



Fact Sheet

London Road Safety Unit LAAU topic 2004-2

September 2004

Powered two wheeler user casualties in Greater London

This fact sheet shows the scale and nature of road traffic collisions resulting in injury to powered two wheeler (P2W) users (riders and passengers) in the Greater London area in 2003 (the latest data 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 P2W casualties is a 40% reduction in those killed or seriously injured (KSI) by 2010 from a base line 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. Prior to 1999, *Stats 19* categorised P2W vehicles as mopeds, motor scooters or motor cycles. From January 1999, the P2W categories were changed to mopeds, motor cycles up and including 125cc and motor cycles over 125cc.

London's powered two wheeler casualty rate

In Greater London in 2003 there were 31,811 road traffic collisions, resulting in 38,430 casualties. Of these collisions, 6,237 (20%) involved injury to P2W users, and resulted in 6,469 casualties (17% of all casualties) - a rate of 88 P2W user casualties per 100,000 Greater London population. This is almost double the national rate of 48 per 100,000 population from 28,411 P2W user casualties (10% of all casualties in Great Britain for 2003).

Table 1 shows P2W user casualties by casualty class, gender, severity and severity ratio (the percentage of fatal and serious injuries to all injuries) in Greater London in 2003.

Of the 6,469 P2W user casualties in Greater London in 2003, 5,317 (82%) suffered slight injury, 1,089 (17%) were seriously injured and 63 (1%) were killed. 6,176 (95%) were riders and 293 (5%) were passengers. 91% (5,875) of casualties were male and 9% (594) were female.

Table 1 : P2W user casualties by casualty class, gender, severity & severity ratio in Greater London 2003

		Severity of casualty				Total	Severity ratio
		Fatal	Serious	Slight			
Male	Rider	61	986	4,690	5,737	18%	
	Passenger	2	21	115	138	17%	
	Total	63	1,007	4,805	5,875	18%	
Female	Rider	0	63	376	439	14%	
	Passenger	0	19	136	155	12%	
	Total	0	82	512	594	14%	
All	Rider	61	1,049	5,066	6,176	18%	
	Passenger	2	40	251	293	14%	
	Total	63	1,089	5,317	6,469	18%	

Annual trends 1981 to 2003

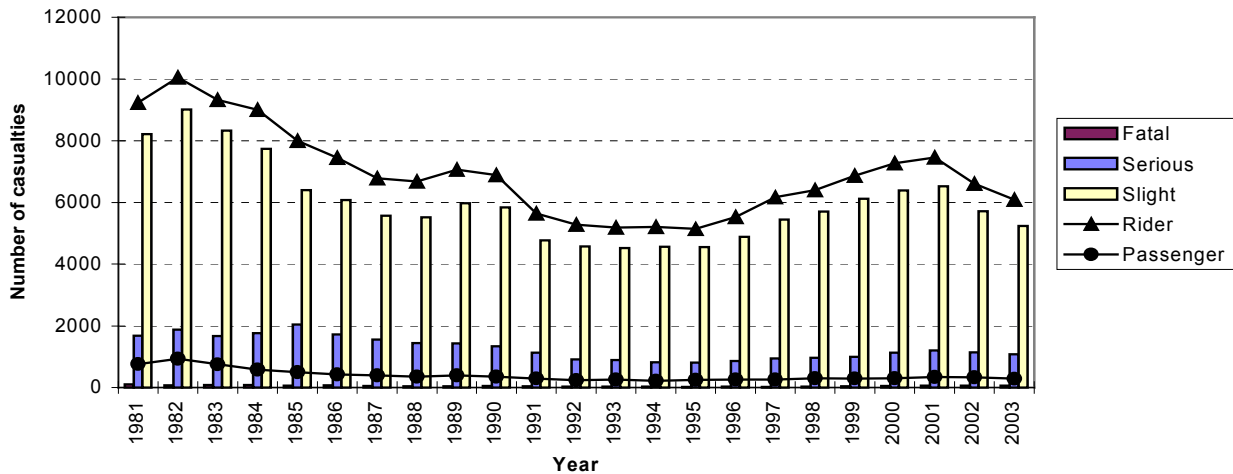
The following section shows changes in the number of P2W user casualties in Greater London from 1981 to 2003. It should be noted that the City of London has been excluded from this long-term trend analysis as its accident data is only available from 1986 onwards.

Table 2 and Figure 1 show the number of P2W user casualties by year, casualty class and severity from 1981 to 2003 for Greater London, excluding the City of London.

Table 2: P2W user casualties by year, casualty class and severity in Greater London (excl. City of London) 1981 to 2003

Year of accident	Severity of casualty					Total	Severity ratio
	Rider	Passenger	Fatal	Serious	Slight		
1981	9,231	765	105	1,684	8,207	9,996	18%
1982	10,046	931	78	1,889	9,010	10,977	18%
1983	9,325	757	86	1,667	8,329	10,082	17%
1984	9,005	584	88	1,763	7,738	9,589	19%
1985	7,995	508	62	2,040	6,401	8,503	25%
1986	7,451	427	74	1,726	6,078	7,878	23%
1987	6,788	397	56	1,556	5,573	7,185	22%
1988	6,678	350	51	1,449	5,528	7,028	21%
1989	7,064	398	49	1,438	5,975	7,462	20%
1990	6,891	350	58	1,345	5,838	7,241	19%
1991	5,649	301	45	1,135	4,770	5,950	20%
1992	5,282	245	36	916	4,575	5,527	17%
1993	5,187	262	34	892	4,523	5,449	17%
1994	5,207	221	39	824	4,565	5,428	16%
1995	5,139	249	25	814	4,549	5,388	16%
1996	5,535	263	35	869	4,894	5,798	16%
1997	6,167	261	31	950	5,447	6,428	15%
1998	6,404	310	35	966	5,713	6,714	15%
1994 to 1998 average	5,690.4	260.8	33.0	884.6	5,033.6	5,951.2	15%
1999	6,868	299	50	999	6,118	7,167	15%
2000	7,270	305	54	1,127	6,394	7,575	16%
2001	7,456	341	69	1,205	6,523	7,797	16%
2002	6,602	333	65	1,148	5,722	6,935	17%
2003	6,094	290	63	1,078	5,243	6,384	18%
% change 1994-98 average to 2003	7%	11%	91%	22%	4%	7%	-

Fig 1: P2W user casualties by year, severity and casualty class in Greater London (excl. City) 1981 to 2003



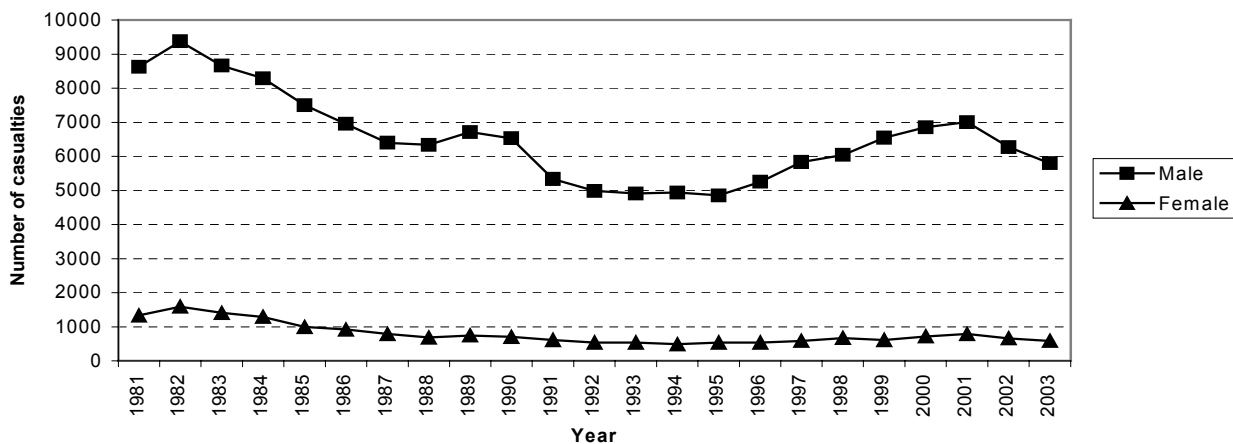
P2W user casualties showed a general downward trend for nearly 15 years, from a peak in 1982 of 10,977 casualties, to a low of 5,388 in 1995, a decrease of 51%. This trend reversed from 1996 when casualty numbers began rising until a second peak of 7,797 casualties in 2001. Since 2001 numbers have again been falling.

When comparing the 2010 target baseline (1994-98 average) and 2003, increases have occurred in all severities, from a 4% rise in slight casualties to a 91% increase in fatalities. KSI casualties rose by 24% and all P2W user casualties showed a 7% rise between the 1994-98 average and 2003.

In terms of casualty class, increases were seen in both riders and passengers (7% and 11% respectively) in 2003 compared with the 1994-98 baseline. Casualty numbers in both classes however have been decreasing since 2001, with riders decreasing by 18% and passengers by 15% between 2001 and 2003. Despite the decrease in P2W user casualties over the last few years, the severity ratio has been rising from a low of 15% in 1999 to 18% in 2003.

Changes in casualty numbers are viewed in relation to changes in P2W ownership and usage on page 8.

Fig 2 : P2W user casualties by gender in Greater London (excl. The City) 1981 to 2003



Gender

Figure 2 shows P2W user casualties in Greater London (excluding the City of London) from 1981 to 2003. By far the greatest proportion of P2W user casualties was male, with an average of 89% per year over this period. The male-female split has remained fairly constant during this time. The number of male P2W user casualties increased by 8% from the 1995-98 average to 2003. The corresponding figure for female P2W user casualties was an increase of 4%.

On average over the 1981-2003 period, 95% of P2W user casualties were riders, of these an average of 92% were male. However, of the 5% P2W passenger casualties, an average of 56% were female.

Age

Figure 3 and Table 3 show P2W user casualties by year and age (banded) in Greater London (excluding The City) from 1981 to 2003.

On average, over this time period, 0.7% of P2W user casualties were under the age of 16. However, the number of

casualties in this age group has been on an upward trend over the last few years, with the average over the period 2001-2003 increasing to 1.2%. P2W casualties in this age band increased by 106% from the 1994-98 average to 2003.

The average percentage of P2W users casualties aged over 60 years during the 1981-2003 period was 1.5%. This figure has remained fairly constant throughout that period.

On average 38% of P2W user casualties were aged between 16 and 24 years and 55% aged 25-59 years. However there have been quite marked changes within both these groups. In 1981 those aged between 16 and 24 years accounted for 63% of all P2W user casualties compared to 27% in 2003. While in 1981 those in the 25 to 59 years group made up 29% of all P2W casualties, compared to 67% in 2003.

The number of P2W casualties in the 16-24 years group increased by 26% from the 1994-98 average to 2003. The corresponding figure for those aged 25-59 years was an increase of 1%.

Fig 3: P2W user casualties by year and age (banded) in Greater London (excl. City) 1981 to 2003

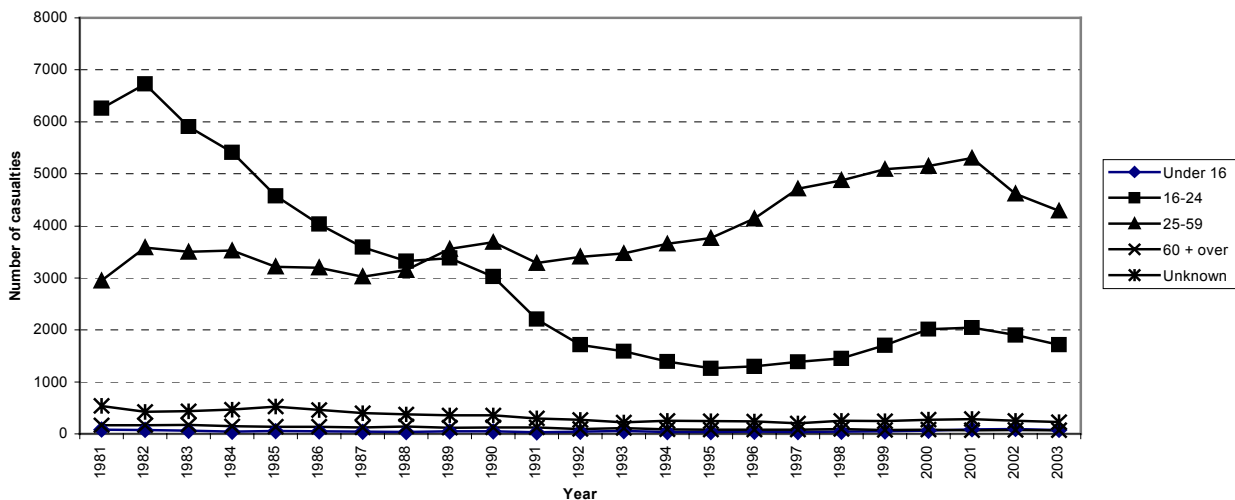


Table 3: P2W user casualties by year and age (banded) in Greater London (excl. City of London) 1981 to 2003

	Casualty age banded					Total	% aged	
	Under 16	16-24	25-59	60 + over	Unknown		16-24	25-59
1981	82	6,261	2,945	168	540	9,996	63%	29%
1982	76	6,726	3,585	165	425	10,977	61%	33%
1983	59	5,908	3,501	175	439	10,082	59%	35%
1984	43	5,411	3,524	147	464	9,589	56%	37%
1985	52	4,574	3,215	135	527	8,503	54%	38%
1986	46	4,034	3,198	139	461	7,878	51%	41%
1987	43	3,591	3,025	123	403	7,185	50%	42%
1988	37	3,324	3,147	142	378	7,028	47%	45%
1989	45	3,383	3,553	121	360	7,462	45%	48%
1990	46	3,026	3,685	123	361	7,241	42%	51%
1991	31	2,206	3,288	124	301	5,950	37%	55%
1992	39	1,716	3,408	95	269	5,527	31%	62%
1993	52	1,591	3,472	111	223	5,449	29%	64%
1994	37	1,394	3,657	88	252	5,428	26%	67%
1995	37	1,260	3,764	84	243	5,388	23%	70%
1996	39	1,298	4,139	82	240	5,798	22%	71%
1997	35	1,387	4,716	85	205	6,428	22%	73%
1998	39	1,451	4,878	94	252	6,714	22%	73%
1994 to 1998 average	37.4	1,358	4,230.8	86.6	238.4	5,951.2	23%	71%
1999	50	1,704	5,088	78	247	7,167	24%	71%
2000	57	2,011	5,153	81	273	7,575	27%	68%
2001	89	2,044	5,305	72	287	7,797	26%	68%
2002	93	1,901	4,616	76	249	6,935	27%	67%
2003	77	1,715	4,290	72	230	6,384	27%	67%
% change 1994-98 average to 2003	106%	26%	1%	-17%	-4%	7%	-	-

Fig 4: P2W user casualties by year and type of P2W vehicle in Greater London (excl. City) 1981 to 2003

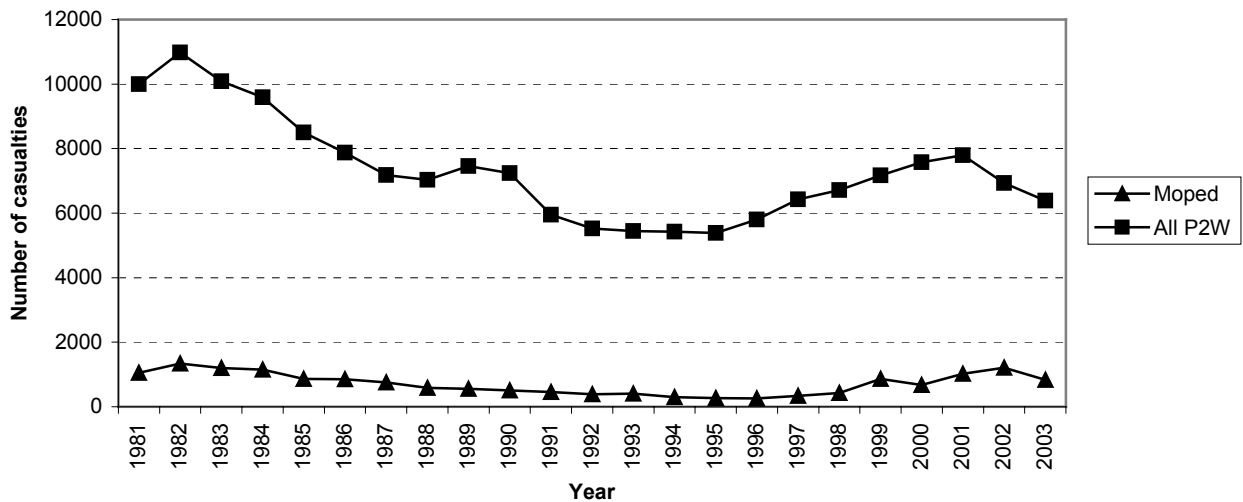


Table 4: P2W user casualties by year and type of P2W vehicle in Greater London (excl. City of London) 1981 to 2003

Year of accident	Type of powered two wheeler					Total P2W
	Moped	Motor scooter	Motor cycle	M/C =< 125cc	M/C > 125cc	
1981	1,048	182	8,766	-	-	9,996
1982	1,339	424	9,214	-	-	10,977
1983	1,196	489	8,397	-	-	10,082
1984	1,152	372	8,065	-	-	9,589
1985	866	276	7,361	-	-	8,503
1986	854	219	6,805	-	-	7,878
1987	751	133	6,301	-	-	7,185
1988	584	123	6,321	-	-	7,028
1989	554	122	6,786	-	-	7,462
1990	503	94	6,644	-	-	7,241
1991	452	104	5,394	-	-	5,950
1992	390	64	5,073	-	-	5,527
1993	404	64	4,981	-	-	5,449
1994	299	47	5,082	-	-	5,428
1995	265	47	5,076	-	-	5,388
1996	262	84	5,452	-	-	5,798
1997	335	138	5,955	-	-	6,428
1998	429	217	6,068	-	-	6,714
1994 to 1998 average	318	106.6	5,526.6	-	-	5,951.2
1999	860	-	-	1,541	4,766	7,167
2000	671	-	-	2,499	4,405	7,575
2001	1,025	-	-	2,503	4,269	7,797
2002	1,205	-	-	2,101	3,629	6,935
2003	831	-	-	2,110	3,443	6,384
% change 1994-98 average to 2003	161%	-*	-*	-*	-*	7%

* NB The Stats 19 P2W definition changed from Jan 1999 from Motor Scooter and Motor Cycle to M/C =< 125cc and M/C > 125cc, therefore comparisons have only been made with the moped and total P2W categories

Type of P2W

Figure 4 and Table 4 show P2W user casualties by type of P2W vehicle. The *Stats 19* P2W definition changed from January 1999 from motor scooter and motor cycle to M/C =<125cc and M/C >125cc, so comparisons have only been made for the moped and total P2W categories which remained unchanged.

Moped user casualties increased by 161% from the 1994-98 average to 2003. This increase is largely due to a dramatic rise in moped casualties in 2001 and 2002. Numbers rose by 53% from 2000 to 2001 and then by 18% from 2001 to 2002. 2003 saw a fall of 31% on 2002 however. Casualties for all P2W vehicles rose by 7% from the 1994-98 baseline.

City of London

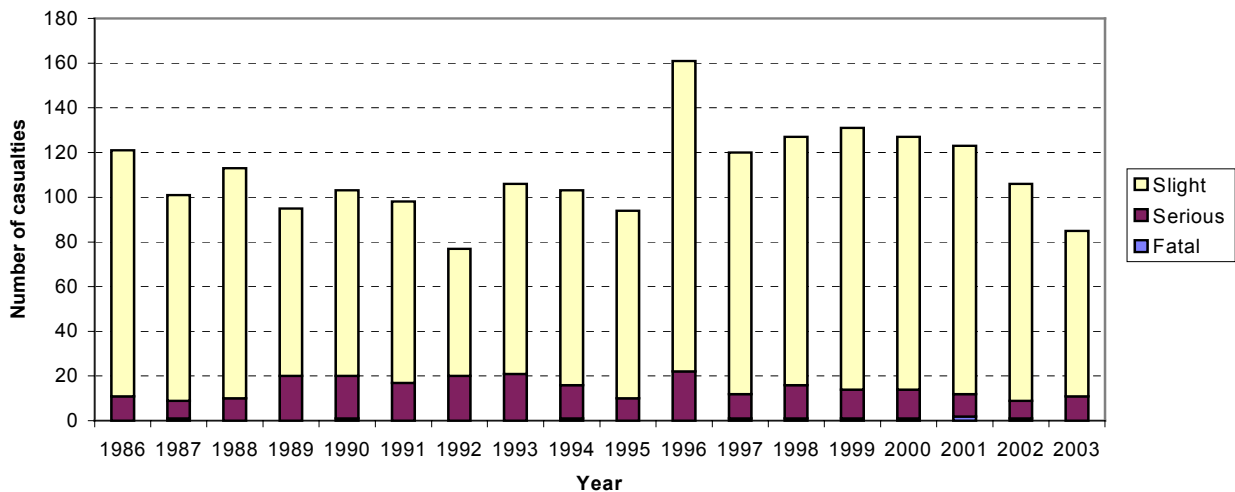
Data for the City of London is only available on the LAU database from 1986 onwards. Table 5 and Figure 5 show P2W user casualties in the City of London from 1986 to 2003. Following a general downward trend in P2W casualties between 1986 and 1995, numbers suddenly rose to a high of 161 in 1996. The general trend has again been downward from this peak.

In terms of progress towards the 2010 target of a 40% reduction in P2W user casualties killed or seriously injured, a comparison of the 2003 figures with the 1994-98 average reveals that P2W KSI casualties in the City of London decreased by 28%. All P2W user casualties in The City decreased by 30% from the baseline.

Table 5: P2W user accidents and casualties by year, severity and severity ratio in the City of London 1986 to 2003

Year of accident	Accidents	Severity of casualty			Total	Severity ratio
		Fatal	Serious	Slight		
1986	117	0	11	110	121	9%
1987	99	1	8	92	101	9%
1988	111	0	10	103	113	9%
1989	92	0	20	75	95	21%
1990	103	1	19	83	103	19%
1991	97	0	17	81	98	17%
1992	75	0	20	57	77	26%
1993	105	0	21	85	106	20%
1994	101	1	15	87	103	16%
1995	90	0	10	84	94	11%
1996	159	0	22	139	161	14%
1997	120	1	11	108	120	10%
1998	123	1	15	111	127	13%
1994 to 1998 average	118.6	0.6	14.6	105.8	121	13%
1999	131	1	13	117	131	11%
2000	122	1	13	113	127	11%
2001	122	2	10	111	123	10%
2002	105	1	8	97	106	8%
2003	82	0	11	74	85	13%
% change 1994-98 average to 2003	-31%	-100%	-25%	-30%	-30%	-

Fig 5: P2W user casualties by year and severity in the City of London 1986 to 2003



P2W user casualty rates and changes to P2W movement in Greater London

In order to get a clearer view of the extent of the P2W collision problem in London, ideally casualties should be assessed as a rate per unit of travel, such as kilometres driven. For London this requires reliable estimates of P2W kilometres ridden at a borough level, measured annually. Such detailed traffic flow data is not available, but there are regular surveys of radial traffic movements in London, which do 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 6 shows the radial cordon, combined direction, 24-hour P2W flows between 1980 and 2003. Flows across the London boundary cordon have reduced by 5% from 1980 to 2001 but have been steadily increasing from a low of 33,000 vehicles in 1992. A similar pattern is evident in flows across the inner cordon, with a 31% reduction from 1981 to a low of 53,000 in 1993, followed by a steady increase to 70,000 in 2002. The greatest increase in P2W flows is evident across the central cordon, with a 19% rise from 1981 to 2003.

Fig. 6: Radial 24 hour motorcycle movements in London, both directions combined, 1980-2003

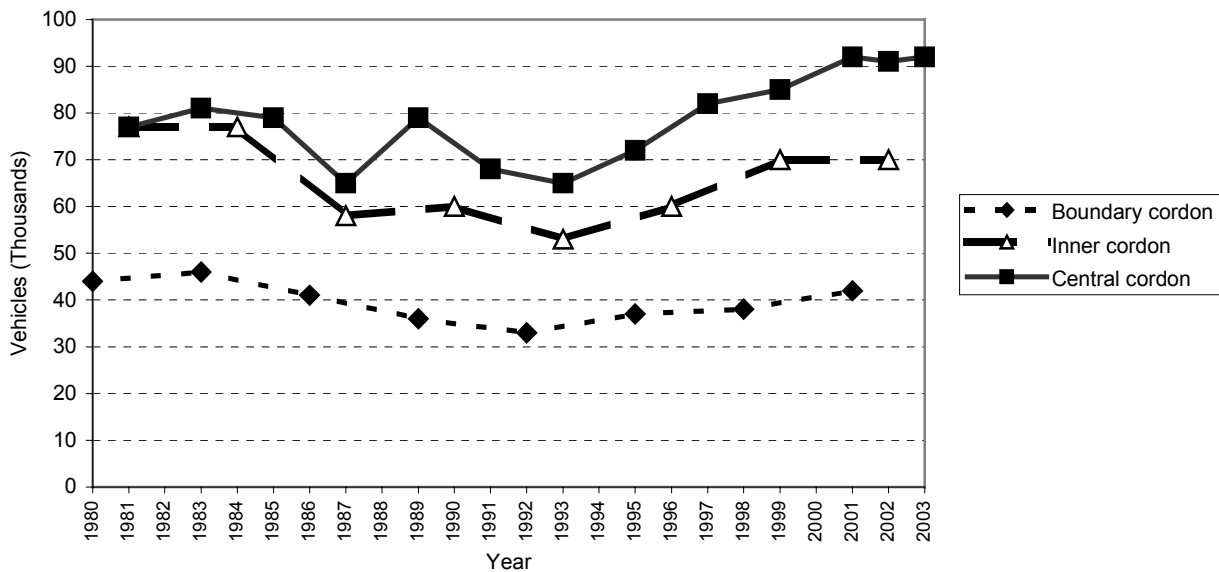


Fig 7a: P2W user casualties per 1,000 P2W vehicles licensed in Greater London 1981 to 2003

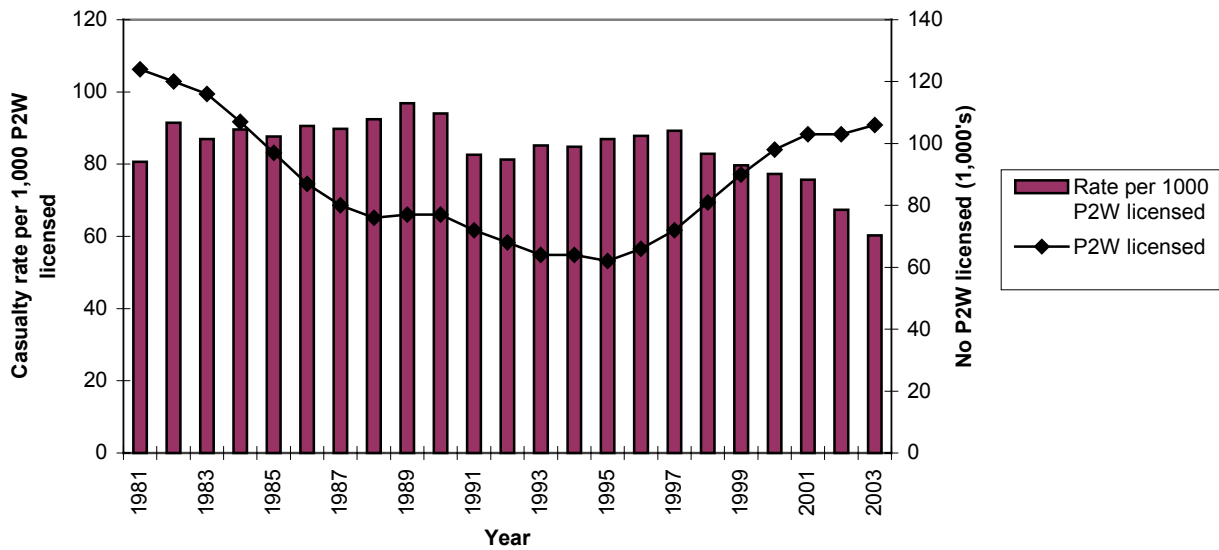
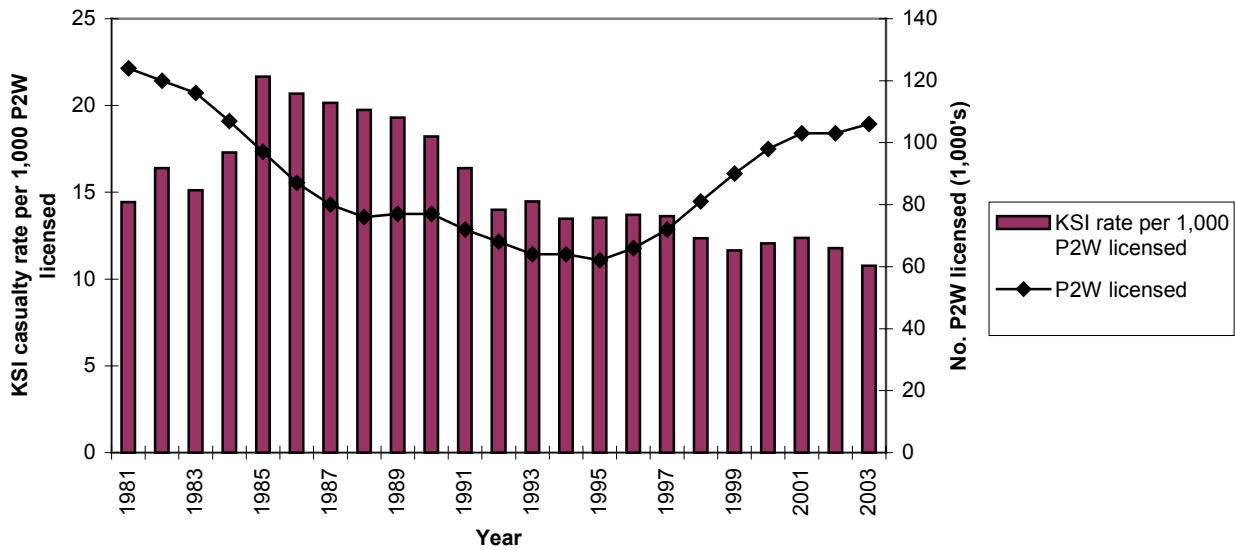


Fig 7b: P2W user KSI casualties per 1,000 P2W vehicles licensed in Greater London 1981 to 2003

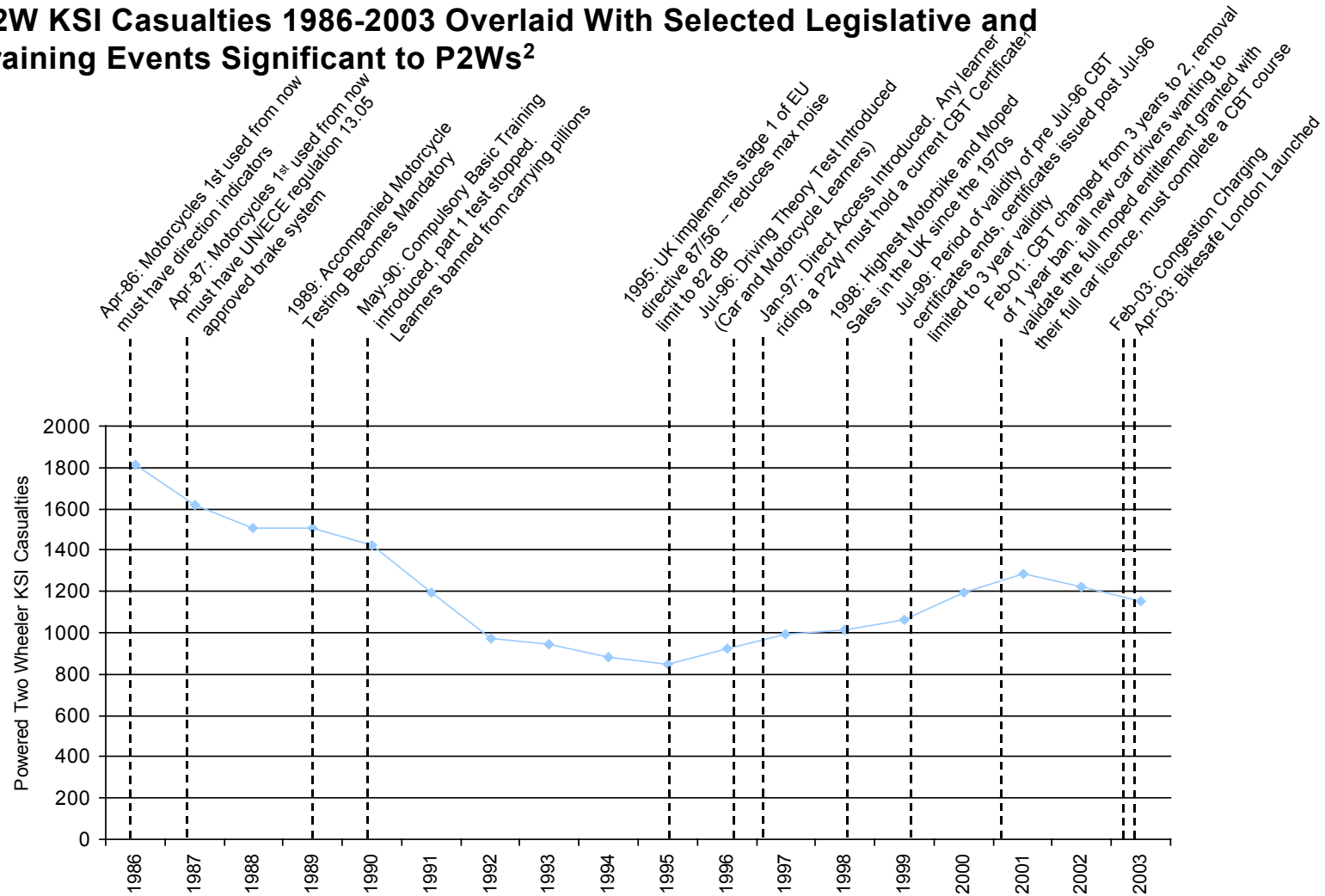


Figures 7a and 7b show the number of P2W's licensed against P2W user casualties and P2W user KSI casualties per 1,000 P2W vehicles licensed. These clearly illustrate that while the number of P2W's licensed has been increasing steadily since 1995, the casualty rate per 1,000 vehicles licensed has in fact been decreasing. This is particularly noticeable

in the KSI casualty rate per 1,000 vehicles that has continued on a general decline since 1985.

The timeline on the following page sets P2W user KSI casualties against significant changes in legislation and training related to P2Ws.

P2W KSI Casualties 1986-2003 Overlaid With Selected Legislative and Training Events Significant to P2Ws²



1 Unless they are on the road riding element of an approved CBT Course.
2 Two year restriction on provisional motorcycle licences introduced in 1982

Sources: Bikesafe London, DfT, DSA, DVLA, Bikermag, BMF, Sportsbike.org, Scottish Executive

Powered two wheeler user casualties during 2003

The following section provides a more detailed analysis of P2W user casualties in Greater London, including the City of London, during 2003 – the most recent year for which finalised data is available at the time of writing.

How many?

During 2003 there were 31,811 personal injury road traffic accidents reported to the police in the Greater London area. Of these collisions, 6,237 (20%) involved injury to P2W users (rider or passenger) and resulted in 6,469 P2W user casualties.

Most P2W user casualties were slightly injured (82%), with 17% suffering serious injury and 1% being killed. In total P2W user casualties killed or seriously injured

accounted for 22% of all KSI's in Greater London.

The majority of P2W user casualties were male (91%) compared with just 9% female. 95% of user casualties were riders, of these 93% were male and 7% female. Of the 5% P2W passenger casualties 47% were male and 53% were female.

What is the cost?

Based on the average cost of motorised two wheeler rider and passenger casualties from DfT *Highways Economics Note No. 1*, at June 2002 prices, the cost to the community of P2W user casualties is estimated at around £466 million (approximately £467 million at June 2003).

The 6,469 P2W user casualties recorded in 2003 averaged 17.7 per day, with a subsequent cost to the community of approximately £1.2 million per day.

Fig 8: P2W user casualties by age-band and severity in Greater London 2003

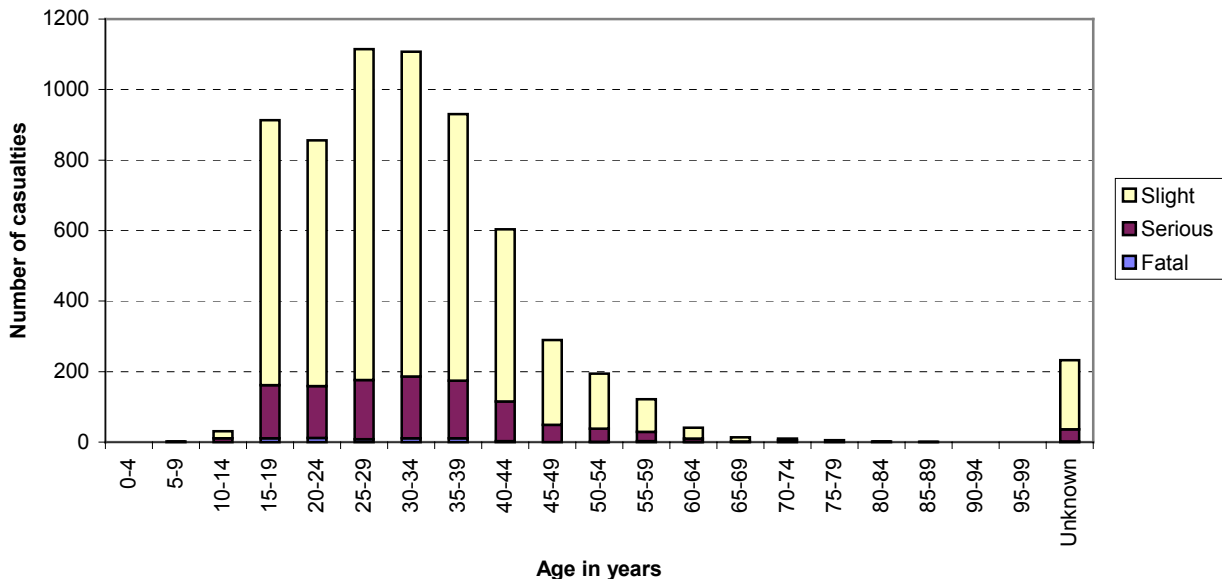


Table 6 : P2W casualties by age-band, gender, severity and severity ratio in Greater London 2003

Casualty age	Severity of casualty					Total	Severity ratio	% of known age
	Male	Female	Fatal	Serious	Slight			
0-4	0	0	0	0	0	0	-	-
5-9	2	0	0	0	2	2	0%	0%
10-14	26	5	0	11	20	31	35%	0%
15-19	849	64	11	151	751	913	18%	15%
20-24	773	83	12	147	697	856	19%	14%
25-29	989	126	8	168	939	1,115	16%	18%
30-34	976	131	11	175	921	1,107	17%	18%
35-39	855	75	11	163	756	930	19%	15%
40-44	569	35	3	112	489	604	19%	10%
45-49	271	19	0	49	241	290	17%	5%
50-54	176	18	1	37	156	194	20%	3%
55-59	109	13	3	26	93	122	24%	2%
60-64	39	2	1	9	31	41	24%	1%
65-69	13	1	0	2	12	14	14%	0%
70-74	10	0	0	5	5	10	50%	0%
75-79	5	0	0	0	5	5	0%	0%
80-84	2	0	0	0	2	2	0%	0%
85-89	1	0	0	0	1	1	0%	0%
90-94	0	0	0	0	0	0	-	-
95-99	0	0	0	0	0	0	-	-
Total (age known)	5,665	572	61	1,055	5,121	6,237	18%	100%
Total (age unknown)	210	22	2	34	196	232	16%	-
Total	5,875	594	63	1,089	5,317	6,469	18%	-

Table 6a: Breakdown of P2W user casualties aged between 10 and 19 years of age in Greater London 2003

Casualty age	Severity of casualty					Total
	Male	Female	Fatal	Serious	Slight	
10-15	66	9	0	28	47	75
16	265	17	3	40	239	282
17	236	13	3	40	206	249
18-19	308	30	5	54	279	338
Total aged 10 -15 years	875	69	11	162	771	944

How old?

Figure 8 and Table 6 show the number of P2W user casualties by five-year age bands, gender, severity and severity ratio in Greater London in 2003. Table 6a gives a more detailed breakdown of casualties between the ages of 10 and 19 years.

89% of P2W user casualties of known age were between the ages of 15 and 44 years, with the highest numbers occurring

in the 25-29 and 30-34 years age bands (each 18% of known age). This was the case for both male and female casualties.

The highest severity ratio (50%) was found in the 70-75 years age group, followed by 35% for the 10-14 years age group. This is partly due to the very low numbers of casualties in each of these groups, but also highlights the greater vulnerability of the young and old.

Table 7: P2W user 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	0	11	74	85	13%	15.2	11	-28%
Westminster	6	80	428	514	17%	64.8	86	33%
Camden	1	35	246	282	13%	41	36	-12%
Islington	3	43	212	258	18%	31.8	46	45%
Hackney	0	34	163	197	17%	25	34	36%
Tower Hamlets	2	34	211	247	15%	37.8	36	-5%
Greenwich	2	33	156	191	18%	30	35	17%
Lewisham	2	54	202	258	22%	30	56	87%
Southwark	0	69	295	364	19%	47.4	69	46%
Lambeth	2	63	382	447	15%	51.2	65	27%
Wandsworth	5	50	264	319	17%	53.4	55	3%
Hammersmith & Fulham	1	28	194	223	13%	26.2	29	11%
Kensington & Chelsea	0	38	188	226	17%	31	38	23%
Total inner London	24	572	3,015	3,611	17%	484.8	596	23%
% of Greater London	38%	53%	57%	56%	-	-	-	-
Waltham Forest	2	22	86	110	22%	19.4	24	24%
Redbridge	3	23	96	122	21%	14.4	26	81%
Havering	4	19	84	107	21%	19.8	23	16%
Barking & Dagenham	0	16	68	84	19%	13.2	16	21%
Newham	2	21	86	109	21%	17.6	23	31%
Bexley	1	22	92	115	20%	17.2	23	34%
Bromley	5	21	126	152	17%	33.4	26	-22%
Croydon	2	44	159	205	22%	31.2	46	47%
Sutton	2	29	82	113	27%	16	31	94%
Merton	0	21	118	139	15%	21.2	21	-1%
Kingston	0	19	90	109	17%	22.2	19	-14%
Richmond	1	26	160	187	14%	24.2	27	12%
Hounslow	2	29	143	174	18%	28	31	11%
Hillingdon	2	27	124	153	19%	25.4	29	14%
Ealing	5	35	175	215	19%	32	40	25%
Brent	0	36	170	206	17%	24.6	36	46%
Harrow	4	10	38	52	27%	12	14	17%
Barnet	3	37	176	216	19%	34	40	18%
Haringey	0	31	128	159	19%	21	31	48%
Enfield	1	29	101	131	23%	21.2	30	42%
Total outer London	39	517	2,302	2,858	19%	448	556	24%
% of Greater London	62%	47%	43%	44%	-	-	-	-
Total Greater London	63	1,089	5,317	6,469	18%	932.8	1,152	23%

Where?

Table 7 shows the number of P2W user casualties by borough, severity and percentage change in KSI casualties in 2003 over the 1994-98 average.

Just over half (56%) of all P2W user casualties were injured on roads in inner London, this included 53% of all serious injuries and 57% of all slight. However, the majority (62%) of P2W user fatalities occurred on roads in outer London.

While slightly more casualties were injured in inner London, the average severity ratio was higher in outer London (19% compared to 17%).

Regarding progress towards the 2010 casualty reduction targets, Map 1 shows the percentage change in P2W user casualties killed or seriously injured in 2003 compared with the 1994-1998 baseline average.

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

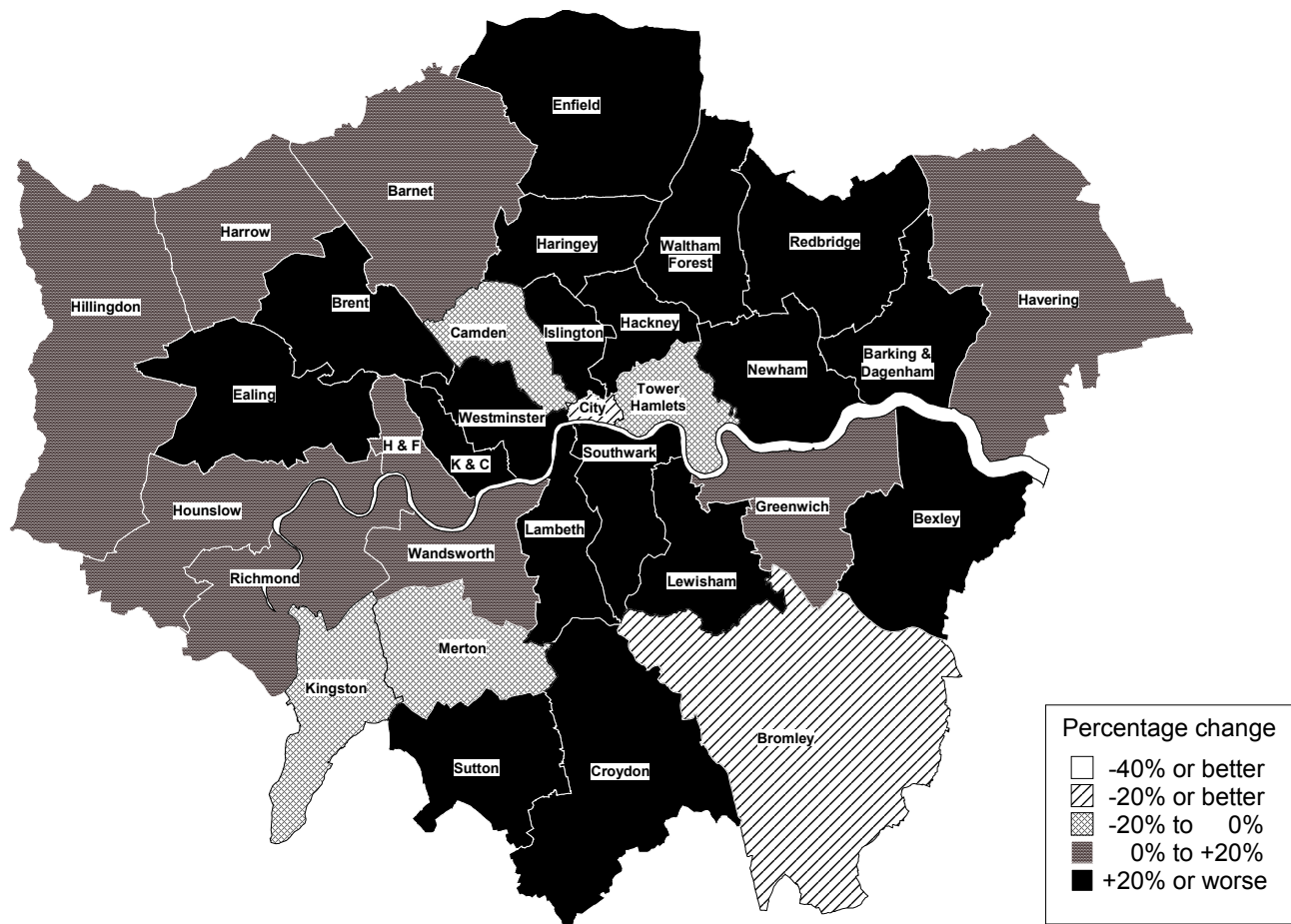


Table 8 shows P2W user casualties by borough, casualty class and age group for Greater London 2003. 56% of all P2W rider casualties and 55% of all P2W passenger casualties were injured in inner London.

With regard to age, 61% of all P2W user casualties in the 25-59 years age group were injured in inner London, while just over half of casualties in the under 16, 16-24 and 60 years and over age groups were injured in outer London (53%, 55% and 56% respectively).

Table 8: P2W casualties by borough, casualty class and age group in Greater London 2003

Borough	Casualty class		Casualty age (banded)				Unknown	Total
	P2W Rider	Passenger	Under 16	16-24	25-59	60 + over		
City of London	82	3	0	10	72	1	2	85
Westminster	485	29	2	77	416	3	16	514
Camden	270	12	1	47	220	3	11	282
Islington	244	14	10	68	167	0	13	258
Hackney	185	12	1	40	145	0	11	197
Tower Hamlets	241	6	3	43	195	0	6	247
Greenwich	185	6	1	49	135	1	5	191
Lewisham	250	8	3	80	165	5	5	258
Southwark	349	15	5	94	245	5	15	364
Lambeth	427	20	6	97	321	4	19	447
Wandsworth	307	12	1	72	231	4	11	319
Hammersmith & Fulham	217	6	1	52	165	3	2	223
Kensington & Chelsea	209	17	2	40	175	3	6	226
Total inner London	3,451	160	36	769	2,652	32	122	3,611
% of Greater London	56%	55%	47%	45%	61%	44%	53%	56%
Waltham Forest	105	5	1	32	69	4	4	110
Redbridge	114	8	0	47	67	1	7	122
Havering	103	4	1	52	49	2	3	107
Barking & Dagenham	82	2	1	32	46	2	3	84
Newham	101	8	3	25	75	0	6	109
Bexley	114	1	0	35	74	2	4	115
Bromley	147	5	0	65	77	2	8	152
Croydon	199	6	3	65	128	3	6	205
Sutton	112	1	0	47	62	4	0	113
Merton	132	7	0	43	84	3	9	139
Kingston	102	7	1	44	62	0	2	109
Richmond	178	9	2	61	116	3	5	187
Hounslow	168	6	5	55	107	2	5	174
Hillingdon	145	8	4	47	93	1	8	153
Ealing	201	14	6	45	153	2	9	215
Brent	195	11	3	63	134	0	6	206
Harrow	48	4	1	24	24	2	1	52
Barnet	205	11	2	65	136	4	9	216
Haringey	152	7	8	52	89	3	7	159
Enfield	122	9	0	57	65	1	8	131
Total outer London	2,725	133	41	956	1,710	41	110	2,858
% Greater London	44%	45%	53%	55%	39%	56%	47%	44%
Total Greater London	6,176	293	77	1,725	4,362	73	232	6,469

The Streets

Table 9: P2W user 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			
Motorway	0	10	22	32	0.5%	31%
A	42	739	3,715	4,496	69.5%	17%
B	5	97	478	580	9.0%	18%
C	6	109	559	674	10.4%	17%
Unclassified	10	134	543	687	10.6%	21%
Total	63	1,089	5,317	6,469	100.0%	18%

Table 9 shows P2W user casualties by road class and severity. Nearly 70% of P2W users were injured on 'A' class roads, 21% on 'C' class and unclassified roads and 9% on 'B' class roads. The highest severity ratio (31%) was recorded on motorways, but this road class accounted for only 0.5% of P2W casualties. The second highest severity ratio (21%) was recorded on the unclassified road network.

The majority of P2W user casualties (64%) were injured on two-lane, single carriageway roads. The highest severity ratio (21%) was however recorded on three-lane dual carriageway roads, which accounted for only 5% of the P2W user casualties.

92% of P2W user casualties occurred on roads with a 30mph speed limit. Generally severity ratios increased with speed limit, with 17% at 30mph, 19% at 40mph, 21% at 50mph and 50% at 60mph.

80% of P2W user casualties were injured at or within 20 metres of a junction, which is higher than the 74% for all casualties. Of these, 57% were injured at 'T' or staggered junctions and 22% at crossroads. Of those injured at a junction, 67% occurred at a junction with a 'Give Way' control and 21% were at a junction controlled by automatic traffic signals (ATS).

Table 10 shows P2W user casualties by highway authority, severity and severity ratio. The majority of injuries (66%) occurred on borough roads. These made up 62% of fatalities, 65% of serious and 66% of slight casualties. 34% of total casualties and 38% of fatalities were on the Transport for London Road Network (TLRN). Those injured on Highways Agency (HA) roads displayed the highest severity ratio, 31% compared with 18% on both the TLRN and borough roads, however casualties on HA roads accounted for only 0.5% of the total P2W user casualties.

Table 10: P2W user casualties by highway authority, severity and severity ratio in Greater London 2003

	Severity of casualty			Total	% of total	Severity ratio
	Fatal	Serious	Slight			
TLRN	24	366	1,784	2,174	33.6%	18%
Highways Agency Road	0	10	22	32	0.5%	31%
Borough Road	39	713	3,511	4,263	65.9%	18%
Total	63	1,089	5,317	6,469	100.0%	18%

Table 11: P2W user 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	56	924	4,385	5,365	82.9%	18%
Wet	7	149	832	988	15.3%	16%
Snow	0	6	5	11	0.2%	55%
Frost/ice	0	6	52	58	0.9%	10%
Flood	0	0	1	1	0.0%	0%
Oil/diesel	0	3	41	44	0.7%	7%
Mud	0	1	1	2	0.0%	50%
Total	63	1,089	5,317	6,469	100.0%	18%

Road surface/weather

Table 11 shows P2W casualties by road surface condition and severity in Greater London in 2003. Nearly 83% of P2W user casualties were injured on a dry road surface, 15% on a wet road and around 1% in snow, frost or ice. Just under 1% of casualties were injured on a road surface where oil/diesel was recorded as being present. 14% of all KSI P2W user casualties were injured on a wet road.

6% of P2W user casualties were involved in an accident where their vehicle skidded. The severity ratio for these casualties was higher at 21% than that for those who did not skid(18%). 16% of casualties injured on a road surface with snow, frost or ice involved the vehicle skidding.

88% of P2W user casualties were injured in fine weather conditions with a resultant severity ratio of 18%. Just under 10% were injured in the rain.

When?

Figures 9, 10 and 11 show the number of P2W user 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

70% of all P2W user casualties were injured between 8am and 7pm, with the highest numbers occurring in the first and last hours of this period, 10% between 8am and 9am and 9% between 6pm and 7pm. Nearly one third (31%) of P2W user casualties occurred in the four hour period between 3pm and 7pm. By contrast, the low period for P2W user casualties was between 1am and 6am, when only 2% of the total P2W user casualties occurred. 71% of P2W user casualties occurred during daylight hours, compared to 29% in the dark.

Day of week

82% of P2W user casualties were injured between Monday and Friday, an average of 16% per day, with 10% on Saturday and 8% on Sunday. The highest proportion of P2W user casualties during the hours of darkness occurred at the weekend with 35% in the dark on both days.

Month

The highest number of P2W user casualties (11%) were recorded in October, which was noticeably higher than other months, and the lowest in January (6%). 52% occurred during the spring-summer period (April to September), compared to 48% in the autumn-winter months (October to March).

Fig 9: P2W user casualties by time and light conditions in Greater London 2003

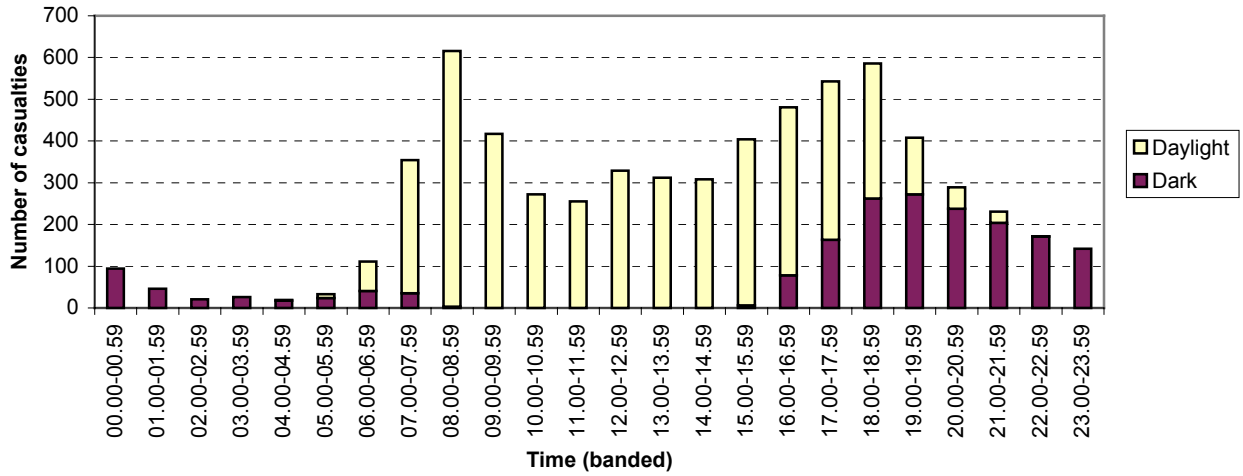


Fig 10: P2W user casualties by day and light conditions in Greater London 2003

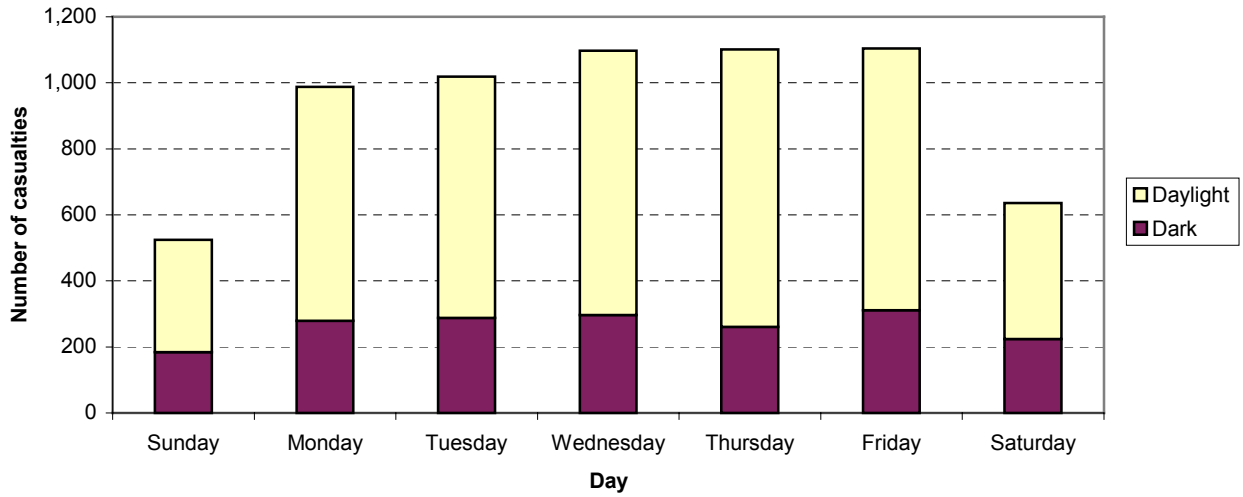


Fig 11: P2W user casualties by month and light conditions in Greater London 2003

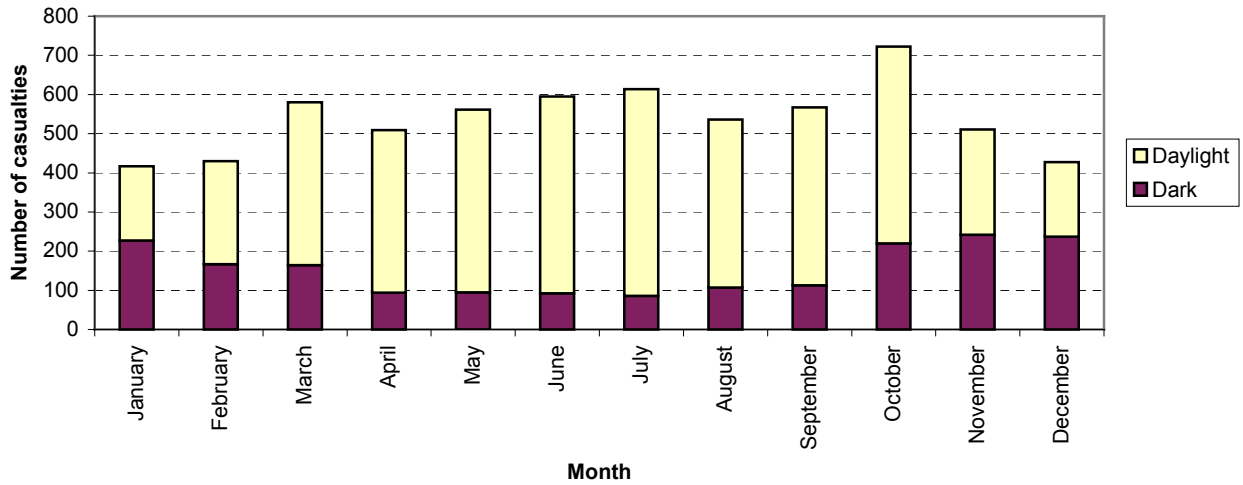


Table 12: P2W user casualties by vehicle type, gender and severity in Greater London 2003

P2W type	Casualty gender		Casualty severity			Total	% of total	Severity ratio
	Male	Female	Fatal	Serious	Slight			
Moped	718	122	1	127	712	840	13%	15%
M/C =< 125cc	1,912	228	15	339	1,786	2,140	33%	17%
M/C > 125cc	3,245	244	47	623	2,819	3,489	54%	19%
All P2W	5,875	594	63	1,089	5,317	6,469	100%	18%

P2W vehicle type

Table 12 shows P2W user casualties by vehicle type, gender and severity for Greater London in 2003.

54% of casualties were injured riding motor cycles with an engine over 125cc. The highest severity ratio (19%) was also recorded against this category of P2W. 75% of all P2W user fatalities and 57% of serious injuries involved motor cycles above 125cc.

At least 85% of P2W user casualties in each vehicle group were male and this percentage increased with engine size,

with 93% casualties on P2W over 125cc being male.

Manoeuvre

Table 13 shows P2W user casualties by vehicle manoeuvre and severity. By far the greatest number (67%) of P2W user casualties were injured when the P2W involved was 'going ahead'. The next most common vehicle manoeuvre (19%) involved the P2W performing an 'overtaking manoeuvre'. Vehicle movements and common conflicts with other vehicles, resulting in fatal or serious injury to P2W users, are looked at in more detail in Tables 15 and 16.

Table 13: P2W user 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	2	2	4	0%	50%
Parked	0	2	7	9	0%	22%
Going Ahead But Held Up	0	6	130	136	2%	4%
Stopping	0	24	159	183	3%	13%
Starting	0	2	36	38	1%	5%
U-Turn	0	3	18	21	0%	14%
Turning Left	0	19	104	123	2%	15%
Waiting to Turn Left	0	1	12	13	0%	8%
Turning Right	1	30	203	234	4%	13%
Waiting to Turn Right	0	2	35	37	1%	5%
Changing Lane To Left	0	9	40	49	1%	18%
Changing Lane To Right	0	9	35	44	1%	20%
Overtaking Moving Veh Offside	11	90	488	589	9%	17%
Overtaking Stat Veh Offside	2	79	401	482	7%	17%
Overtaking Nearside	3	25	129	157	2%	18%
Going Ahead Left Bend	6	25	66	97	1%	32%
Going Ahead Right Bend	4	19	84	107	2%	21%
Going Ahead Other	36	742	3,368	4,146	64%	19%
Total	63	1,089	5,317	6,469	100%	18%

Table 14: P2W user casualties by most common accident and vehicle contributory factors in Greater London 2003

Accident Contributory Factor	Number of Casualties	% of Total
209 Turn right injudiciously	1,269	20%
207 Disobeyed STOP or GIVE WAY sign or marking	806	12%
224+225 Going too fast having regard to road environment or other road users	572	9%
221 Changing lane injudiciously	502	8%
211 U-turning	440	7%
219 Overtaking on offside injudiciously	356	6%
238 Swerved/braked to avoid having an accident	342	5%
216 Driving too close to the vehicle in front	269	4%
0 Factor unknown	169	3%
210 Turning left	162	3%
204 Disobeyed Automatic Traffic Signals	153	2%
214 Starting	141	2%
239 Lost control - no apparent reason	126	2%
Vehicle Contributory Factor		
601 Going ahead normally	3,321	51%
224+225 Going too fast having regard to road environment or other road users	862	13%
219 Overtaking on offside injudiciously	468	7%
238 Swerved/braked to avoid having an accident	415	6%
600 Parked or stationary	175	3%
216 Driving too close to the vehicle in front	162	3%
000 Factor unknown	149	2%
603 Turning normally	131	2%
299 Other driver/rider factor	100	2%
239 Lost control - no apparent reason	94	1%
220 Overtaking on nearside injudiciously	82	1%
209 Turn right injudiciously	75	1%

Contributory factors


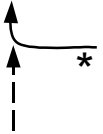



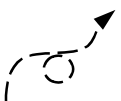


Table 14 shows P2W user casualties by the main accident and vehicle contributory factors in Greater London in 2003.

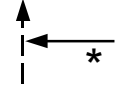
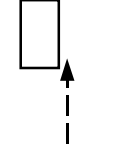
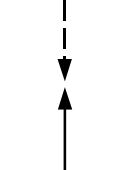

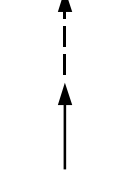
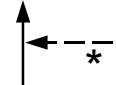
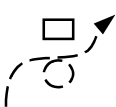
The contributory factor variable is subjective but gives an indication of the main factors involved in the accident. The accident contributory factor could apply to any of the vehicles involved in the collision, and has been deemed, by the Police, to be the overriding factor in the accident. The vehicle contributory factor relates directly to the P2W vehicle.

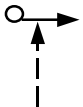



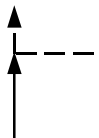
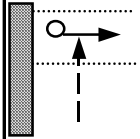
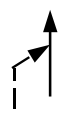
The top accident contributory factor, cited for 20% of P2W user casualties, was 'turn right injudiciously'. However, the top vehicle contributory factor (51%) was 'going ahead normally', i.e. the P2W was not deemed to have caused the accident. Only 1% of P2W user casualties were recorded as 'turning right injudiciously', thus implying that in the majority of cases where a right turn was involved, it was another vehicle turning across the path of the P2W. 13% of P2W user casualties involved the P2W 'travelling too fast'.


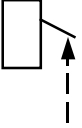


Tables 15 and 16 present a more detailed analysis of the conflicts between P2W and other vehicles resulting in the P2W user being killed or seriously injured.

Table 15: Ranked analysis of the most commonly occurring conflicts between vehicles in accidents resulting in a powered two wheeler user being seriously injured in London during 2003

Conflict between powered two wheeler and:													
Conflict	Description	Powered 2 wheeler	Pedal cyclist	Car	Taxi	Goods under 3.5t	Goods over 3.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *	Total Collisions	%
	Other vehicle turns right into path of P2W	1	0	138	3	9	2	4	1	0	1	158	15%
	Other vehicle disobeys junction control and turns right or left into path of P2W	0	0	134	0	12	5	1	3	0	8	155	14%
	Other vehicle u-turns into path of P2W	0	0	73	3	9	2	0	5	0	3	92	9%
	P2W performs overtaking manoeuvre into path of right turning vehicle	0	0	55	1	5	3	2	0	0	2	66	6%
	P2W runs into rear of other vehicle	4	0	48	1	7	2	1	3	0	3	66	6%
	P2W loses control (and may hit other vehicle)	1	0	8	1	1	0	1	0	46	2	58	5%
	Other vehicle changes lane (o/s or n/s) across the path of P2W	0	0	46	0	4	3	0	2	1	1	56	5%
	P2W brakes and/or swerves to avoid collision	0	0	4	0	1	0	0	0	48	0	53	5%

Conflict between powered two wheeler and:													
Conflict	Description	Powered 2 wheeler	Pedal cyclist	Car	Taxi	Goods under 3.5t	Goods over 3.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *	Total Collisions	%
	Other vehicle fails to give way or disobeys junction control and collides with P2W	0	2	39	1	2	1	0	1	0	1	46	4%
	P2W hits parked vehicle	0	0	25	0	3	2	4	2	3	2	39	4%
	Head on collision between P2W and other vehicle	3	1	25	1	1	0	2	0	0	3	33	3%
No details	No details	1	0	18	0	0	0	1	0	9	1	29	3%
	P2W loses control - and hits kerb, barrier or wall etc.	1	0	3	0	1	1	0	0	23	0	29	3%
	Other vehicle runs into rear of P2W	1	0	17	1	0	2	0	0	0	2	21	2%
	P2W fails to give way at junction control and collides with other vehicle	2	0	13	2	2	0	2	0	0	0	21	2%
	P2W loses control - and may hit other vehicle- (road surface condition)	1	0	4	0	0	0	0	0	16	0	21	2%

Conflict between powered two wheeler and:													
Conflict	Description	Powered 2 wheeler	Pedal cyclist	Car	Taxi	Goods under 3.5t	Goods over 3.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *	Total Collisions	%
	P2W strikes pedestrian not at or within 50m of a formal pedestrian crossing - crossing road	0	0	0	0	0	0	0	0	15	0	15	1%
	P2W collides with other vehicle or loses control while overtaking	1	0	7	0	2	0	0	0	4	0	14	1%
	Other vehicle turns left across the path of P2W user	3	0	7	2	0	1	1	0	0	0	14	1%
	P2W loses control, mounts kerb & hits road side object or street furniture	0	0	3	0	0	0	0	0	10	0	13	1%
Various	other P2W accidents	0	1	8	0	0	0	0	0	3	1	12	1%
	P2W turns right into path of other vehicle	0	0	10	0	0	0	2	0	0	0	12	1%
	P2W strikes pedestrian at or within 50m of a formal pedestrian crossing	0	1	1	0	0	0	0	0	10	0	12	1%
	P2W changes lane across path of other vehicle	1	0	6	2	2	1	0	0	0	4	12	1%

Conflict between powered two wheeler and:													
Conflict	Description	Powered 2 wheeler	Pedal cyclist	Car	Taxi	Goods under 3.5t	Goods over 3.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *	Total Collisions	%
	Other vehicle starts off or pulls out into path of P2W	1	0	9	0	1	0	0	0	0	4	11	1%
	P2W hits open door / swerves to avoid open door of other vehicle.	0	0	6	2	2	0	0	0	0	2	10	1%
	Vehicle reverses into powered two wheeler	0	0	3	0	0	0	0	0	0	0	3	0%
	P2W starts off or pulls out into path of other vehicle	0	0	1	0	1	0	0	0	0	0	2	0%
	Total	21	5	711	20	65	25	21	17	188	40	1073	100%

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

Common conflicts in P2W KSI collisions

Tables 15 and 16 show a listing of the main types of conflicts occurring in collisions involving serious or fatal injury to a P2W user. The tables include a simple sketch representation of the conflict between the P2W user (shown as a broken line) and the other vehicle(s) involved (shown as a solid line). The information included in the tables was compiled from a manual analysis of the details of each P2W user KSI collision.

Table 15 (serious) summary







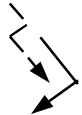

15% involved a vehicle turning right across the path of the P2W and 14%



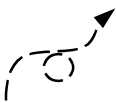
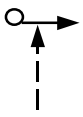

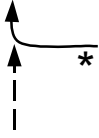


involved a vehicle disobeying the junction control and turning right or left into the path of the P2W. In addition a further 6% involved the P2W overtaking into the path of a right turning vehicle. This gives further support to the indication given by the accident contributory factors, that the largest single cause of P2W collisions is the other vehicle turning right across the P2W.


9% of collisions involved a vehicle u-turning across the path of the P2W.

In total 16% of collisions involved the P2W losing control or braking/swerving to avoid an accident.

Table 16: Ranked analysis of the most commonly occurring conflicts between vehicles in accidents resulting in a powered two wheeler user being fatally injured in London during 2003

Conflict between powered two wheeler and:													
Conflict	Description	Powered 2 wheeler	Pedal cyclist	Car	Taxi	Goods under 3.5t	Goods over 3.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *	Total collisions	%
	Other vehicle turns right into path of P2W	0	0	10	0	1	1	0	0	0	2	12	19%
	P2W loses control mounts kerb & hits road side object or street furniture	0	0	1	0	0	0	0	0	6	0	7	11%
	P2W collides with other vehicle or loses control while overtaking	0	0	4	0	0	0	1	0	1	0	6	10%
	Head on collision between P2W and other vehicle	0	0	4	0	1	0	1	0	0	0	6	10%
	P2W loses control - and hits kerb, barrier or wall etc. (n/s or o/s)	0	0	1	0	0	0	0	0	4	0	5	8%
	P2W runs into rear of other vehicle	0	0	5	0	0	0	0	0	0	1	5	8%
	P2W performs overtaking manoeuvre into path of right turning vehicle (n/s or o/s)	0	0	2	0	0	1	0	0	0	0	3	5%
	P2W fails to give way at junction control and collides with other vehicle	0	0	3	0	0	0	0	0	0	0	3	5%

Conflict between powered two wheeler and:													
Conflict	Description	Powered 2 wheeler	Pedal cyclist	Car	Taxi	Goods under 3.5t	Goods over 3.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *	Total collisions	%
	Other vehicle changes lane across the path of P2W	0	0	2	0	0	1	0	0	0	0	3	5%
	P2W hits parked vehicle	0	0	1	0	1	0	0	0	0	1	2	3%
	P2W loses control (and may hit other vehicle)	0	0	0	1	1	0	0	0	0	0	2	3%
	P2W strikes pedestrian not at or within 50m of a formal pedestrian crossing - crossing road	0	0	0	0	0	0	0	0	2	0	2	3%
	Other vehicle fails to give way at junction control (crossroads?) and collides with P2W	0	0	1	0	0	0	0	0	0	1	1	2%
	Other vehicle disobeys junction control and turns right or left into path of P2W	0	0	1	0	0	0	0	0	0	0	1	2%
	Other vehicle u-turns into path of P2W	0	0	1	0	0	0	0	0	0	0	1	2%
	Other vehicle runs into rear of P2W	0	0	1	0	0	0	0	0	0	0	1	2%

Conflict between powered two wheeler and:													
Conflict	Description	Powered 2 wheeler	Pedal cyclist	Car	Taxi	Goods under 3.5t	Goods over 3.5t	Bus or coach	Other vehicle	No other vehicle	Multiple vehicle *	Total collisions	%
	P2W tried to pass through gap between other vehicle travelling alongside each other	0	0	0	0	0	1	0	0	0	1	1	2%
	Not known how conflict occurred	0	0	0	0	1	0	0	0	0	0	1	2%
	Total	0	0	37	1	5	4	2	0	13	6	62	100%

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

Table 16 (fatal) summary

The most common conflict (19%) in fatal collisions, as with those resulting in serious injury involved a vehicle turning right into the path of the P2W.

11% involved a P2W losing control and hitting a roadside object or item of street

furniture, and a further 8% involved the P2W hitting a kerb, barrier or wall.

10% involved the P2W colliding with another vehicle or losing control while overtaking and in a further 10% of collisions the P2W user died in a head on crash.

Reference Documents

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