

Better Routes and Places Directorate Topic Factsheet 2010-2

November 2010

Pedal cyclist collisions and casualties in Greater London

This factsheet looks into the scale and nature of road traffic collisions resulting in injury to pedal cyclists in the Greater London area. It gives an overview of pedal cyclist (P/C) casualties for the period 1986 to 2009 and then looks in detail at the profile of the casualties and factors relating to the collisions that occurred in 2009 (the latest year for which finalised data are available at the time of writing).

It provides background information to support the Government and Mayor for London's targets to reduce road casualties by the year 2010. The targets were reviewed in 2006 and now include a 50% reduction in the number of pedal cyclists 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 that occurred on the public highway and were reported to the police in accordance with the *Stats 19* national reporting system. The pedal cycle category applies to cycles being ridden in the carriageway or on a cycleway or pavement and also applies to toy cars and tricycles in the carriageway. The category also includes electrically assisted pedal cycles.

Key facts

- 16% of all collisions in Greater London in 2009 resulted in injury to pedal cyclists, who in turn represented 13% of all casualties.
- P/C KSI casualties accounted for 13% of all KSI casualties in 2009.
- P/C KSIs have fallen by 24% between the 1994-98 average and 2009; all P/C casualties have fallen by 17%.
- Over three quarters (77%) of P/C casualties in 2009 were male.
- Just over half (51%) of P/C casualties of known age injured in 2009 were aged between 25 and 39 years.
- In 2009, 65% of P/C casualties were injured in inner London boroughs.
- Between 2000 and 2009, cycling on London's main roads (TLRN) has increased by 117.5%.

Annual Trends 1986 to 2009

Table 1 and Figure 1 show the number of P/C casualties by year, severity and casualty class in Greater London from 1986 to 2009.

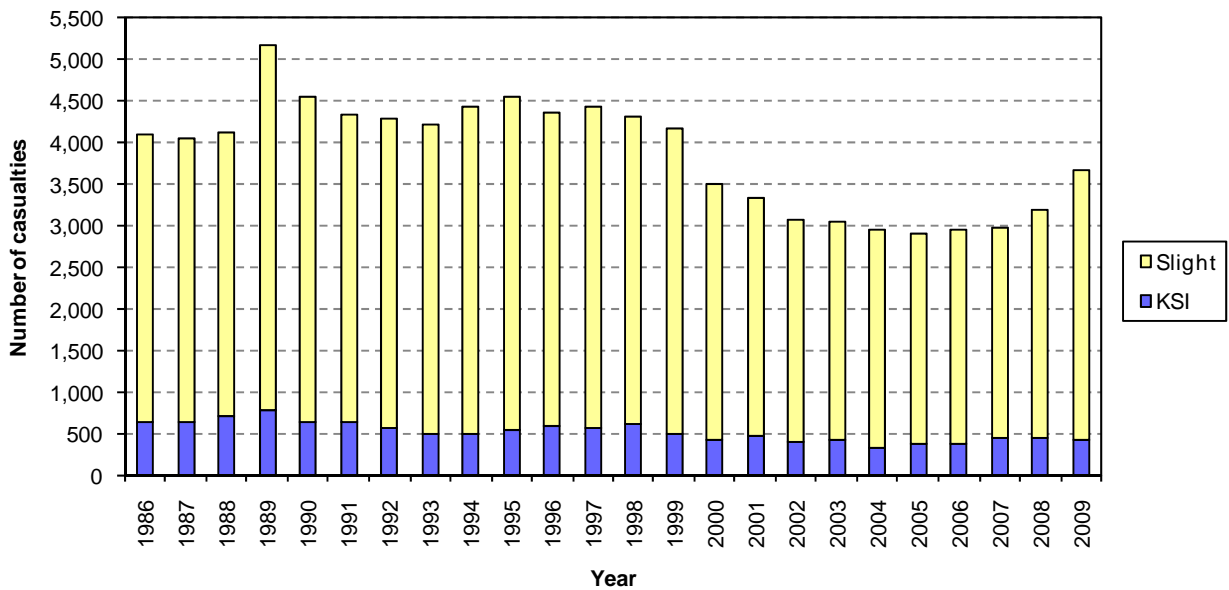
Table 1: Pedal cyclist casualties by year and severity in Greater London 1986 to 2009

Year of accident	Severity of casualty				Total	Severity ratio
	Collisions	Fatal	Serious	Slight		
1986	4,062	18	624	3,443	4,085	16%
1987	4,014	25	623	3,388	4,036	16%
1988	4,102	24	679	3,425	4,128	17%
1989	5,142	33	752	4,379	5,164	15%
1990	4,512	19	625	3,895	4,539	14%
1991	4,316	17	633	3,693	4,343	15%
1992	4,252	18	546	3,722	4,286	13%
1993	4,177	18	493	3,695	4,206	12%
1994	4,397	15	488	3,924	4,427	11%
1995	4,517	15	527	3,997	4,539	12%
1996	4,325	20	577	3,753	4,350	14%
1997	4,401	12	566	3,852	4,430	13%
1998	4,290	12	602	3,702	4,316	14%
1994 to 1998 average	4,386.0	14.8	552.0	3,845.6	4,412.4	13%
1999	4,147	10	482	3,682	4,174	12%
2000	3,482	14	408	3,084	3,506	12%
2001	3,300	21	444	2,857	3,322	14%
2002	3,050	20	394	2,648	3,062	14%
2003	3,039	19	421	2,616	3,056	14%
2004	2,933	8	332	2,620	2,960	11%
2005	2,881	21	351	2,523	2,895	13%
2006	2,941	19	373	2,566	2,958	13%
2007	2,953	15	446	2,509	2,970	16%
2008	3,180	15	430	2,757	3,202	14%
2009	3,657	13	420	3,236	3,669	12%
% change 1986 to 2009	-10%	-28%	-33%	-6%	-10%	-
% change 1994-98 average to 2009	-17%	-12%	-24%	-16%	-17%	-
% change 2008 to 2009	15%	-13%	-2%	17%	15%	-

P/C casualties have fluctuated throughout this period, reaching a peak of 5,164 in 1989 and falling to a low of 2,895 in 2005 (a reduction of 44%). Numbers have been increasing since this point however, rising to 3,669 in 2009. Overall P/C casualties have fallen by 10% between 1986 and 2009.

There have been reductions in all severities of P/C casualties between 1986 and 2009, with fatalities falling by 28%, serious injuries by 33% (KSIs by 33%) and slight casualties by 6%. Overall, collisions resulting in injury to one or more pedal cyclist fell by 10% during this period.

Fig. 1: Pedal cyclist casualties by year and severity in Greater London 1986 to 2009



Comparing 2009 with the 1994-98 average, all P/C casualties fell by 17%, fatalities by 12%, serious injuries by 24% and slight injuries by 16%. P/C KSI casualties fell by 24% overall. KSI numbers had been increasing from a low of 340 in 2004 to 461 in 2007, however numbers have fallen again over the last two years.

Comparing 2009 with 2008, P/C casualties rose by 15% (from 3,202 to 3,669). The rise was unique to slight casualties which increased by 17%, while fatal and serious casualties fell by 13% and 2% respectively, resulting in an overall KSI casualty reduction of 3%. Collisions resulting in one or more pedal cycle casualty rose by 15% between 2008 and 2009.

The severity ratio (the percentage of fatal and serious injuries to all injuries) has fluctuated throughout the period 1986 to 2009, peaking at 17% in 1988 and falling to 11% in 1994 and 2004. Following this low it rose to 16% in 2007, but fell to 12% in 2009.

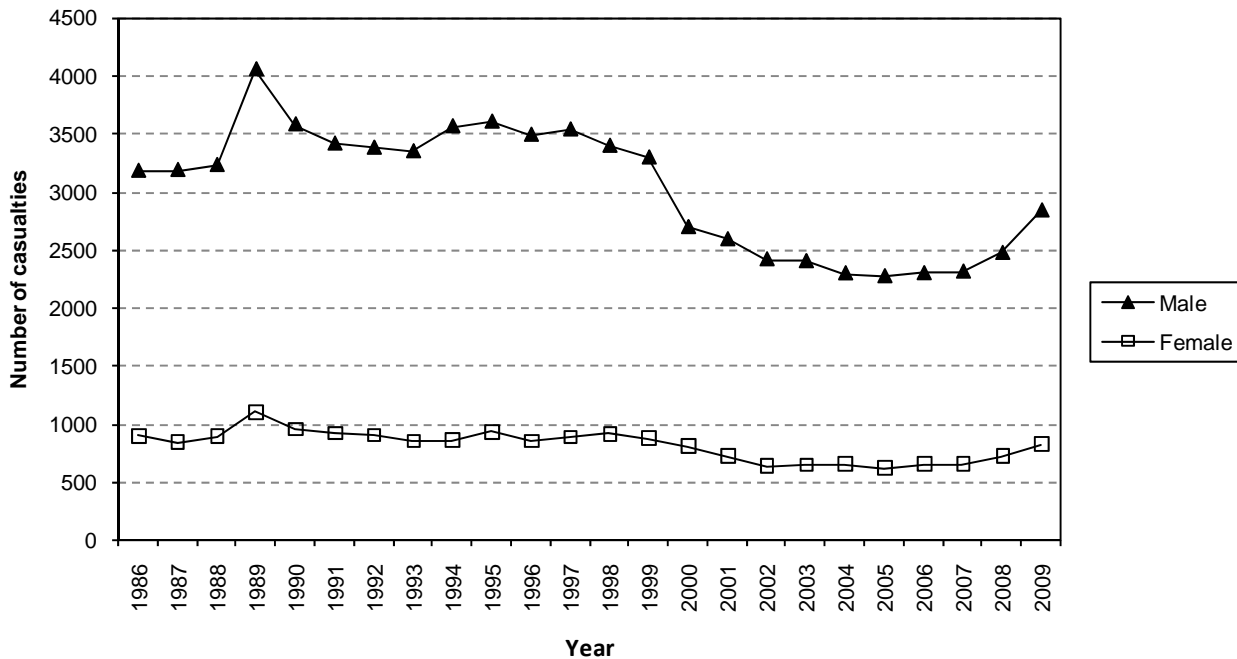
Gender

Figure 2 shows P/C casualties by gender in Greater London from 1986 to 2009. The greatest proportion of P/C casualties was male, with an average of 79% per year over this period. The male-female split has remained quite constant throughout this time, however over the last two years the proportion of females has increased slightly to 23%, with males dropping to 77%.

Both male and female P/C casualties have shown a general downward trend between 1989 and 2007, although year on year fluctuations are more marked in the male casualties. Numbers for both genders have shown increases in 2008 and 2009.

Between 1986 and 2009 male P/C casualties decreased by 11% and female by 8%. Males showed the largest decrease between the 1994-98 average and 2009, falling by 19% compared to females who fell by 7%. P/C casualties of both genders rose between 2008 and 2009, males showed an increase of 15% and females of 14%.

Fig. 2: Pedal cyclist casualties by gender in Greater London 1986 to 2009



Age

Figure 3 and Table 2 show P/C casualties by year and age band, 1986 to 2009. While the proportion of casualties aged 60 years and over has remained constant throughout this period, the proportions in the under 16, 16-24 and 25-59 year groups have shown marked changes.

The percentage of casualties in the 60 years and over age band has remained quite constant, averaging 3% per year. The number of casualties in this group reached a peak of 185 in 1989 and fell to a low of 76 in 2007, numbers have risen over the last two years however, with 101 P/C casualties aged 60 years and over recorded in 2009. P/C casualties in this group have fallen by 36% between 1986 and 2009, and by 22% between the 1994-98 average and 2009, but rose by 16% between 2008 and 2009.

On average 16% of P/C casualties were under the age of 16 years; however numbers in this group have been decreasing steadily. In 1986 under 16s accounted for 21% of all P/C casualties compared to just 7% in 2009, with casualty numbers falling by 69% during this period. Casualties in this group decreased by 66% between the 1994-98 average and 2009, however, the numbers have again risen over the last two years, with an 18% increase between 2008 and 2009.

A similar pattern is apparent in the 16-24 year group, with the percentage of casualties in this age range falling from 30% (1,211 casualties) in 1986 to 13% (485 casualties) in 2009. Casualties in this group decreased by 60% between 1986 and 2009 and by 42% between the 1994-98 average and 2009. There was an increase of 20% between 2008 and 2009.

The situation in the 25-59 year age group shows the opposite trend, with the percentage of casualties making up this group rising from 38% in 1986 to 71% in 2009. Numbers in this group have increased by 66% (1,562 to 2,592) between 1986 and 2009, by 10% between the 1994-98 average and 2009, and by 16% between 2008 and 2009.

Fig. 3: Pedal cyclist casualties by year and age (banded) in Greater London 1986 to 2007

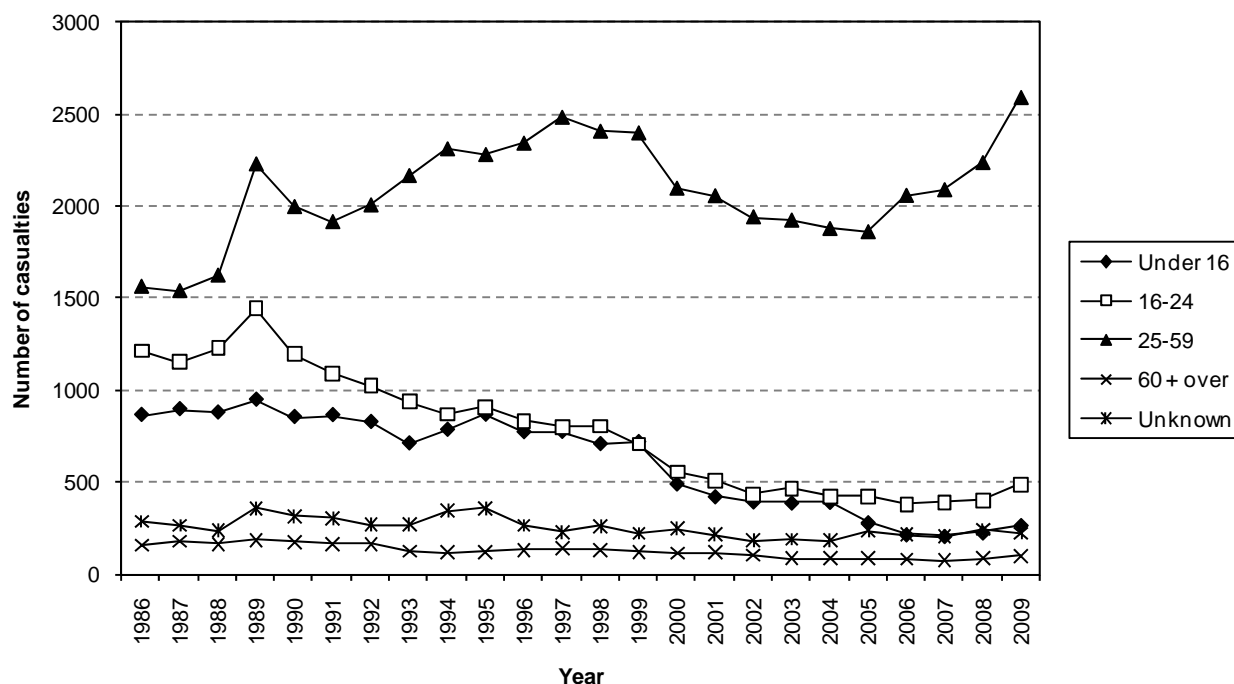


Table 2: Pedal cyclist casualties by year and age (banded) in Greater London 1986 to 2007

	Casualty age banded					Total	% aged	% aged	% aged	% aged
	Under 16	16-24	25-59	60 + over	Unknown		< 16	16-24	25-59	60+
1986	866	1,211	1,562	157	289	4,085	21%	30%	38%	4%
1987	897	1,154	1,538	179	268	4,036	22%	29%	38%	4%
1988	879	1,225	1,623	163	238	4,128	21%	30%	39%	4%
1989	948	1,442	2,230	185	359	5,164	18%	28%	43%	4%
1990	855	1,196	1,997	175	316	4,539	19%	26%	44%	4%
1991	865	1,090	1,915	166	307	4,343	20%	25%	44%	4%
1992	828	1,021	2,006	161	270	4,286	19%	24%	47%	4%
1993	713	934	2,166	124	269	4,206	17%	22%	51%	3%
1994	786	867	2,312	118	344	4,427	18%	20%	52%	3%
1995	867	908	2,281	123	360	4,539	19%	20%	50%	3%
1996	773	833	2,343	133	268	4,350	18%	19%	54%	3%
1997	775	800	2,484	140	231	4,430	17%	18%	56%	3%
1998	709	802	2,408	134	263	4,316	16%	19%	56%	3%
1994 to 1998 average	782	842	2,365.6	129.6	293.2	4,412.4	18%	19%	54%	3%
1999	720	708	2,399	122	225	4,174	17%	17%	57%	3%
2000	492	556	2,097	114	247	3,506	14%	16%	60%	3%
2001	423	510	2,056	118	215	3,322	13%	15%	62%	4%
2002	395	433	1,941	105	188	3,062	13%	14%	63%	3%
2003	389	463	1,923	90	191	3,056	13%	15%	63%	3%
2004	393	421	1,877	85	184	2,960	13%	14%	63%	3%
2005	283	426	1,860	88	238	2,895	10%	15%	64%	3%
2006	218	379	2,058	83	220	2,958	7%	13%	70%	3%
2007	209	389	2,089	76	207	2,970	7%	13%	70%	3%
2008	228	405	2,237	87	245	3,202	7%	13%	70%	3%
2009	268	485	2,592	101	223	3,669	7%	13%	71%	3%
% change 1986 to 2009	-69%	-60%	66%	-36%	-23%	-10%	-	-	-	-
% change 1994-98 average to 2009	-66%	-42%	10%	-22%	-24%	-17%	-	-	-	-
% change 2008 to 2009	18%	20%	16%	16%	-9%	15%	-	-	-	-

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 usage. Regular surveys of radial traffic movements in London are carried out annually or bi-annually which give useful indicators of the change in travel over time. These surveys measure 24-hour radial traffic flows crossing the Greater London boundary and inner and central London cordons.

Map 1: Location of London traffic cordons



Fig. 4: Radial 24 hour pedal cycle movements in London, both directions combined, 1980-2009

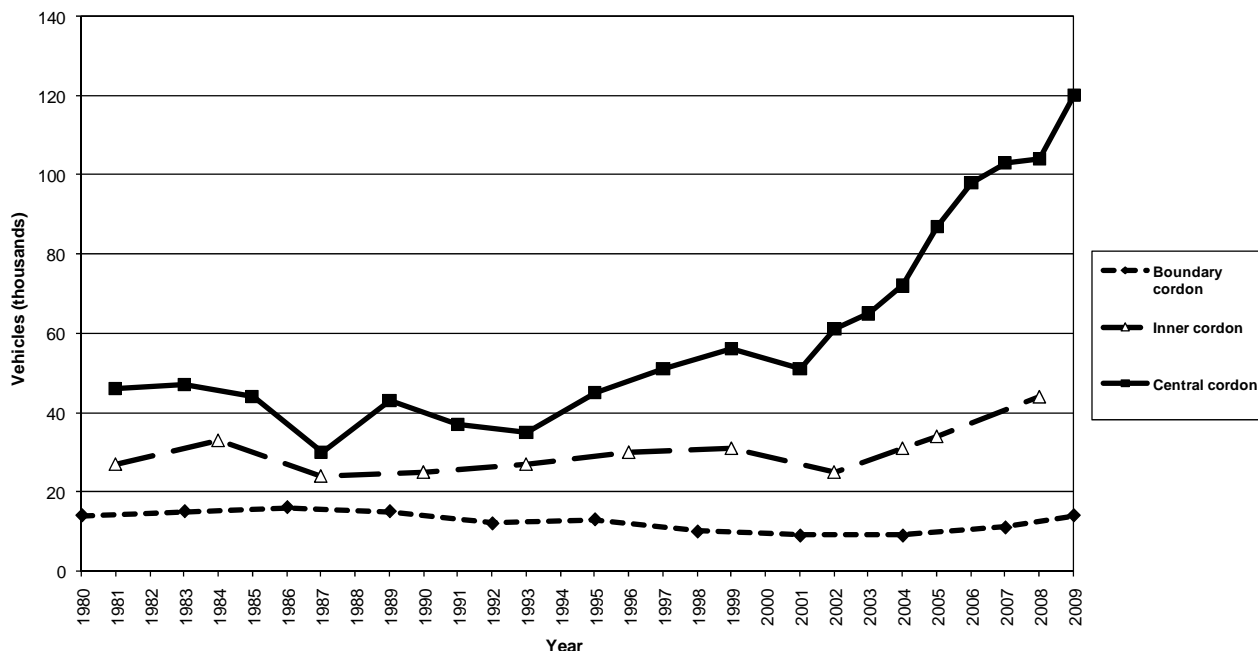


Figure 4 shows the radial cordons, combined direction, 24-hour pedal cycle movements between 1980 and 2009. Flows across the boundary cordon have shown the least amount of change, rising from 14,000 in 1980 to a peak of 16,000 in 1986 and then falling to a low of 9,000 in 2001 and 2004, then rising again to 14,000 in 2009.

Pedal cycle movements have increased across the inner cordon by 63% between 1981 and 2008. Following a steady rise from a low of 24,000 in 1987 to a peak of 31,000 in 1999, numbers fell to 25,000 in 2002, before rising to a high of 44,000 in 2008.

The most dramatic change in pedal cycle movements has been across the central London cordon, with an increase of 161% between 1981 and 2009. This rise in usage has been particularly marked over the last nine years, with numbers increasing from 51,000 in 2001 to 120,000 in 2009.

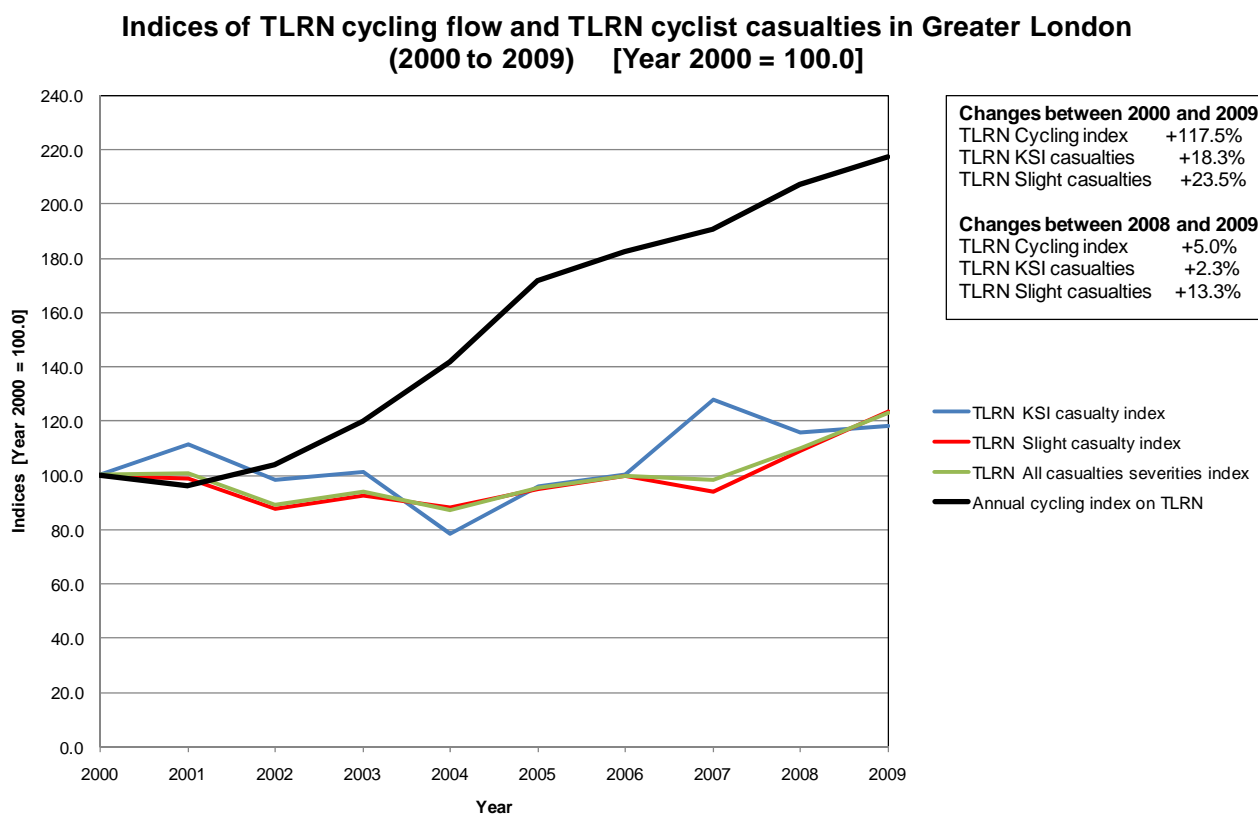


Figure 5 shows indices of cycling flow and P/C casualties on the Transport for London Road Network (TLRN) 2000 to 2009. The index for each of the data variables has been set to 100 for whatever their values were in the year 2000 so that the year on year change can be measured on a comparable basis.

This chart clearly illustrates the rapid growth in cycle flow on the TLRN, with the cycling index increasing by 117.5% between 2000 and 2009 and by 5% between 2008 and 2009. While cycle flow has consistently increased, P/C casualties, particularly KSIs, have shown marked fluctuations during this time. The KSI index increased by 18.3% between 2000 and 2009 and by 2.3% between 2008 and 2009, while the slight casualty index increased by 23.5% between 2000 and 2009 and by 13.3% between 2008 and 2009.

Pedal cyclist casualties in Greater London in 2009

The following section provides a more detailed analysis of P/C casualties in Greater London in 2009. This is the most recent year for which finalised data are available.

How many and who?

During 2009 there were 23,239 personal injury road traffic collisions reported to the police in the Greater London area. Of these collisions, 3,657 (16%) involved injury to pedal cyclists and resulted in 3,669 P/C casualties. Pedal cyclists represented 13% of the total casualties in Greater London in 2009. By comparison, in Great Britain as a whole, P/C casualties accounted for 8% of all casualties in 2009. This difference may reflect the popularity of cycling as a mode of travel in London.

Severity and gender

Table 3 shows P/C casualties by severity and gender in Greater London in 2009. The majority (88%) of P/C casualties were slightly injured, with 11% suffering serious injury and less than 1% being killed. P/C casualties killed or seriously injured accounted for 13% of all road user KSIs in Greater London in 2009.

Over three quarters (77%) of P/C casualties were male, compared to 23% female. This ratio was similar for serious (80% male, 20% female) and slight (77% male, 23% female) casualties, however was reversed for fatalities with 77% of fatal P/C casualties being female compared to 23% male. The severity ratio is similar between males (12%) and females (11%) in Greater London.

Table 3: Pedal cyclist casualties by gender, severity & severity ratio in Greater London 2009

	Severity of casualty			Total	Severity ratio
	Fatal	Serious	Slight		
Male	3	337	2,502	2,842	12%
Female	10	83	734	827	11%
Total	13	420	3,236	3,669	12%

Age and gender

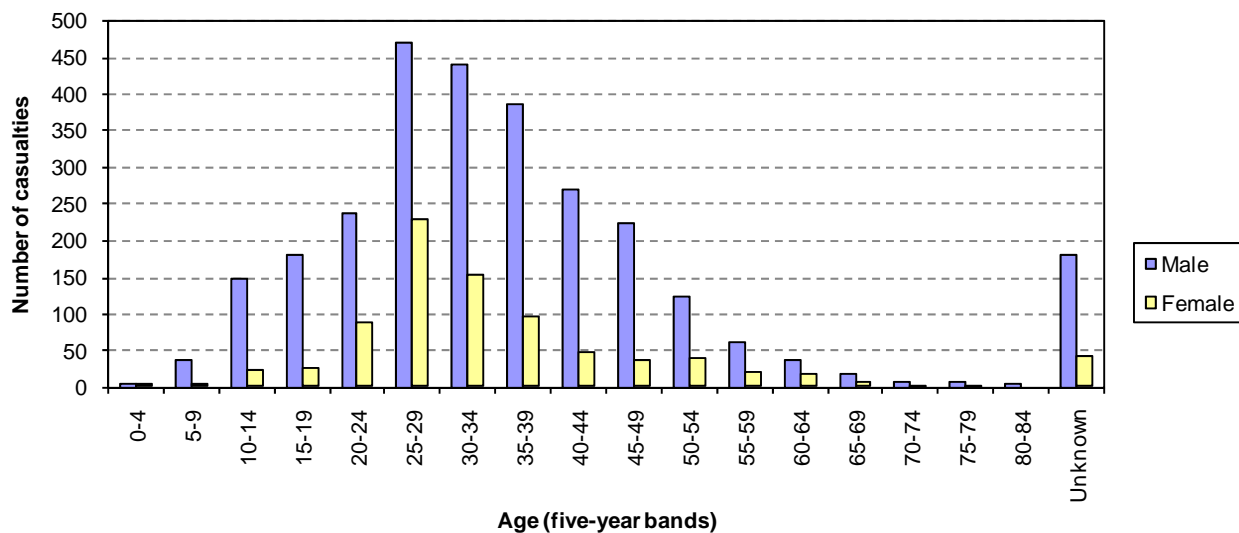
Table 4 and Figure 6 show the number of P/C casualties by five-year age bands, gender and severity in Greater London in 2009. 70% of P/C casualties of known age were aged between 20 and 44 years, with just over half (51%) between the ages of 25 and 39 years. The highest numbers for both male and female casualties occurred in the 25-29 and 30-34 year age bands, which together accounted for more than one third (37%) of P/C casualties of known age. There were more males than females injured in all age bands.

The highest severity ratios were found in the older age bands (30% in the 75-79 and 25% in the 70-74 year bands), followed by 20% in the second to youngest band (5-9 years). This is likely due in part to the low numbers of casualties in these groups, but also highlights the vulnerability of younger and elderly cyclists to serious injury.

Table 4: Pedal cyclist casualties by age-band, gender, severity and severity ratio in Greater London 2009

Casualty age	Casualty gender		Severity of casualty			Total	% of known age	Severity ratio
	Male	Female	Fatal	Serious	Slight			
0-4	5	3	0	0	8	8	0.2%	0%
5-9	38	3	0	8	33	41	1.2%	20%
10-14	149	22	1	25	145	171	5.0%	15%
15-19	182	25	1	20	186	207	6.0%	10%
20-24	237	89	2	30	294	326	9.5%	10%
25-29	469	229	1	70	627	698	20.3%	10%
30-34	440	152	4	72	516	592	17.2%	13%
35-39	387	95	2	61	419	482	14.0%	13%
40-44	269	48	0	32	285	317	9.2%	10%
45-49	225	35	1	31	228	260	7.5%	12%
50-54	123	39	0	22	140	162	4.7%	14%
55-59	61	20	0	14	67	81	2.4%	17%
60-64	37	17	0	5	49	54	1.6%	9%
65-69	18	6	1	2	21	24	0.7%	13%
70-74	7	1	0	2	6	8	0.2%	25%
75-79	9	1	0	3	7	10	0.3%	30%
80-84	5	0	0	0	5	5	0.1%	0%
Total (age known)	2,661	785	13	397	3,036	3,446	100%	12%
Total (age unknown)	181	42	0	23	200	223	-	10%
Total	2,842	827	13	420	3,236	3,669	-	12%

Fig. 6: Pedal cyclist casualties by age-band and gender in Greater London 2009



Where?

Table 5 shows the number of P/C casualties by borough, severity and percentage change in KSI casualties in 2009 compared to the 1994-98 average.

Just under two thirds (65%) of P/C casualties were injured on roads in inner London boroughs. This included over three quarters (77%) of fatalities, 67% of serious and 64% of slight injuries. The severity ratio was however similar in both inner (12%) and outer (11%) London.

Regarding progress towards the 2010 P/C casualty reduction target, KSI casualties in outer London showed a reduction of 49% in 2009 on the 1994-98 average, while numbers in inner London remained at the baseline level showing neither an increase nor decrease. This may be a reflection of the recent growth in cycling, particularly in central and inner London.

Table 5: Pedal cyclist casualties by borough, severity and KSI percentage change in 2009 over 1994-98 average in Greater London

Borough	Severity of casualty				Severity ratio	1994-98 KSI average	2009 KSI total	% change 1994-98 average to 2009
	Fatal	Serious	Slight	Total				
City of London	1	18	91	110	17%	7.4	19	157%
Westminster	1	44	258	303	15%	38.4	45	17%
Camden	1	21	145	167	13%	31.0	22	-29%
Islington	1	17	212	230	8%	26.0	18	-31%
Hackney	0	23	169	192	12%	18.8	23	22%
Tower Hamlets	1	14	143	158	9%	14.4	15	4%
Greenwich	2	11	60	73	18%	9.8	13	33%
Lewisham	0	11	104	115	10%	14.2	11	-23%
Southwark	1	26	195	222	12%	24.6	27	10%
Lambeth	1	32	242	275	12%	36.4	33	-9%
Wandsworth	0	23	182	205	11%	32.8	23	-30%
Hammersmith & Fulham	0	21	135	156	13%	20.2	21	4%
Kensington & Chelsea	1	22	149	172	13%	18.0	23	28%
Total inner London	10	283	2,085	2,378	12%	292.0	293	0%
% of Greater London	77%	67%	64%	65%	-	-	-	-
Waltham Forest	0	9	84	93	10%	12.0	9	-25%
Redbridge	0	8	33	41	20%	12.4	8	-35%
Havering	0	6	25	31	19%	11.4	6	-47%
Barking & Dagenham	0	4	24	28	14%	7.6	4	-47%
Newham	2	6	77	85	9%	10.8	8	-26%
Bexley	0	8	26	34	24%	9.0	8	-11%
Bromley	0	5	58	63	8%	18.0	5	-72%
Croydon	0	7	75	82	9%	13.0	7	-46%
Sutton	0	3	39	42	7%	10.0	3	-70%
Merton	0	7	55	62	11%	11.6	7	-40%
Kingston	0	9	60	69	13%	14.0	9	-36%
Richmond	0	17	82	99	17%	21.4	17	-21%
Hounslow	0	11	72	83	13%	19.2	11	-43%
Hillingdon	0	7	65	72	10%	19.6	7	-64%
Ealing	1	15	95	111	14%	20.6	16	-22%
Brent	0	4	65	69	6%	17.6	4	-77%
Harrow	0	1	30	31	3%	7.4	1	-86%
Barnet	0	4	58	62	6%	14.4	4	-72%
Haringey	0	4	92	96	4%	11.8	4	-66%
Enfield	0	2	36	38	5%	13.0	2	-85%
Total outer London	3	137	1,151	1,291	11%	274.8	140	-49%
% of Greater London	23%	33%	36%	35%	-	-	-	-
Total Greater London	13	420	3,236	3,669	12%	566.8	433	-24%

Table 6 shows P/C casualties by borough, gender and age group in Greater London in 2009. 62% of male and 73% of female P/C casualties were injured on roads in inner London.

With regard to age, 59% of 16-24 year olds, 69% of 25-59 year olds and 58% of those aged 60 years and over were injured on roads in inner London boroughs, however nearly two thirds (65%) of child P/C casualties (under 16 years) were injured in outer London boroughs.

Table 6: Pedal cyclist casualties by borough, gender and age group in Greater London 2009

Borough	Gender		Casualty age (banded)				Unknown	Total
	Male	Female	Under 16	16-24	25-59	60 + over		
City of London	89	21	0	13	81	1	15	110
Westminster	228	75	3	26	239	11	24	303
Camden	124	43	5	25	123	5	9	167
Islington	158	72	5	33	168	7	17	230
Hackney	129	63	6	21	151	4	10	192
Tower Hamlets	120	38	9	19	117	1	12	158
Greenwich	58	15	4	17	44	4	4	73
Lewisham	92	23	10	14	85	2	4	115
Southwark	170	52	9	29	170	4	10	222
Lambeth	215	60	13	30	217	7	8	275
Wandsworth	153	52	13	19	160	5	8	205
Hammersmith & Fulham	120	36	12	17	115	4	8	156
Kensington & Chelsea	118	54	5	24	129	4	10	172
Total inner London	1,774	604	94	287	1,799	59	139	2,378
% of Greater London	62%	73%	35%	59%	69%	58%	62%	65%
Waltham Forest	79	14	15	11	59	1	7	93
Redbridge	37	4	9	4	25	2	1	41
Havering	31	0	13	4	9	0	5	31
Barking & Dagenham	26	2	9	4	13	0	2	28
Newham	76	9	12	14	52	2	5	85
Bexley	28	6	10	5	18	0	1	34
Bromley	52	11	6	8	38	5	6	63
Croydon	71	11	11	13	49	3	6	82
Sutton	33	9	3	10	23	2	4	42
Merton	50	12	4	10	39	2	7	62
Kingston	52	17	7	8	47	4	3	69
Richmond	68	31	4	9	78	3	5	99
Hounslow	63	20	11	11	51	6	4	83
Hillingdon	59	13	18	18	29	2	5	72
Ealing	94	17	9	17	72	6	7	111
Brent	57	12	5	11	47	1	5	69
Harrow	26	5	4	9	17	1	0	31
Barnet	54	8	8	6	43	0	5	62
Haringey	81	15	9	16	65	1	5	96
Enfield	31	7	7	10	19	1	1	38
Total outer London	1,068	223	174	198	793	42	84	1,291
% Greater London	38%	27%	65%	41%	31%	42%	38%	35%
Total Greater London	2,842	827	268	485	2,592	101	223	3,669

Table 7 shows P/C casualties by highway authority and severity. More than two thirds (71%) of injuries occurred on borough roads, these accounted for 62% of fatalities, 69% of serious injuries and 71% of slight. Overall, 29% of cyclists were injured on the TLRN (31% of KSIs). The severity ratio was higher on the TLRN (13%) than on borough roads (11%).

Table 7: Pedal cyclist casualties by highway authority and severity in Greater London 2009

Highway authority	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
TLRN	5	131	937	1,073	29%	13%
Borough Road	8	289	2,299	2,596	71%	11%
Total	13	420	3,236	3,669	100%	12%

Table 8 shows P/C casualties by road class and severity. 64% were injured on 'A' class roads, 26% on 'C' class or unclassified roads and 10% on 'B' class roads. The highest severity ratio (13%) was recorded for casualties injured on 'C' class and unclassified roads. The vast majority (99%) of P/C casualties were recorded as being injured on roads subject to a 30mph speed limit.

Table 8: Pedal cyclist casualties by road class, severity and severity ratio in Greater London 2009

Road class	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
A	11	261	2,087	2,359	64%	12%
B	1	39	311	351	10%	11%
C	0	52	358	410	11%	13%
Unclassified	1	68	480	549	15%	13%
Total	13	420	3,236	3,669	100%	12%

Table 9 shows P/C casualties by junction detail and junction control. 83% of P/C casualties were injured at or within 20m of a junction, compared to 74% for all casualties in Greater London., highlighting the particular vulnerability of pedal cyclists at junctions. Of those injured at a junction, 63% occurred at a 'T' or staggered junction and a further 22% at a crossroads. 9% were injured at a roundabout or mini-roundabout. In terms of junction control, three quarters (75%) of P/C casualties were injured at a junction where the control was 'Give Way' and 24% were at a junction controlled by automatic traffic signals.

Table 9: Pedal cyclist casualties by junction control and junction detail in Greater London 2009

Junction detail	Not applicable	Junction control			Total
		Authorised Person	Automatic Traffic Signals	Give Way or Uncontrolled	
Roundabout	n/a	0	23	186	209
Mini-Roundabout	n/a	0	1	49	50
T & Staggered Junction	n/a	4	281	1,623	1,910
Slip Road	n/a	0	0	4	4
Crossroads	n/a	0	391	286	678
Multi Junction	n/a	0	38	11	49
Private Drive	n/a	0	5	123	128
Other Junction	n/a	0	2	10	12
Total at junctions	n/a	4	741	2,292	3,040
No junction within 20m	629	n/a	n/a	n/a	629
Total	629	4	741	3	3,669

Road surface and weather

The majority of P/C casualties (85%) were injured in collisions on a dry road surface, with 14% on a wet surface and less than 1% on frost, ice or snow. The severity ratio on a dry road was slightly higher at 12% than on a wet road at 11%.

90% of P/C casualties were injured in fine weather conditions, while 8% were injured in the rain.

The low numbers of P/C casualties injured in the wet may reflect the fact that some cyclists are less inclined to ride in adverse weather conditions and the lower frequency of wet days compared to dry.

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 in 2009. They also indicate the proportions occurring in daylight or during the hours of darkness.

Time of day

Over three quarters (78%) of P/C casualties were injured in the 12 hour period between 7am and 7pm. There were two clear peaks during this period which coincided with the traditional morning and evening peak traffic periods. A quarter (25%) of all P/C casualties were injured between 7am and 10am, with the highest single hour between 8am and 9am (12% - 435 casualties). A further 34% of cyclists were injured between 4pm and 8pm.

The low period for P/C casualties was between midnight and 6am which accounted for just 3% of the total. 78% of P/C casualties were injured during daylight hours.

Day of week

84% of P/C casualties were injured on a weekday, an average of 17% per weekday, with 9% on a Saturday and 7% on a Sunday. The highest proportion of cyclists injured in the dark (24%) occurred on a Friday and Saturday.

Month

Over two thirds (69%) of P/C casualties were injured in the period April to October, with numbers peaking in June at 408 casualties (11%) and July at 388 casualties (11%). Numbers fell to their lowest in the winter months, particularly January and February at 157 and 159 casualties (4%) respectively. 40% or more of P/C casualties injured per month in January, February, November and December were injured in the dark.

The peak of P/C casualties in June and July may be related to increases in cycling during the summer months, with the relatively warmer weather and longer hours of daylight.

Fig. 7: Pedal cyclist casualties by time of day and light conditions in Greater London 2009

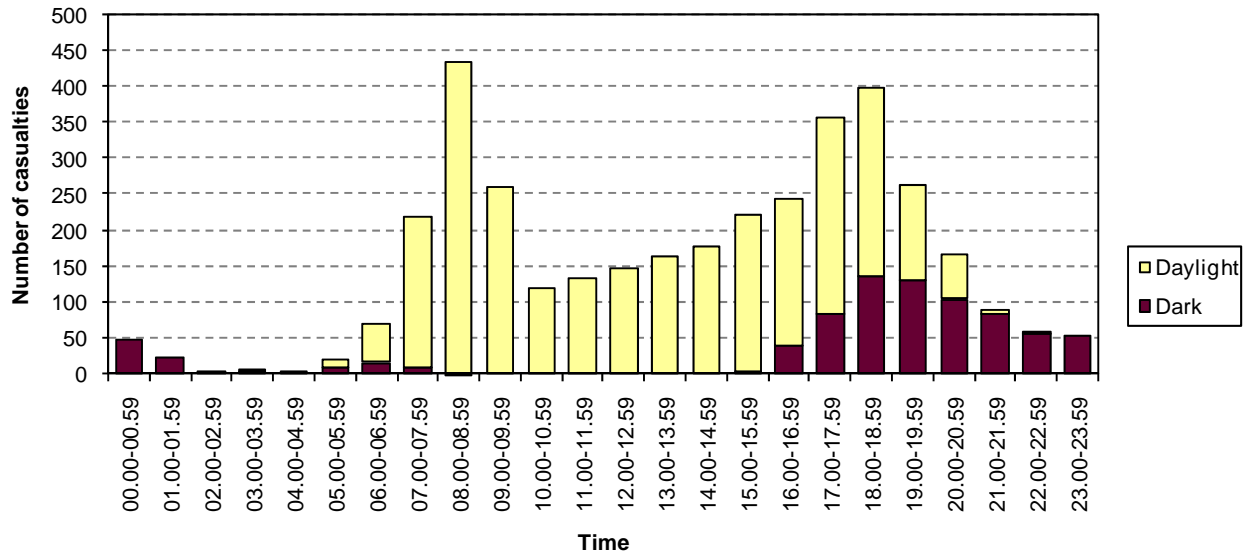


Fig. 8: Pedal cyclist casualties by day and light conditions in Greater London 2009

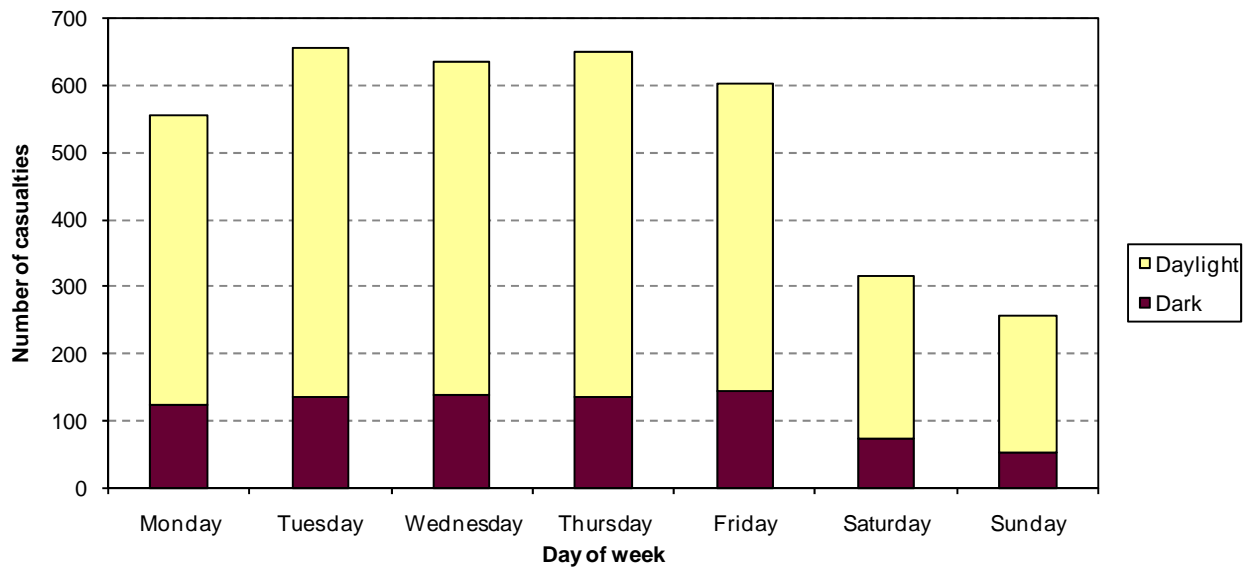
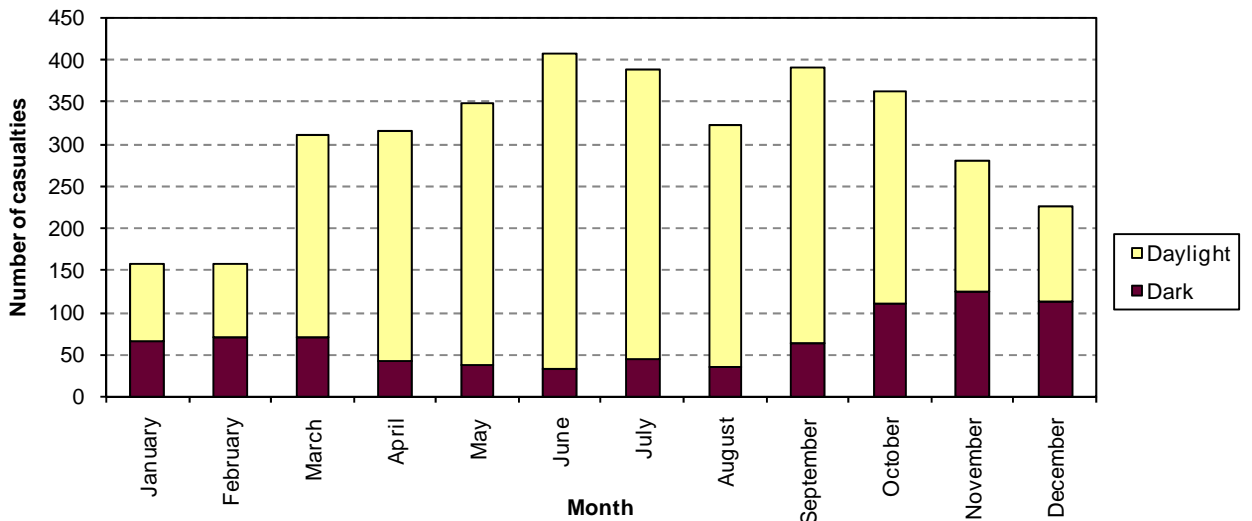


Fig. 9: Pedal cyclist casualties by month and light conditions in Greater London 2009



Manoeuvre

Table 10 shows P/C casualties by their manoeuvre and severity. Nearly three quarters (74%) of cyclists were injured while 'going ahead', i.e. just riding along the road. The next most common manoeuvre (11%) involved the pedal cyclist performing an overtaking manoeuvre. 6% of P/C casualties were turning right and 3% turning left.

Table 10: Pedal cyclist casualties by cyclist manoeuvre, severity and severity ratio in Greater London 2009

Vehicle manoeuvre	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
Reversing	0	0	2	2	0%	0%
Parked	0	1	6	7	0%	14%
Going Ahead But Held Up	0	4	54	58	2%	7%
Slowing or Stopping	0	11	42	53	1%	21%
U-Turning	0	4	52	56	2%	7%
Moving Off	0	0	1	1	0%	0%
Turning Left	2	14	87	103	3%	16%
Waiting to Turn Left	0	2	0	2	0%	100%
Turning Right	1	18	169	188	5%	10%
Waiting to Turn Right	0	1	20	21	1%	5%
Changing Lane To Left	0	2	14	16	0%	13%
Changing Lane To Right	1	6	29	36	1%	19%
Overtaking Moving Veh Offside	0	4	63	67	2%	6%
Overtaking Stat Veh Offside	1	17	159	177	5%	10%
Overtaking Nearside	1	22	127	150	4%	15%
Going Ahead Left Bend	0	4	37	41	1%	10%
Going Ahead Right Bend	0	13	60	73	2%	18%
Going Ahead Other	7	297	2,314	2,618	71%	12%
Total	13	420	3,236	3,669	100%	12%

Common conflicts in pedal cycle KSI collisions







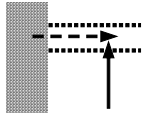
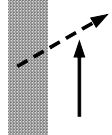
Tables 11 and 12 show a listing of the main types of conflicts that occurred in collisions which resulted in fatal or serious injury to a pedal cyclist in 2009. The tables include a simple sketch representation of the conflict between the pedal cyclist (shown as a broken line) and the other vehicle involved (shown as a solid line). The information included in the tables was compiled from a manual analysis of the details of each P/C KSI collision.

Table 11 – Fatal summary

The most common individual conflict in 4 out of 13 (31%) of fatal P/C collisions, involved the other vehicle turning left across the path of the P/C, with an additional two fatalities (15%) involving both the cyclist and other vehicle turning left together. A total of five fatalities (38%) involved the cyclist and other vehicle travelling in the same direction in close proximity, either alongside each other or both turning left or right.

In 54% of fatal collisions (7 out of 13) the pedal cyclist was in collision with a goods vehicle, 46% (6 collisions) with a heavy goods vehicle (HGV) over 7.5 tonnes and 8% (1 collision) with a medium goods vehicle (MGV) of 3.5 to 7.5 tonnes. In addition two cyclists (15%) were killed in collisions with a concrete mixing lorry and a refuse vehicle. Under *STATS 19* these vehicles are coded as 'other motor vehicles' rather than goods vehicles, so are not included in the HGV total. Two cyclists were killed in collisions with cars, one with a bus or coach and one with a powered two wheeler.

Table 11: Ranked analysis of the most commonly occurring conflicts between vehicles in collisions resulting in a pedal cyclist being fatally injured in London, 2009

Conflict	Description	Conflict between pedal cycle and:											Total	%
		Pedal cycle	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 *		
	Other vehicle turns left across the path of P/C	0	0	0	0	0	1	3	0	0	0	0	4	31%
	P/C and other vehicle collide when both turning left	0	0	0	0	0	0	1	0	#1	0	0	2	15%
	P/C and other vehicle travelling alongside each other.	0	1	0	0	0	0	1	0	0	0	0	2	15%
	P/C and other vehicle collide when both turning right	0	0	0	0	0	0	1	0	0	0	0	1	8%
	Other vehicle disobeys junction control & turns left into path of P/C	0	0	0	0	0	0	0	0	#2	0	0	1	8%
	P/C changes lane to right across path of other vehicle.	0	0	0	0	0	0	0	1	0	0	0	1	8%
	P/C rides across road at pedestrian crossing into path of other vehicle.	0	0	1	0	0	0	0	0	0	0	0	1	8%
	P/C rides off footway into path of other vehicle	0	0	1	0	0	0	0	0	0	0	0	1	8%
	TOTAL	0	1	2	0	0	1	6	1	2	0	0	13	100%

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

#1 concrete mixing lorry

#2 refuse vehicle

Table 12 – Serious summary

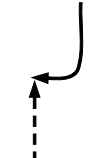
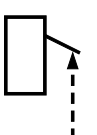
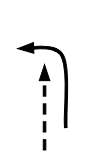
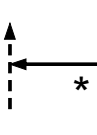
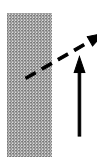
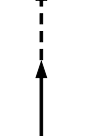
The most common conflict in collisions which resulted in serious injury to a cyclist involved the other vehicle turning right across the path of the cyclist. This accounted for 47 out of 419 (11%) of the serious collisions.



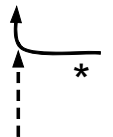
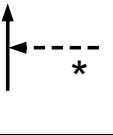


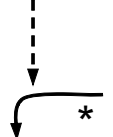



The second most common conflict, 39 collisions (9%), involved the door of the other vehicle being opened into the path of the P/C and the cyclist either hitting it or being injured when swerving to avoid it. A further 31 collisions (7%) involved the other vehicle turning left across the path of the pedal cyclist, the most common conflict in fatal P/C collisions.

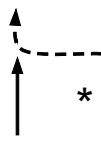
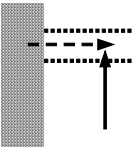
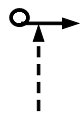




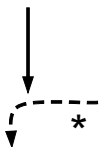


A total of 61 collisions (15%) involved the other vehicle disobeying the junction control and either going straight across the path of the cyclist (7%), turning right into the path of the cyclist (5%), or turning left into the cyclist's path (3%).





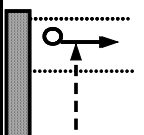

In just over two thirds (67%) of serious P/C collisions the main conflict was between the cyclist and a car. Goods vehicles were involved in 11% of collisions resulting in serious injury to a P/C.

Table 12: Ranked analysis of the most commonly occurring conflicts between vehicles in collisions resulting in a pedal cyclist being seriously injured in London, 2009

Conflict	Description	Conflict between pedal cycle and:											Total	%
		Pedal cycle	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 *		
	Other vehicle turns right across path of P/C	0	2	38	3	3	0	0	1	0	0	(0)	47	11%
	P/C hits open door / swerves to avoid open door of other vehicle.	0	0	30	4	3	2	0	0	0	0	(0)	39	9%
	Other vehicle turns left across the path of P/C	0	0	20	2	2	0	3	2	2	0	(0)	31	7%
	Other vehicle fails to give way or disobeys junction control & collides with P/C	0	0	23	2	2	0	0	0	1	0	(1)	28	7%
	P/C rides off footway into path of other vehicle.	0	3	23	0	1	0	0	0	0	0	(0)	27	6%
	Other vehicle runs into rear of P/C	0	3	20	0	0	0	1	1	1	0	(0)	26	6%

Conflict	Description	Conflict between pedal cycle and:											Total	%
		Pedal cycle	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 *		
	No other vehicle hit by P/C (although may be involved). Various manoeuvres or loss of control.	0	0	2	0	0	0	0	2	0	19	(0)	23	5%
	P/C and other vehicle travelling alongside each other.	0	1	10	0	2	2	3	4	0	0	(1)	22	5%
	Other vehicle disobeys junction control & turns right into path of P/C	0	0	19	1	1	0	0	0	1	0	(2)	22	5%
	P/C fails to give way or disobeys junction control & collides with other vehicle	0	1	15	1	1	0	0	1	0	0	(1)	19	5%
	P/C runs into rear of other vehicle.	1	0	7	2	5	0	0	0	1	0	(1)	16	4%
	Other vehicle changes lane to left across the path of P/C	0	0	8	2	0	0	1	0	1	0	(0)	12	3%
	Other vehicle disobeys junction control & turns left into path of P/C	0	0	8	0	3	0	0	0	0	0	(0)	11	3%
	P/C hits parked vehicle	0	0	6	3	0	0	0	1	0	0	(0)	10	2%
	Other vehicle overtaking, veers into P/C	0	0	4	0	4	0	0	0	0	0	(0)	8	2%
	Head on collision between P/C and other vehicle	0	2	4	0	0	0	0	1	0	0	(0)	7	2%

Conflict	Description	Conflict between pedal cycle and:											Total	%
		Pedal cycle	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 disobeys junction control & turns right into path of other vehicle	0	0	6	0	0	0	0	1	0	0	(0)	7	2%
	P/C rides across road at pedestrian crossing into path of other vehicle.	0	0	6	0	0	0	1	0	0	0	(0)	7	2%
	P/C strikes ped crossing road not at or within 50m of a formal ped crossing	0	0	0	0	0	0	0	0	0	7	(0)	7	2%
	Other vehicle U-turns into path of P/C	0	0	5	1	1	0	0	0	0	0	(0)	7	2%
	Not known how collision occurred/ insufficient details	0	1	3	0	0	0	0	1	2	0	(0)	7	2%
	P/C and other vehicle collide when both turning left	0	0	2	0	1	0	2	0	1	0	(0)	6	1%
	P/C loses control & hits other vehicle - various manoeuvres	0	0	2	1	0	0	0	3	0	0	(0)	6	1%
	P/C disobeys junction control & turns left into path of other vehicle	0	0	5	0	1	0	0	0	0	0	(0)	6	1%
	P/C changes lane to right across path of other vehicle.	0	0	4	0	1	0	0	0	0	0	(0)	5	1%
	P/C changes lane to left across the path of other vehicle	0	0	4	0	0	0	0	0	0	0	(0)	4	1%

Conflict	Description	Conflict between pedal cycle and:											Total	%
		Pedal cycle	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 turns right across path of other vehicle	0	0	3	0	0	0	0	0	0	0	(0)	3	1%
	P/C brakes and/or swerves to avoid (uninjured) pedestrian	0	0	0	0	0	0	0	0	0	2	(0)	2	0%
	Other vehicle changes lane to right across the path of P/C	0	0	1	0	0	0	0	0	0	0	(0)	1	0%
	Other vehicle starts off or pulls out into path of P/C	0	0	1	0	0	0	0	0	0	0	(0)	1	0%
	P/C in collision with pedestrian on crossing	0	0	0	0	0	0	0	0	0	1	(0)	1	0%
	P/C and other vehicle collide when both turning right	0	0	1	0	0	0	0	0	0	0	(0)	1	0%
	TOTAL	1	13	280	22	31	4	11	18	10	29	(8)	419	100%

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

All vehicles involved in collisions in which a pedal cyclist was injured

Table 13 shows all the vehicles involved in collisions resulting in injury to one or more pedal cyclist in Greater London in 2009. It must be emphasised that the cyclist may not have been in direct contact with each of the vehicle types listed.

Cars were by far the most common vehicle involved in collisions where a cyclist was injured, representing 75% of the other vehicles involved. This was the case for all severities and for male and female casualties with the exception of female fatalities where HGVs were the most common vehicle involved (60% of other vehicles).

After cars, goods vehicles and buses/coaches were the most common vehicles involved in P/C collisions.

Table 13: All vehicles involved in collisions where one or more pedal cyclist was injured - Greater London 2009

Vehicles involved in P/C collisions	Number of each type of vehicle involved in collisions resulting in male pedal cyclist casualties			Number of each type of vehicle involved in collisions resulting in female pedal cyclist casualties		
	Fatal	Serious	Slight	Fatal	Serious	Slight
Pedal Cycle	3	338	2,512	10	83	739
M/C <= 50cc	0	3	5	0	0	3
M/C 50-125cc	0	2	20	0	1	14
M/C 125-500cc	0	1	12	0	1	4
M/C > 500cc	0	5	27	1	0	3
Taxi	0	21	135	0	3	30
Car	2	228	1,884	0	56	525
Minibus (8-16 Passengers)	0	3	5	0	0	4
Bus/Coach	0	15	89	1	5	29
Other Motor Vehicle	1	3	16	1	2	4
Agricultural Vehicle	0	1	0	0	0	0
Light Goods (=< 3.5t MGW)	0	27	228	0	5	80
Medium Goods (3.5-7.5t MGW)	0	2	19	1	2	13
Heavy Goods(=> 7.5t MGW)	0	7	13	6	4	9
Sum of all vehicles involved in collisions resulting in one or more P/C casualty	6	656	4,965	20	162	1,457

Contributory factors

Table 14 shows the top 20 contributory factors assigned to P/Cs and other vehicles involved in collisions resulting in one or more P/C casualty.

Contributory factors are assigned to the participants of a collision by the police and can be highly subjective. They reflect the reporting officer's opinion at the time of reporting and may not be the result of extensive investigation. Up to six factors can be assigned to a single collision; more than one factor may be assigned to the same road user and the same factor may relate to more than one road user.

The table indicates the frequency that contributory factors were assigned to the participants of these collisions, which gives an indication of the actions that might have been taken by the cyclist and other road users involved at the time of the collision.

The two most frequently coded factors for both the P/C and other vehicle were 'failed to look properly' and 'failed to judge other person's path or speed'.

Table 14: Contributory factors assigned to all vehicles involved in collisions where one or more pedal cyclist was injured in Greater London in 2009

Top 20 factors assigned to the cyclist	
Contributory factor	No. of times factor assigned to cyclist
405 FAILED TO LOOK PROPERLY	876
406 FAILED TO JUDGE OTHER PERSON'S PATH OR SPEED	512
602 CARELESS/RECKLESS/IN A HURRY	341
403 POOR TURN OR MANOEUVRE	218
410 LOSS OF CONTROL	157
310 CYCLIST ENTERING ROAD FROM PAVEMENT	137
701 VISION AFFECTED - STATIONARY OR PARKED VEHICLE(S)	110
409 SWERVED	68
301 DISOBEYED AUTOMATIC TRAFFIC SIGNAL	67
408 SUDDEN BRAKING	56
307 TRAVELLING TOO FAST FOR CONDITIONS	53
308 FOLLOWING TOO CLOSE	52
507 CYCLIST WEARING DARK CLOTHING AT NIGHT	49
302 DISOBEYED GIVE WAY OR STOP SIGN OR MARKINGS	48
999 OTHER FACTOR	34
506 NOT DISPLAYING LIGHTS AT NIGHT OR IN POOR VISIBILITY	29
603 NERVOUS/UNCERTAIN/ PANIC	29
501 IMPAIRED BY ALCOHOL	27
304 DISOBEYED PEDESTRIAN CROSSING FACILITY	24
305 ILLEGAL TURN OR DIRECTION OF TRAVEL	22

Top 20 factors assigned to the cyclist	
Contributory factor	No. of times factor assigned to other vehicle
405 FAILED TO LOOK PROPERLY	2207
406 FAILED TO JUDGE OTHER PERSON'S PATH OR SPEED	937
403 POOR TURN OR MANOEUVRE	863
602 CARELESS/RECKLESS/IN A HURRY	705
407 PASSING TOO CLOSE TO CYCLIST, HORSE RIDER OR PEDESTRIAN	538
904 VEHICLE DOOR OPENED OR CLOSED NEGLIGENTLY	286
302 DISOBEYED GIVE WAY OR STOP SIGN OR MARKINGS	193
701 VISION AFFECTED - STATIONARY OR PARKED VEHICLE(S)	138
404 FAILED TO SIGNAL/ MISLEADING SIGNAL	112
601 AGGRESSIVE DRIVING	105
308 FOLLOWING TOO CLOSE	103
710 VISION AFFECTED - VEHICLE BLIND SPOT	100
408 SUDDEN BRAKING	47
409 SWERVED	37
402 JUNCTION RESTART	36
307 TRAVELLING TOO FAST FOR CONDITIONS	35
301 DISOBEYED AUTOMATIC TRAFFIC SIGNAL	34
306 EXCEEDING SPEED LIMIT	27
401 JUNCTION OVERTSHOT	21
305 ILLEGAL TURN OR DIRECTION OF TRAVEL	18

What is the cost?

Based on the average cost of P/C casualties as detailed in Department for Transport draft Transport Analysis Guidance document (TAG Unit 3.4.1), the cost to the community of P/C casualties is estimated at around £194 million at June 2008 prices. Pedestrian casualties averaged 10 per day in Greater London in 2009, with a subsequent cost to the community of approximately £529,000 per day.

Background documents

1. Reported Road Casualties Great Britain: 2009 Annual Report (Department for Transport)
<http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/rrcgb2009>
2. Transport Analysis Guidance (TAG) Unit 3.4.1 – The Accidents Sub-Objective IN DRAFT (Department for Transport – January 2010)
<http://www.dft.gov.uk/webtag/documents/expert/pdf/unit3.4.1d.pdf>
3. Radial Traffic Movements in London 1971-2009 TfL (unpublished)
4. P/C flow data from TfL annual cycle counts

Copies of road safety reports and research published by TfL can be found at –
http://londonroadsafety.tfl.gov.uk/data-research_publications.php

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