) and severity. 78% of P/C casualties of known ethnic group were white-skinned Europeans. This group

had a severity ratio of 15%. The next highest ethnic group was Afro-Caribbean with 12% of casualties with known ethnicity. Unfortunately for more than a quarter (27%) of pedal cyclist casualties the ethnic group was unknown or not recorded.

Where?

Table 7 shows the number of P/C casualties by borough, severity and percentage change in KSI casualties in 2003 over the 1994-98 average.

Just under two thirds (61%) of P/C casualties were injured in inner London. This included over three quarters (79%) of fatalities, 56% of serious injuries and 62% of slight. The average severity ratio

however was slightly higher in outer London (16% compared to 13%).

Regarding progress towards the 2010 casualty reduction targets, Map 1 shows the percentage change in P/C casualties killed or seriously injured in 2003 compared with the 1994-98 average. KSI casualties in outer London showed a 32% reduction on this baseline compared with a fall of just 14% in inner London.

Table 7: Pedal cyclist casualties by borough, severity and KSI percentage change in 2003 over 1994-98 average in Greater London

Borough	Fatal	Serious	Slight	Total	Severity ratio	1994-98 KSI average	2003 KSI total	% change 1994-98 average to 2003
City of London	1	7	56	64	13%	7.4	8	8%
Westminster	1	47	257	305	16%	38.4	48	25%
Camden	0	23	162	185	12%	31	23	-26%
Islington	4	21	156	181	14%	26	25	-4%
Hackney	0	19	121	140	14%	18.8	19	1%
Tower Hamlets	0	11	68	79	14%	14.4	11	-24%
Greenwich	1	8	43	52	17%	9.8	9	-8%
Lewisham	1	7	77	85	9%	14.2	8	-44%
Southwark	1	24	168	193	13%	24.6	25	2%
Lambeth	4	28	155	187	17%	36.4	32	-12%
Wandsworth	2	10	142	154	8%	32.8	12	-63%
Hammersmith & Fulham	0	19	119	138	14%	20.2	19	-6%
Kensington & Chelsea	0	13	93	106	12%	18	13	-28%
Total inner London	15	237	1,617	1,869	13%	292.0	252	-14%
% of Greater London	79%	56%	62%	61%	-	-	-	-
Waltham Forest	0	4	59	63	6%	12	4	-67%
Redbridge	0	6	39	45	13%	12.4	6	-52%
Havering	0	3	29	32	9%	11.4	3	-74%
Barking & Dagenham	0	6	21	27	22%	7.6	6	-21%
Newham	0	6	58	64	9%	10.8	6	-44%
Bexley	0	5	25	30	17%	9	5	-44%
Bromley	2	14	50	66	24%	18	16	-11%
Croydon	0	6	62	68	9%	13	6	-54%
Sutton	0	9	22	31	29%	10	9	-10%
Merton	0	10	45	55	18%	11.6	10	-14%
Kingston	0	8	41	49	16%	14	8	-43%
Richmond	0	18	83	101	18%	21.4	18	-16%
Hounslow	2	12	86	100	14%	19.2	14	-27%
Hillingdon	0	8	59	67	12%	19.6	8	-59%
Ealing	0	20	94	114	18%	20.6	20	-3%
Brent	0	12	53	65	18%	17.6	12	-32%
Harrow	0	5	22	27	19%	7.4	5	-32%
Barnet	0	14	57	71	20%	14.4	14	-3%
Haringey	0	9	44	53	17%	11.8	9	-24%
Enfield	0	9	50	59	15%	13	9	-31%
Total outer London	4	184	999	1,187	16%	275	188	-32%
% of Greater London	21%	44%	38%	39%	-	-	-	-
Total Greater London	19	421	2,616	3,056	14%	566.8	440	-22%

**Map 1: Greater London - All pedal cyclists killed or seriously injured (KSI)
Percentage change from 1994-98 average to year 2003**

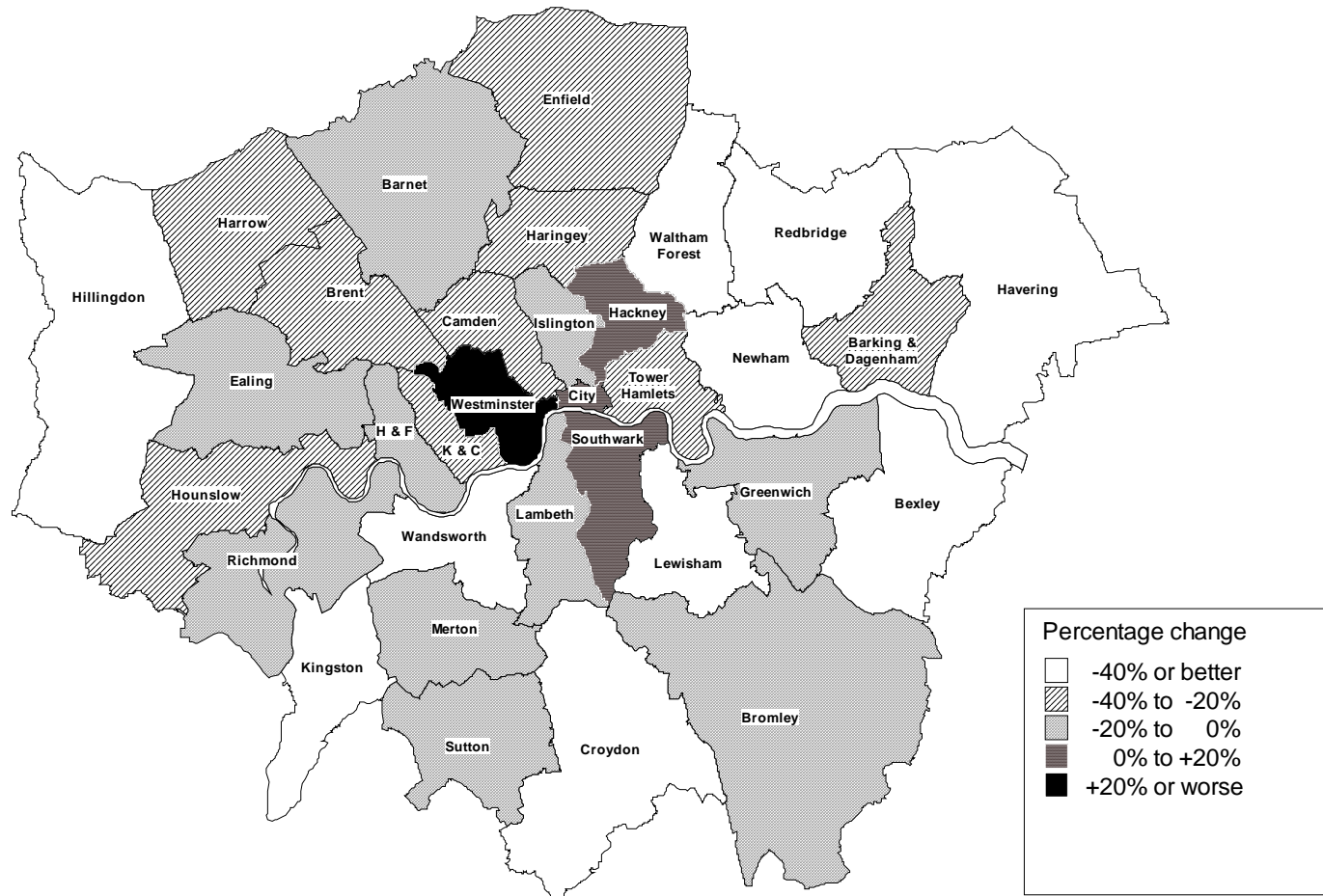


Table 8: Pedal cyclist casualties by borough, gender and age group in Greater London 2003

Borough	Gender		Casualty age (banded)					Unknown	Total
	Male	Female	Under 16	16-24	25-59	60 + over			
City of London	55	9	0	11	44	1	8	64	
Westminster	227	78	11	43	230	4	17	305	
Camden	135	50	9	26	135	3	12	185	
Islington	128	53	6	28	134	3	10	181	
Hackney	108	32	12	21	92	1	14	140	
Tower Hamlets	63	16	6	16	56	0	1	79	
Greenwich	44	8	12	13	22	0	5	52	
Lewisham	73	12	17	13	50	2	3	85	
Southwark	147	46	19	35	129	3	7	193	
Lambeth	140	47	10	22	142	2	11	187	
Wandsworth	105	49	7	26	102	3	16	154	
Hammersmith & Fulham	95	43	10	16	98	5	9	138	
Kensington & Chelsea	83	23	5	21	76	3	1	106	
Total inner London	1,403	466	124	291	1,310	30	114	1,869	
% of Greater London	58%	72%	32%	63%	68%	33%	60%	61%	
Waltham Forest	51	12	17	9	33	4	0	63	
Redbridge	38	7	8	5	25	4	3	45	
Havering	29	3	20	3	7	1	1	32	
Barking & Dagenham	26	1	11	6	7	1	2	27	
Newham	59	5	14	7	37	4	2	64	
Bexley	26	4	18	1	7	2	2	30	
Bromley	57	9	14	10	34	3	5	66	
Croydon	60	8	19	7	40	2	0	68	
Sutton	29	2	10	6	12	2	1	31	
Merton	53	2	6	9	31	2	7	55	
Kingston	37	12	8	6	29	4	2	49	
Richmond	68	33	7	11	62	6	15	101	
Hounslow	80	20	19	16	50	8	7	100	
Hillingdon	57	10	21	11	22	3	10	67	
Ealing	97	17	16	18	71	7	2	114	
Brent	55	10	8	14	40	1	2	65	
Harrow	23	4	9	4	12	1	1	27	
Barnet	64	7	18	6	39	2	6	71	
Haringey	41	12	7	7	33	1	5	53	
Enfield	53	6	15	16	22	2	4	59	
Total outer London	1,003	184	265	172	613	60	77	1,187	
% Greater London	42%	28%	68%	37%	32%	67%	40%	39%	
Total Greater London	2,406	650	389	463	1,923	90	191	3,056	

Table 8 shows P/C casualties by borough, gender and age group in Greater London 2003. Nearly three quarters of female P/C casualties (72%) were injured in inner London compared with just over half of male P/C casualties (58%).

With regard to age, approximately two thirds of P/C casualties in the 16-24 and 25-59 year age bands were injured in inner London (63% and 68% respectively). The opposite was true for the youngest and oldest age bands, with approximately two thirds of the under 16 and 60 plus years being injured in outer London (68% and 67% respectively).

Table 9: Pedal cyclist casualties by road class, severity and severity ratio in Greater London 2003

First road class	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
A	14	257	1,620	1,891	61.9%	14%
B	1	40	229	270	8.8%	15%
C	1	52	324	377	12.3%	14%
Unclassified	3	72	443	518	17.0%	14%
Total	19	421	2,616	3,056	100.0%	14%

The Streets

Table 9 shows P/C casualties by road class and severity. Nearly 62% of P/C casualties were injured on 'A' class roads, 17% on unclassified roads, 12% on 'C' class and 9% on 'B' class roads. The severity ratio however was quite consistent across all road classes (15% on 'B' class and 14% on all others).

The majority (71%) of P/C casualties were injured on two-lane single carriageway roads. Nearly 98% of all P/C casualties occurred on roads subject to a 30mph speed limit. A 14% severity ratio was recorded against these casualties.

79% of P/C casualties were injured at or within 20m of a junction, which is higher than the 75% for all casualties in Greater

London in 2003. Of these, 55% occurred at a 'T' or staggered junction and 23% at a crossroads.

Of those injured at a junction, 68% occurred where the junction control was 'Give Way' and 23% at a junction controlled by automatic traffic signals.

Table 10 shows P/C casualties by highway authority and severity. The majority (73%) of injuries occurred on borough roads. These consisted of approximately three quarters of serious and slight casualties (75% and 73% respectively). In regards to fatalities, just over half (53%) occurred on the Transport for London Road Network (TLRN). The severity ratio was 14% on both TLRN and borough roads.

Table 10: Pedal cyclist casualties by highway authority, severity and severity ratio in Greater London 2003

	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
TLRN	10	106	703	819	26.8%	14%
Borough Road	9	315	1,913	2,237	73.2%	14%
Total	19	421	2,616	3,056	100.0%	14%

Table 11: Pedal cyclist casualties by road surface condition and severity in Greater London 2003

Road Surface Condition	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
Dry	16	381	2,360	2,757	90.2%	14%
Wet	2	37	245	284	9.3%	14%
Snow	1	1	3	5	0.2%	40%
Frost/Ice	0	2	7	9	0.3%	22%
Oil/diesel	0	0	1	1	0.0%	0%
Total	19	421	2,616	3,056	100.0%	14%

Road surface/weather

Table 11 shows P/C casualties by road surface condition and severity. 90% of P/C casualties were injured on a dry road surface, 9% on a wet surface and less than 1% in snow, frost or ice.

92% of P/C casualties were injured in fine weather conditions and just under 5.5% in the rain. Both severity ratios were 14%.

When?

Figures 7, 8 and 9 show the number of P/C casualties by time of day, day of week and month in Greater London 2003. They also indicate the proportions occurring during the hours of daylight and darkness.

Time of day

86% of all P/C casualties were injured between 7am and 8pm. Within this 13 hour period there were two clear peaks which coincided with the traditional morning and evening peak periods. 23% of casualties were injured between 7am and 10am with a high of 310 (10%) between 8am and 9am. A further 36% of cyclists were injured between 4pm and

8pm. The highest single hour was between 6pm and 7pm with 323 casualties (11%), a third (33%) of these occurred in the dark. The low period for P/C casualties was between 1am and 6am which accounted for just 1% of the total. 78% of P/C casualties occurred during daylight hours compared to 22% in the dark.

Day of the week

83% of P/C casualties were injured on a week day, with over half (54%) occurring on a Tuesday, Wednesday or Thursday. 9% were injured on a Saturday and 8% on a Sunday. The highest proportion of cyclists injured in the dark (26%) occurred on a Saturday.

Month

44% of P/C casualties were injured in the four summer months – June to September, reaching a peak of 382 (13%) in July. This is likely to be related to the increase in cycling during these months of warmer weather and longer days. In contrast, less than a quarter (22%) of P/C casualties was injured during the four winter months – November to February.

Fig 7: Pedal cyclist casualties by time of day and light conditions in Greater London 2003

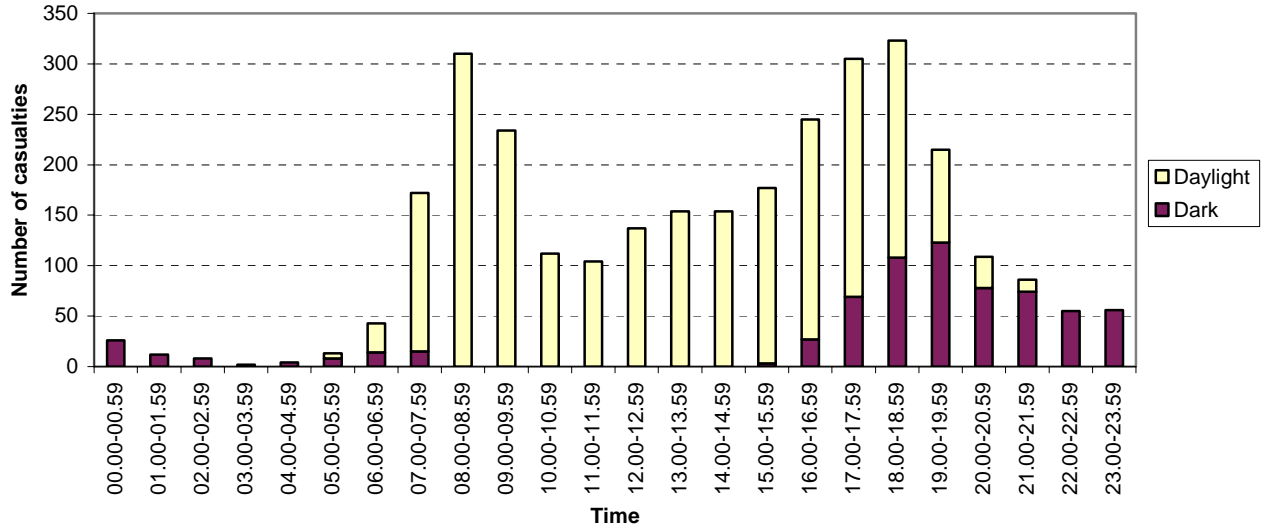


Fig 8: Pedal cyclist casualties by month and light conditions in Greater London 2003

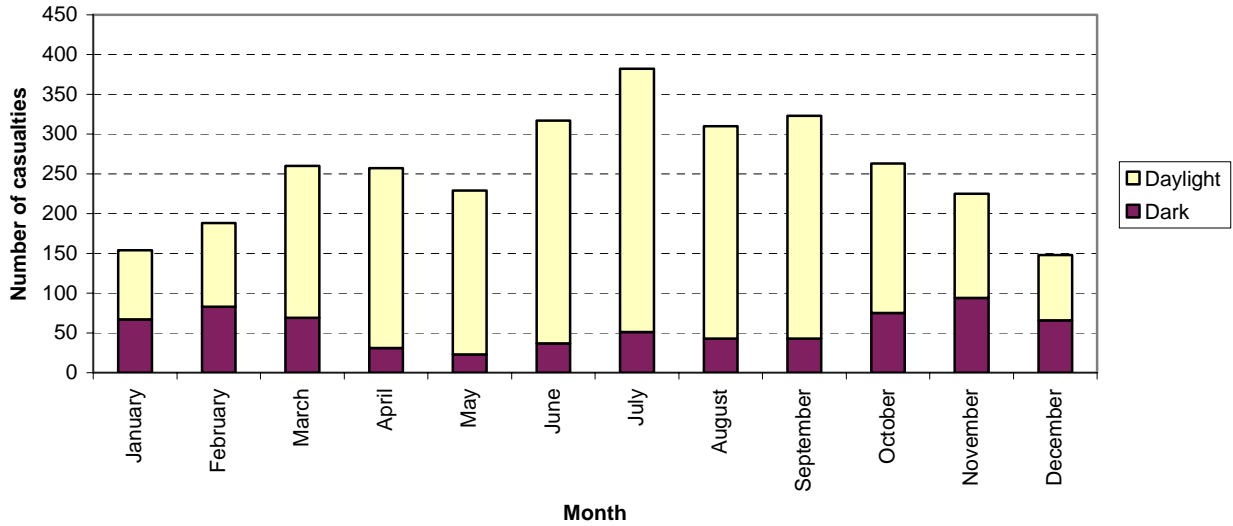


Fig 9: Pedal cyclist casualties by day and light conditions in Greater London 2003

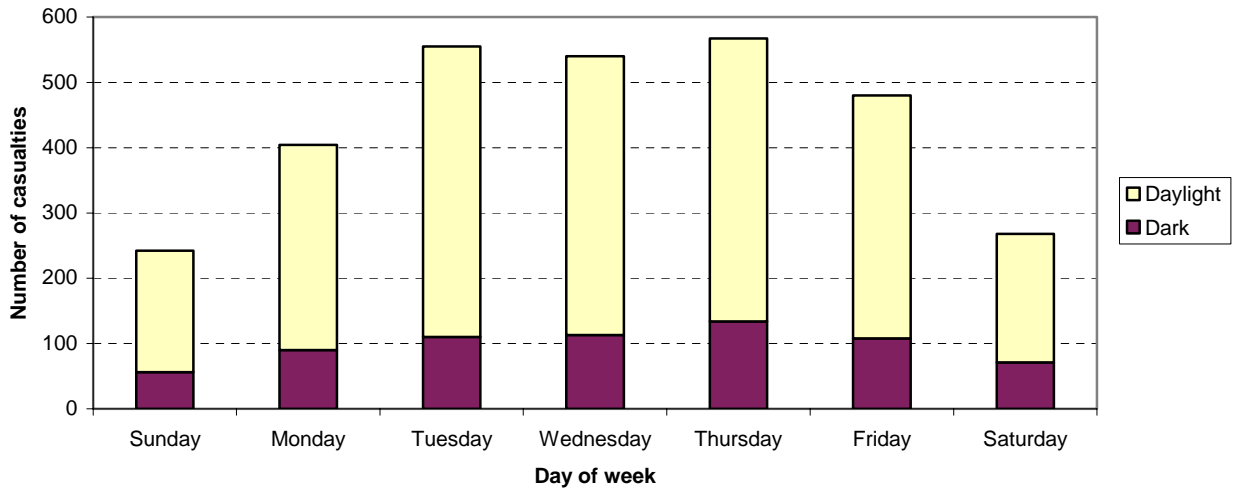


Table 12: Pedal cyclist casualties by vehicle manoeuvre, severity and severity ratio in Greater London 2003

Vehicle manoeuvre	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
Reversing	0	0	1	1	0%	0%
Parked	0	0	4	4	0%	0%
Going Ahead But Held Up	0	5	42	47	2%	11%
Stopping	0	1	25	26	1%	4%
Starting	0	1	20	21	1%	5%
U-Turn	0	0	2	2	0%	0%
Turning Left	0	9	56	65	2%	14%
Waiting to Turn Left	0	0	3	3	0%	0%
Turning Right	1	15	145	161	5%	10%
Waiting to Turn Right	0	0	14	14	0%	0%
Changing Lane To Left	0	2	13	15	0%	13%
Changing Lane To Right	2	4	47	53	2%	11%
Overtaking Moving Veh Offside	0	7	19	26	1%	27%
Overtaking Stat Veh Offside	0	14	96	110	4%	13%
Overtaking Nearside	2	8	81	91	3%	11%
Going Ahead Left Bend	0	3	25	28	1%	11%
Going Ahead Right Bend	0	4	45	49	2%	8%
Going Ahead Other	14	348	1,978	2,340	77%	15%
Total	19	421	2,616	3,056	100%	14%

Manoeuvre

Table 12 shows P/C casualties by manoeuvre and severity. By far the greatest number (79%) of cyclists was injured while the pedal cycle was 'going ahead'. The next most common manoeuvre (7%) involved the P/C performing an overtaking manoeuvre. Vehicle movements and common conflicts with other vehicles resulting in fatal or serious injury to pedal cyclists are looked at in more detail in Tables 14 and 15.

Contributory factors

Table 13 shows P/C casualties by the main accident and vehicle contributory factors for Greater London in 2003.

Both the accident and vehicle contributory factor variables are subjective but indicate the main factors involved in the collision. The accident contributory factor could apply to any of the vehicles

involved in the collision and has been deemed, by the Police, to be the overriding factor in the collision. The vehicle contributory factor relates directly to the pedal cycle.

The top accident contributory factor, assigned to collisions resulting in 14% of P/C casualties was 'Disobeyed Stop or Give Way sign or marking'. However, the top vehicle contributory factor (56%) was 'going ahead normally', i.e. the pedal cycle was not deemed to have caused the collision. Only 2% of P/C casualties were recorded as disobeying a Stop or Give Way sign thus implying that in the majority of cases, where a junction control was disobeyed, it was the other vehicle that failed to stop or give way.

See Tables 14 and 15 for further analysis of the conflicts between pedal cyclists and other vehicles.

Table 13: Pedal cyclist casualties by most common accident and vehicle contributory factors in Greater London 2003

Accident Contributory Factor	Number of Casualties	% of Total
207 Disobeyed STOP or GIVE WAY sign or marking	427	14.0%
209 Turn right injudiciously	387	12.7%
210 Turning left	246	8.0%
223 Negligently opening or closing door	229	7.5%
229 Riding off pavement	203	6.6%
224+225 Going too fast having regard to road environment or other road users	164	5.4%
216 Driving too close to the vehicle in front	161	5.3%
221 Changing lane injudiciously	152	5.0%
217 Driving too close to the vehicle alongside	122	4.0%
219 Overtaking on offside injudiciously	115	3.8%
0 Factor unknown	93	3.0%
238 Swerved/braked to avoid having an accident	81	2.7%
204 Disobeyed ATS	69	2.3%
305 Negligently opening or closing doors	53	1.7%
211 U-turning	49	1.6%
230 Riding across pedestrian crossing	42	1.4%
Vehicle Contributory Factor		
601 Going ahead normally	1,720	56.3%
229 Riding off pavement	183	6.0%
224+225 Going too fast having regard to road environment or other road users	181	5.9%
603 Turning normally	92	3.0%
238 Swerved/braked to avoid having an accident	87	2.8%
0 Factor unknown	81	2.7%
207 Disobeyed STOP or GIVE WAY sign or marking	66	2.2%
230 Riding across pedestrian crossing	55	1.8%
299 Other driver/rider factor	55	1.8%
600 Parked or stationary	54	1.8%
209 Turn right injudiciously	53	1.7%
220 Overtaking on nearside injudiciously	50	1.6%
221 Changing lane injudiciously	50	1.6%
219 Overtaking on offside injudiciously	37	1.2%
228 Riding on pavement	36	1.2%

Common conflicts in pedal cyclist KSI collisions

Tables 14 and 15 show a listing of the main types of conflicts occurring in collisions involving serious or fatal injury to a pedal cyclist. The tables include a simple sketch representation of the conflict between the pedal cyclist (shown as a broken line) and the other vehicle involved (shown as a solid line). The information included in the tables was compiled from a manual analysis of the details of each pedal cycle KSI collision.

Table 14 (serious) summary

- 10% (the most common conflict) involved the door of the other vehicle being opened into the path of the P/C


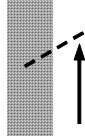

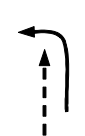






and the cyclist either hitting it or swerving to avoid it

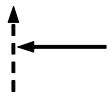
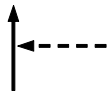
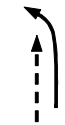

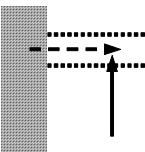
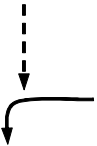




- 9% involved the P/C riding off the footway into the path of another vehicle
- 9% involved the other vehicle turning right across the path of the P/C
- 9% involved the other vehicle turning left across the path of the P/C.






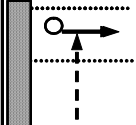
These most common conflicts further support the indication given by the contributory factors that the other vehicle was the primary cause of the collision in the majority of cases.

In 68% of all serious P/C collisions the main conflict was between the P/C and a car.

Table 14: Ranked analysis of the most commonly occurring conflicts between vehicles in collisions resulting in a pedal cyclist being seriously injured in London, 2003

Conflict	Description	Conflict between pedal cycle and:										Total	%
		Powered 2 wheeler	Car	Taxi	Goods under 3.5t	Goods 3.5 to 7.5t	Goods over 7.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle*		
	P/C hits open door / swerves to avoid open door of other vehicle.	0	34	0	4	0	1	1	0	0	4	40	10%
	P/C rides off footway into path of other vehicle.	2	32	0	2	1	0	1	0	0	0	38	9%
	Other vehicle turns right into path of P/C	1	29	3	4	0	0	0	1	0	0	38	9%
	Other vehicle turns left across the path of P/C	0	22	1	8	1	4	0	1	0	0	37	9%
	P/C and other vehicle travelling alongside each other.	1	22	0	3	0	4	4	0	0	0	34	8%
	Other vehicle runs into rear of or reverses into P/C	3	17	2	1	0	2	1	0	0	2	26	6%
	Other vehicle disobeys junction control & turns right into path of P/C	2	24	0	0	0	0	0	0	0	0	26	6%
	No other vehicle hit by P/C (although may be involved). Various manoeuvres or loss of control.	0	1	0	0	0	0	0	0	24	0	25	6%
	P/C runs into rear of other vehicle.	0	15	0	2	0	0	3	1	0	1	21	5%
	Head on collision between P/C and other vehicle	2	13	0	2	0	2	0	1	0	2	20	5%

Conflict	Description	Conflict between pedal cycle and:										Total	%
		Powered 2 wheeler	Car	Taxi	Goods under 3.5t	Goods 3.5 to 7.5t	Goods over 7.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *		
	Crossroads collision - other vehicle disobeys junction control & collides with P/C	0	15	0	2	1	0	0	0	0	0	18	4%
	Crossroads collision - P/C disobeys junction control & collides with other vehicle	1	11	0	1	0	1	2	0	0	0	16	4%
	Other vehicle changes lane to nearside across the path of P/C	1	7	0	6	0	0	0	0	0	0	14	3%
	Other vehicle changes lane to offside across the path of P/C	0	6	0	1	0	0	1	1	0	0	9	2%
	P/C rides across road at pedestrian crossing into path of other vehicle.	0	9	0	0	0	0	0	0	0	0	9	2%
	Other vehicle disobeys junction control & turns left into path of P/C	0	6	0	2	0	0	0	0	0	0	8	2%
	P/C disobeys junction control & turns right into path of other vehicle	1	4	1	0	0	0	0	1	0	0	7	2%
	P/C loses control & hits other vehicle - various manoeuvres	0	5	0	0	0	0	0	2	0	0	7	2%
	Not known how collision happened	0	3	0	0	0	2	0	2	0	0	7	2%
	P/C changes lane or turns right across path of other vehicle.	0	3	0	0	0	0	3	0	0	0	6	1%

Conflict	Description	Conflict between pedal cycle and:										Total	%	
		Powered 2 wheeler	Car	Taxi	Goods under 3.5t	Goods 3.5 to 7.5t	Goods over 7.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *			
	P/C riding wrong way in one-way street hit other vehicle	0	2	2	1	0	0	0	0	0	0	0	5	1%
	Other vehicle U-turns into path of P/C	0	2	0	0	0	0	0	0	0	0	0	2	0%
	P/C disobeys junction control & turns left into path of other vehicle	0	2	0	0	0	0	0	0	0	0	0	2	0%
	P/C changes lane to nearside across the path of other vehicle	1	1	0	0	0	0	0	0	0	0	0	2	0%
	P/C in collision with pedestrian not on crossing	0	0	0	0	0	0	0	0	2	0	0	2	0%
	P/C in collision with pedestrian on crossing	0	0	0	0	0	0	0	0	1	0	0	1	0%
	TOTAL	15	285	9	39	3	16	16	10	27	9	420	100%	

* collisions involving three or more vehicles - the main vehicle in such collisions is recorded in the relevant column

Table 15 (fatal) summary










The most common conflict in fatal P/C collisions (32%) involved the P/C and other vehicle travelling alongside each other.

16% involved the P/C moving from the nearside to the offside across the path of the other vehicle. Two pedal cyclists

(11%) were killed when either hitting or swerving to avoid a door being opened into their path.

In 42% of fatal collisions the pedal cyclist was in collision with a car and in 32% with a heavy goods vehicle (over 7.5 Tonnes).

Table 15: Ranked analysis of the most commonly occurring conflicts between vehicles in collisions resulting in a pedal cyclist being fatally injured in London, 2003

Conflict	Description	Conflict between pedal cycle and:										Total	%
		Powered 2 wheeler	Car	Taxi	Goods under 3.5t	Goods 3.5 to 7.5t	Goods over 7.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *		
	P/C and other vehicle travelling alongside each other.	0	1	0	0	2	2	1	0	0	0	6	32%
	P/C changes lane or turns right across path of other vehicle.	0	3	0	0	0	0	0	0	0	1	3	16%
	P/C hits open door / swerves to avoid open door of other vehicle.	0	1	0	1	0	0	0	0	0	2	2	11%
	Other vehicle turns left across the path of P/C	0	0	0	0	0	2	0	0	0	0	2	11%
	Crossroads collision - P/C disobeys junction control & collides with other vehicle	0	2	0	0	0	0	0	0	0	0	2	11%
	Other vehicle runs into rear of or reverses into P/C	1	0	0	0	0	0	0	0	0	0	1	5%
	Head on collision between P/C and other vehicle	0	1	0	0	0	0	0	0	0	0	1	5%
	Other vehicle disobeys junction control & turns left into path of P/C	0	0	0	0	0	1	0	0	0	0	1	5%
	Crossroads collision - other vehicle disobeys junction control & collides with P/C	0	0	0	0	0	1	0	0	0	0	1	5%
	TOTAL	1	8	0	1	2	6	1	0	0	3	19	100%

* collisions involving three or more vehicles - the main vehicle in such collisions is recorded in the relevant column

Table 16: All casualties injured and vehicles involved in collisions in which a pedal cyclist is injured in Greater London 2003

Casualty mode of travel	Severity of casualty			Casualty Total	No. of each vehicle type involved
	Fatal	Serious	Slight		
Pedestrian	0	0	18	18	-
Pedal Cycle	19	421	2,616	3,056	3,053
Powered 2 Wheeler	0	2	24	26	101
Car	0	2	24	26	2,214
Taxi	0	0	1	1	105
Bus Or Coach	0	0	4	4	153
Goods Vehicle	0	0	1	1	300
Other Vehicle	0	0	0	0	43
Total	19	425	2,688	3,132	5,969

All casualties arising from collisions in which a pedal cyclist is injured

This fact sheet has looked exclusively at pedal cyclist casualties, of which there were 3,056 arising from 3,039 collisions in 2003. Table 16 shows a breakdown of all the casualties that occurred in the 3,039 collisions where a pedal cyclist was injured. 97.6% of these casualties were

pedal cyclists, with less than 1% of any other road user in the collision being injured.

There were a total of 5,969 vehicles involved in these 3,039 collisions. After pedal cycles, the most common vehicles involved were cars (2,214 or 37% of vehicles), then goods vehicles (300 or 5%).

Table 17: Comparative casualty rates by vehicular mode of travel in Greater London 2003

Vehicular mode of travel	Casualty severity					Estimated vehicle kilometres per year * (100 million)	Casualty rates per 100 million vehicle kilometres			Estimated average vehicle occupancy †	Casualty rates per 100 million person kilometres		
	Fatal	Serious	Slight	Total	Fatal & Serious		All cas	KSI cas	Slight cas		All cas	KSI cas	Slight cas
Pedal cyclist	19	421	2,616	3,056	440	5.422	563.6	81.1	482.5	1.0	563.6	81.1	482.5
Powered two-wheeler	63	1,089	5,317	6,469	1,152	8.616	750.8	133.7	617.1	1.0	750.8	133.7	617.1
Car & taxi	63	1,678	16,614	18,355	1,741	263.348	69.7	6.6	63.1	1.5	46.5	4.4	42.1
Bus or coach	5	218	2,120	2,343	223	5.823	402.3	38.3	364.1	14.7	27.4	2.6	24.8
Goods vehicle	3	84	730	817	87	49.869	16.4	1.7	14.6	1.2	13.7	1.5	12.2
Total#	153	3,490	27,397	31,040	3,643	333.079	93.2	10.9	82.3				

excluding pedestrians and other vehicles.

* Source: DfT National Road Traffic Survey data

† Estimates by TfL Network Performance

Comparative casualty rates by vehicular mode of travel

Table 17 shows comparative casualty rates by vehicular mode of travel for vehicle types where vehicle kilometre data is available. This gives a good indication of the relative risk to occupants of different vehicle types.

Pedal cycles had the second highest casualty rate per 100 million vehicle kilometres (563.6 for all casualties, 81.1 for KSI's and 482.5 for slight) after powered-two wheelers (750.8, 133.7 and 617.1 respectively). Cycling represented 1.6% of estimated vehicle kilometres travelled and 10% of casualties. When compared with the rate for cars and taxis of 69.7 for all casualties, 6.6 for KSI's and 63.1 for slight, the vulnerability of these two-wheeled modes of travel becomes even more apparent. When vehicle occupancy is also taken into account, the relative risk to pedal cyclists compared with car occupants is even greater. Viewed as a casualty rate per 100 million person kilometres, the pedal cycle rate does not change, but the rate for car occupants falls to 46.5 for all severities, 4.4 for KSI's and 42.1 for slight injuries.

Under-reporting of pedal cyclist casualties

It is well known that many personal injury road traffic collisions go unrecorded, either as a result of under-reporting - where casualties are not reported to the Police, or through under-recording - where reported casualties were subsequently not included in the *STATS 19* database. This problem is particularly apparent in relation to pedal cycle casualties.

A study was undertaken by TRL on behalf of Transport for London in 2003¹ matching *STATS19* data with hospital records in 3 London hospitals. This found the reporting rate for pedal cyclist casualties to be about 66-70% which is much higher than the national studies and provides the best current estimate of reporting levels in London. The reporting rate was defined as all casualties known to police divided by all casualties.

The data presented in this fact sheet includes only those casualties that were reported to the Metropolitan or City Police. The level of reporting should be kept in mind when considering the scale of the pedal cycle casualty problem.

References

- ¹ *Reporting of Road Traffic Accidents in London: Matching Police STATS 19 records with Hospital Accident and Emergency Department Data.* Safety Research Report No.1 September 2003. Transport for London Street Management

Background Documents

- Road Casualties Great Britain:2003 Annual Report – DfT (September 2004) www.dft.gov.uk/stellent/groups/dft_transstats/documents/source/dft_transstats_source_031405.doc
- Highways Economics Note No. 1 2003 – DfT (December 2004) (www.dft.gov.uk/stellent/groups/dft_rdsafety/documents/page/dft_rdsafety_033570.pdf)
- Radial Traffic Movements in London 1971 – 2003 TfL (unpublished)
- DfT National Road Traffic Survey data

Copies of reports and research published by LRSU can be found at - <http://www.tfl.gov.uk/streets/roadsafety-reports.shtml>

Further information relating to cycling can be found at – www.tfl.gov.uk/cycles