agilysis.co.uk

Safer Roads Berkshire

Small Motorcycle (P2W)

Insight Study

Insight Studies

20
21

SMALL MOTORCYCLES INSIGHT STUDY

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report examines the circumstances around which riders of small motorcycles (125cc and under) were involved in collisions on Safer Roads Berkshire's road network between 2015 and 2019; and where relevant, how Safer Roads Berkshire's resident small motorcycle riders were involved in collisions.

Great Britain's collision involved small motorcycle rider numbers have decreased gradually over the past five years, after a significant increase between 2013 and 2014. This trend is also reflected in the collision rate of motorcycle riders per thousand registered vehicles. On the roads of Safer Roads Berkshire, collision involved small motorcycle rider numbers have decreased since 2016 but increased again in 2019. There were 33% less small motorcycle riders involved in collisions in 2019 than there were in 2010.

Riders of motorcycles up to 125cc represent 6% of all drivers involved in collisions in Safer Roads Berkshire and are over-represented compared to the proportion of small motorcycle riders involved in collisions nationally.

Seventy-one percent of small motorcycle riders involved in collisions in Safer Roads Berkshire are also from the area. Only 68% of Safer Roads Berkshire's resident riders crashed there. This means that residents of Safer Roads Berkshire account for over half of the motorcycle riders who crash on local roads. Successful Interventions targeting residents will reduce risk on Safer Roads Berkshire's roads.

The most common period for small motorcycle riders to be involved in collisions in Safer Roads Berkshire is between 7am and 9am and between 3pm and 7pm on weekdays and between noon and 3pm at weekends. The lunchtime peak at weekends in more pronounced in Safer Roads Berkshire than it is in the south east region or nationally.

Small Motorcycle involved in collisions in Safer Roads Berkshire are mostly aged 16-19 with 35% of all riders being from this age group. The 30-34 age group is also over-represented when compared to small motorcycle riders across the south east region. Almost all collision involved small motorcycle riders are male (91%). Analysis of journey purpose shows that there is a high percentage of small motorcycle riders riding for work (32%) compared to the south east (26%). Of note is the fact that no motorcycle riders were recorded in Safer Roads Berkshire as travelling for the journey purpose of 'Other' compared to regional figures. This would suggest that some investigation may be required into the use of the 'Other' category in reporting.

Most of the collisions involving small motorcycle riders in Safer Roads Berkshire are on unclassified roads (44%) with 38% on A roads. Seventy-seven percent were on single carriageway roads. Sixty-three percent of small motorcycle riders were at Give Way or uncontrolled junctions. Analysis of the manoeuvres undertaken by the motorcycle rider shows that 58% were travelling straight ahead. The most common manoeuvre undertaken by other involved vehicles was turning right, which implies that there may be visibility issues with other vehicles exiting junctions into the path of oncoming motorcycle riders.

Collisions in Safer Roads Berkshire which involve small motorcycles tend to be with at least one other vehicle (83%) with 17% being single vehicle collisions. Of the other vehicles involved in a collision with a small motorcycle rider, the majority are cars; 73% of small motorcycle riders were involved in a

collision with one or more car. The most attributed contributory factors for small motorcycle riders in Safer Roads Berkshire are 'Observation errors' and this is slightly over-represented when compared to small motorcycle riders in the south east region. The 'Nervous behaviour' contributory factors are also over-represented for small motorcycle riders.

An examination of the communities where Safer Roads Berkshire's collision involved small motorcycle riders come from shows that the majority are Mosaic groups I, M and H which are '*Residents of settled urban communities with a strong sense of identity*', '*Families with limited resources who budget to make ends meet* and *'Younger households settling down in housing priced within their means*'. In addition to these communities having the highest numbers of collision involved small motorcycle riders, they are also over-represented as collision involved small motorcycle riders compared to the proportion of residents in those groups within Safer Roads Berkshire. Groups I and M are more likely to be 16 to 19 years old and these Groups are more likely to work in transport or food service industries and have low incomes; and use new technologies. The characteristics of Group H fit less well with the small motorcycle rider profile in terms of age group.

As many of the collisions involving motorcyclists are at junctions with a high number of those involved attributed observation error CFs, many of the key messages conveyed should surround visibility and conspicuity. For example, other vehicles take extra time to look out for motorcyclists; motorcyclists take extra care when approaching junctions and motorcyclists wear high visibility kit to make sure they are seen.

There are several existing high profile or long running schemes and interventions designed to address motorcycle collision issues such as the award-winning RideFree (free to complete and available nationally) and Ridestart (an all-day course aimed at 15- to 17-year-olds).

INTRODUCTION

In Great Britain, in 2019, there were 65 motorcycle riders, on machines under 125cc, who were involved in fatal collisions and a further 2505 in serious and 6972 in slight collisions. The casualties in these collisions could be the motorist themselves or another party. Figure 1 puts the 125cc and under involvement figures for Great Britain in context. It shows the number of riders involved in collisions, by severity, since 2010, in the bars and the red line indicates the collision involvement rate per thousand licensed vehicles with engines less than 125cc. It shows an increase in involvement between 2010 and 2014 and then a gradual decrease in involvement from 2015, although the rate per thousand registered vehicles has remained consistent over the last ten years.

FIGURE 1 - GB UP TO 125CC MOTORCYCLISTS BY SEVERITY AND COLLISION RATE PER THOUSAND REGISTERED VEHICLES
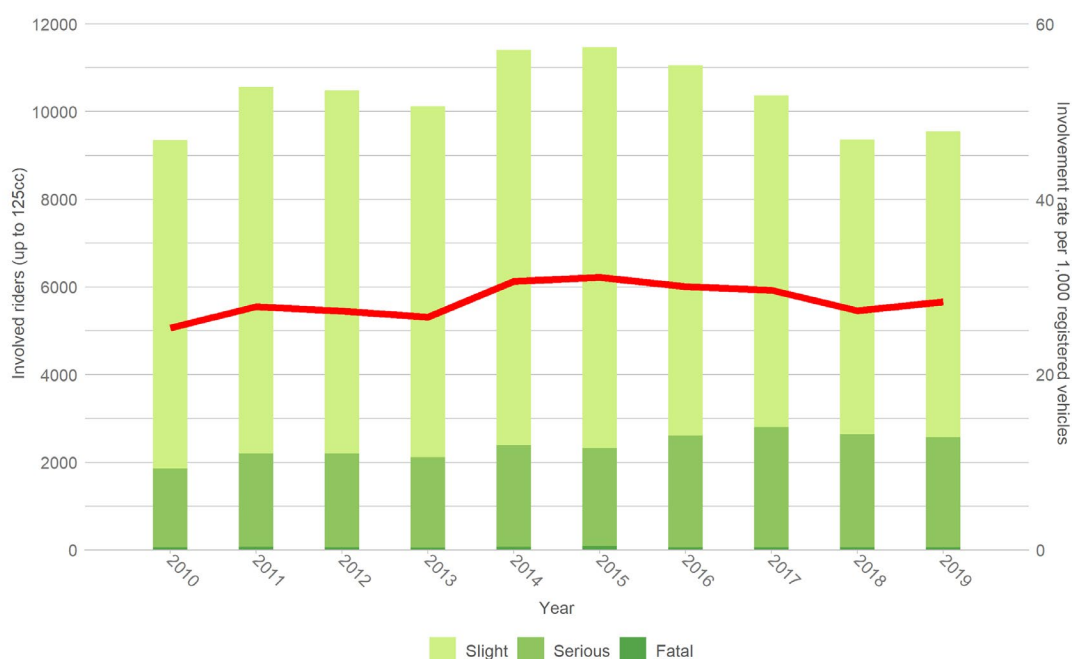
This report sets out analysis undertaken using STATS19 collision data for 2015 to 2019 from MAST, an online analysis tool which combines casualty and collision data from the Department for Transport with socio-demographic insights created by Experian through Mosaic Public Sector. The postcodes of drivers and casualties involved in collisions are used to determine which Mosaic Groups and Types these individuals are likely to belong to, which can be used by road safety professionals to understand who should be targeted in road safety interventions.

The report works through the analysis by first determining the extent to which motorcycle riders from Safer Roads Berkshire are involved in collisions and in what context they are involved. The location of the collisions will be examined to determine if the motorcycle riders are involved in collisions on Safer Roads Berkshire's roads or elsewhere.

InsightStudies

Other factors, such as when, where, and how the motorcycle riders were involved in collisions are explored to provide information on the topics and issues that could be focused upon within an intervention.

A large part of the analysis focuses on profiling the motorcycle riders, with the aim of producing 'personas' that can be used to visualise the target audience. These personas are created using a variety of socio-demographic data, including looking at Indices of Multiple Deprivation and Mosaic Groups. Profiling in this way allows the practitioner to understand how motorcycle riders will respond to a road safety intervention and in what way it should be delivered.

Comparator authorities are used, where appropriate, to place the analysis of motorcycle riders injured from Safer Roads Berkshire into context.

RISK PROFILE

This profile covers two distinct areas: information about the collision and about the person involved. Both are relevant to the analysis and are considered separately. Any analysis carried out on motorcycle riders from Safer Roads Berkshire is illustrated in **blue**, whilst analysis related to collisions occurring on Safer Roads Berkshire's road network are illustrated in **green**.

In Safer Roads Berkshire, in 2019, there were no small motorcycle riders who were involved in fatal collisions, 20 involved in serious collisions and 47 involved in slight collisions. The numbers have decreased overall since 2010.

FIGURE 2 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) ON SAFER ROADS BERKSHIRE'S ROADS BY YEAR AND SEVERITY (2010-2019)

The collision analysis in the report mainly looks at small motorcycle riders who were involved in collisions between 2015 and 2019.

WHAT?

Between 2015 and 2019, riders on motorcycles up to 125cc accounted for 6% of all drivers or riders involved in KSI collisions on the roads of Safer Roads Berkshire. The actual numbers are shown in Table 1. Comparisons with drivers anywhere in Great Britain have been made and 100-based indices have been created. Where drivers on the roads of Safer Roads Berkshire are over-represented in collisions compared to GB, there is a value in the last column which is over 100. This is the case for car drivers, pedal cyclists, heavy goods vehicle drivers, light goods vehicle drivers, minibus drivers and riders of motorcycles over 125cc. Compared to the rest of Great Britain, riders of motorcycles up to 125cc are under-represented on the roads of Safer Roads Berkshire.

TABLE 1 - COLLISION-INVOLVED DRIVERS IN SAFER ROADS BERKSHIRE BY VEHICLE TYPE (2015 - 2019)

Vehicle Type	Fatal	Serious	KSI	Slight	Total	% of all KSI	% of all vehicles	GB Index
Bus	0	5	5	47	52	0%	0%	22
Car	95	988	1083	7493	8576	61%	72%	102
Cycle	7	182	189	853	1042	11%	9%	112
Heavy Goods	14	43	57	231	288	3%	2%	109
Light Goods	13	94	107	607	714	6%	6%	112
Minibus	2	5	7	28	35	0%	0%	158
Motorcycle over 125cc	18	168	186	264	450	10%	4%	107
Motorcycle up to 125cc	2	114	116	316	432	6%	4%	84
Other	0	13	13	77	90	1%	1%	49
Taxi	4	19	23	167	190	1%	2%	74

Table 2 shows the drivers and riders who were resident in Safer Roads Berkshire and were involved in collisions. Between 2015 and 2019, riders of motorcycles up to 125cc accounted for 7% of all drivers or riders involved in KSI collisions. These riders are those who live in Safer Roads Berkshire and who were involved in collisions anywhere in the country (including Safer Roads Berkshire itself). Riders of motorcycles up to 125cc from Safer Roads Berkshire are under-represented compared to all GB residents.

Vehicle Type	Fatal	Serious	KSI	Slight	Total	% of all KSI	% of all vehicles	GB Index
Bus	1	11	12	82	94	1%	1%	44
Car	91	949	1040	6604	7644	61%	71%	101
Cycle	5	190	195	769	964	11%	9%	115
Heavy Goods	8	29	37	145	182	2%	2%	76
Light Goods	4	66	70	500	570	4%	5%	99
Minibus	1	1	2	15	17	0%	0%	85
Motorcycle over 125cc	23	184	207	292	499	12%	6%	132
Motorcycle up to 125cc	2	116	118	329	447	7%	4%	96
Other	0	14	14	55	69	1%	1%	42
Taxi	5	16	21	206	227	1%	2%	98

The two tables show a difference between the numbers of motorcycle riders who crash on the roads of Safer Roads Berkshire versus the number involved in collisions who live in Safer Roads Berkshire. Figure 3 shows that there were 306 Safer Roads Berkshire resident motorcycle riders (up to 125cc) who were involved in collisions in Safer Roads Berkshire. There were a further 126 motorcycle riders up to 125cc from outside of Safer Roads Berkshire who crashed on Safer Roads Berkshire roads (the green circle). This means that 71% of the motorcycle riders up to 125cc who crash in Safer Roads Berkshire are from Safer Roads Berkshire. There were a further 141 Safer Roads Berkshire resident motorcycle riders up to 125cc who were involved in collisions elsewhere in the country. There were 51,231 motorcycle riders up to 125cc involved in collisions elsewhere in Great Britain who were not from Safer Roads Berkshire.

FIGURE 3 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) BY CRASH LOCATION AND DRIVER HOME, RELATIVE TO SAFER ROADS BERKSHIRE (2015 - 2019)
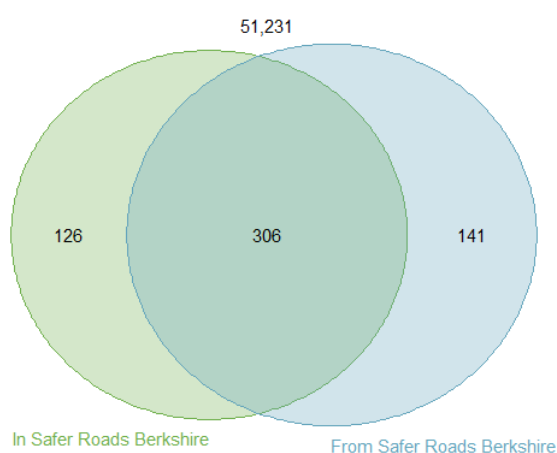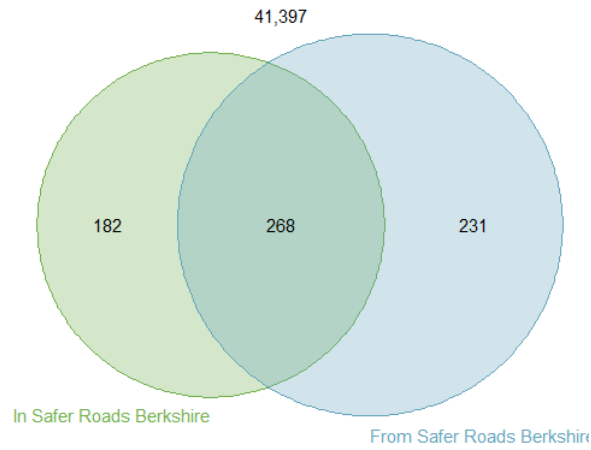

Figure 4 shows that there were 268 Safer Roads Berkshire resident motorcycle riders (over 125cc) who were involved in collisions in Safer Roads Berkshire. There were a further 182 motorcycle riders over 125cc from outside of Safer Roads Berkshire who crashed on Safer Roads Berkshire roads (the green circle). There were a further 231 Safer Roads Berkshire resident motorcycle riders (over 125cc) who

were involved in collisions elsewhere in the country. There were 41,397 motorcycle riders over 125cc involved in collisions elsewhere in Great Britain who were not from Safer Roads Berkshire.

FIGURE 4 - COLLISION-INVOLVED MOTORCYCLE RIDERS (OVER 125CC) BY CRASH LOCATION AND DRIVER HOME, RELATIVE TO SAFER ROADS BERKSHIRE (2015 - 2019)

Directing resources towards Safer Roads Berkshire residents will mean that more than half of the motorcycle riders involved in collision in Safer Roads Berkshire will be targeted. More information on where those who crash in Safer Roads Berkshire come from and where Safer Roads Berkshire residents are involved in collisions is provided later in this report.

The number of Safer Roads Berkshire resident motorcycle riders (up to 125cc) involved in collisions are shown in Figure 5, by collision severity in the columns. The line on the chart shows the three-year rolling average trend. This shows that there has been a decrease in the number of smaller motorcycle riders involved in collisions over the last 4 years.

FIGURE 5 - SAFER ROADS BERKSHIRE RESIDENT COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) BY YEAR AND SEVERITY (2010 - 2019)
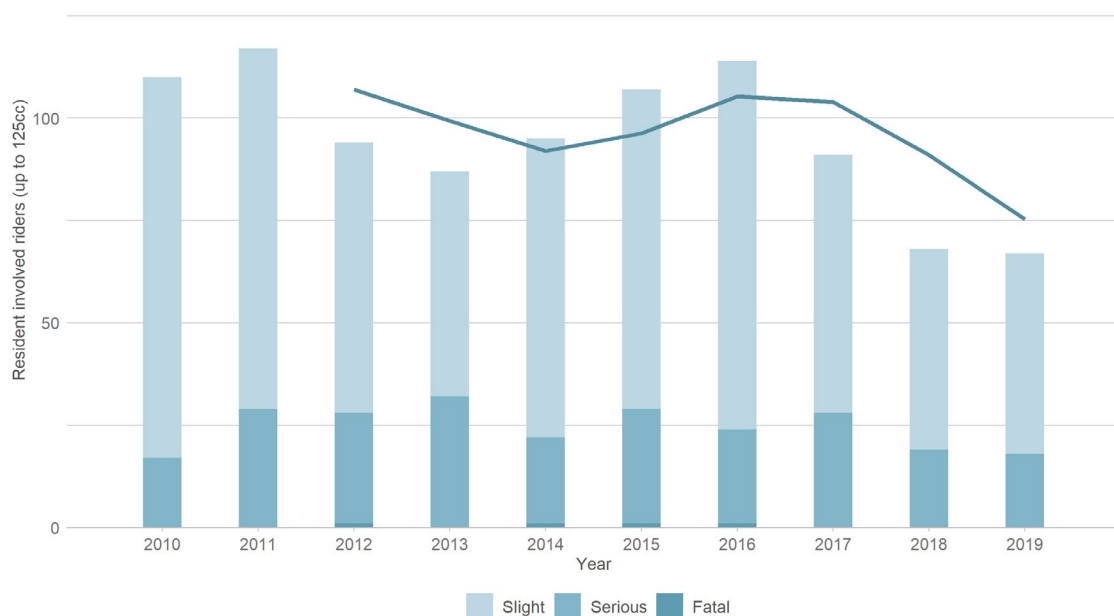
To understand whether the decrease in Safer Roads Berkshire resident smaller motorcyclist collision involvement is part of a general trend or unique to Safer Roads Berkshire, comparisons have been made with south east residents and Great Britain as a whole. These are shown in Figure 6. For all areas 2010 has been used as a starting point and 100-based indices created to show how each subsequent year compares to the numbers of motorcycle riders involved in collisions in 2010. The chart shows that there is a slight downward trend in the number of small motorcycle riders who were involved in injury collisions since 2010, though a clear downward trend is certainly more noticeable in Safer Roads Berkshire.

FIGURE 6 - TREND OF COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY YEAR, INDEXED OVER A 2010 BASELINE (2010 - 2019)
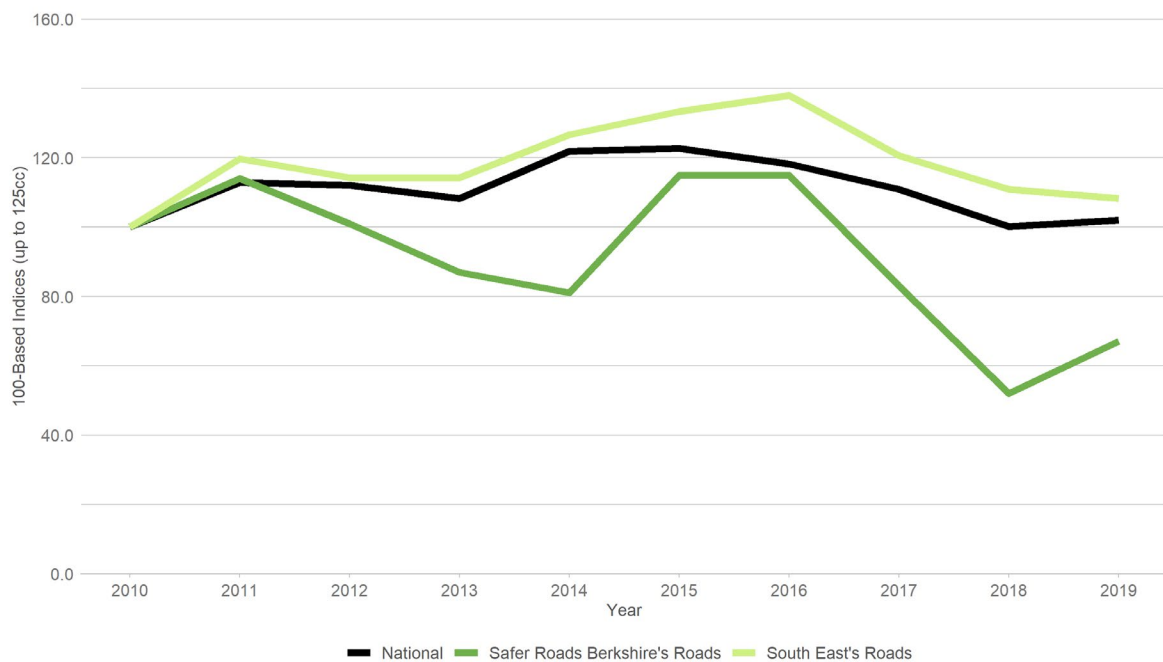

WHEN?

This section of the analysis looks at when Safer Roads Berkshire smaller motorcycle riders were involved in collisions between 2015 and 2019.

There is a definite peak in collision involvement amongst Safer Roads Berkshire smaller motorcycle riders in the early evening on weekdays, as well as a smaller peak in the mornings between the hours of 6am and 9am. This is illustrated in Figure 7. This trend is consistent with the south east region and the national trend.

Insight Studies

FIGURE 7 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY TIME OF DAY ON WEEKDAYS (2015 - 2019)
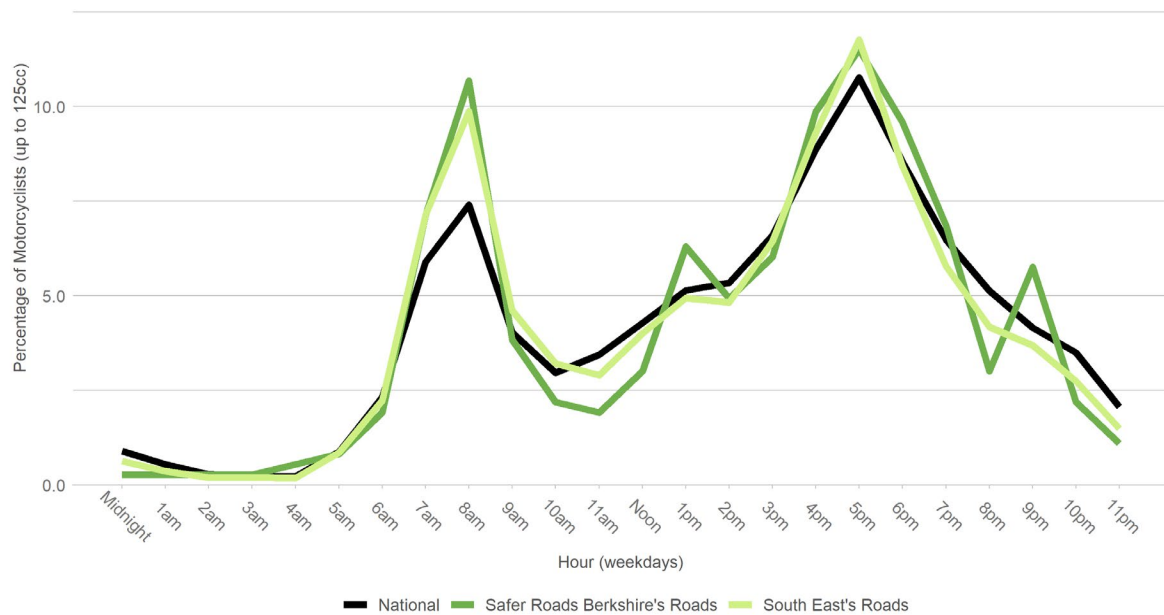
At weekends, there is a noticeable peak in smaller motorcyclist collision involvement in Safer Roads Berkshire between 12 and 2pm and a smaller peak between 4 and 7pm. This is a different trend to that displayed at weekends for the south east region and nationally.

FIGURE 8 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY TIME OF DAY ON WEEKENDS (2015 - 2019)
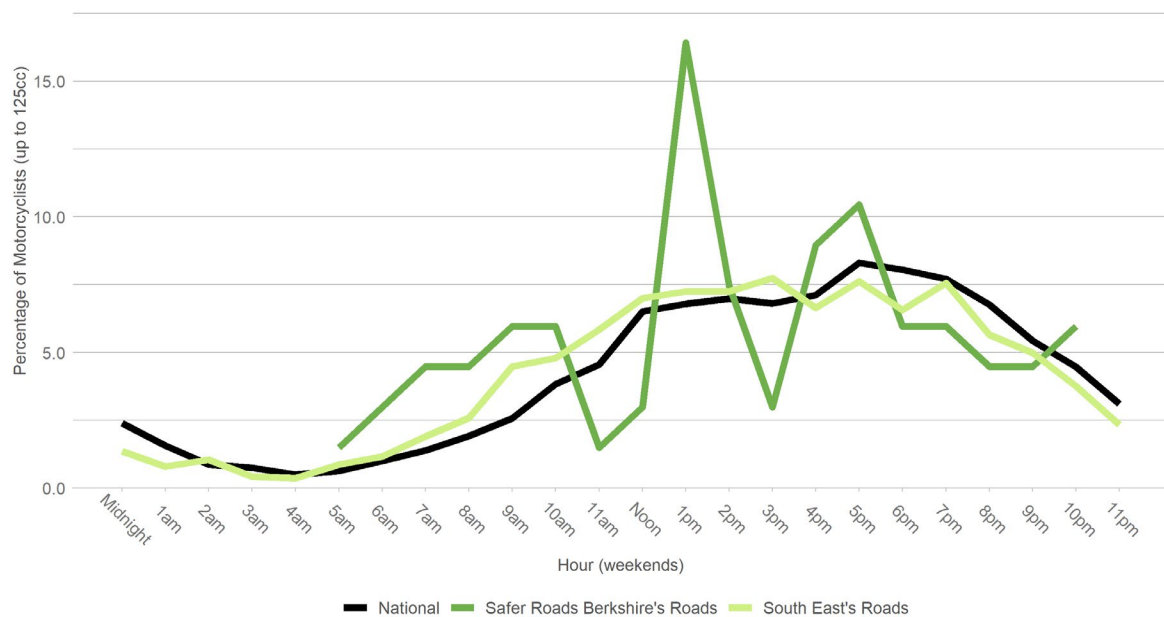
Related to time-of-day analysis is lighting conditions. Figure 9 shows that 71% of the riders of small motorcycles were in collisions in the daylight, with a further 22% taking place in the dark when streetlights were lit.

FIGURE 9 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY LIGHT CONDITIONS (2015 - 2019)
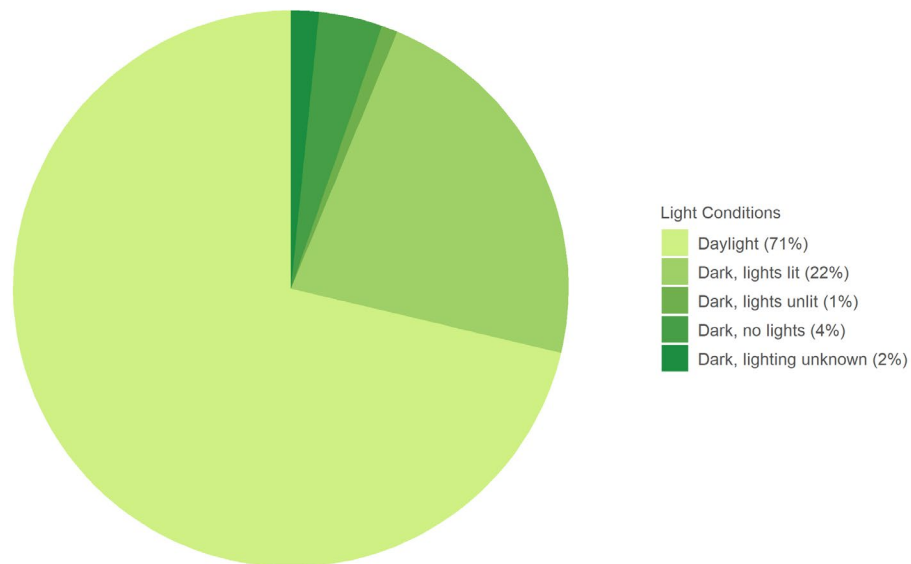
The days of the week on which small motorcycle riders were involved in collisions is shown in Figure 10. It shows that small motorcycle riders are involved in collisions more on weekdays than weekends (fewest on Sundays). The red bars compare Safer Roads Berkshire small motorcycle riders with those from the south east region. It shows that there are fewer Safer Roads Berkshire smaller motorcycle riders in crashes on Saturdays, Sundays, and Wednesdays than the south east region but more on Thursdays and Fridays.

FIGURE 10 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY DAY OF THE WEEK, WITH REGIONAL INDEX (2015 - 2019)
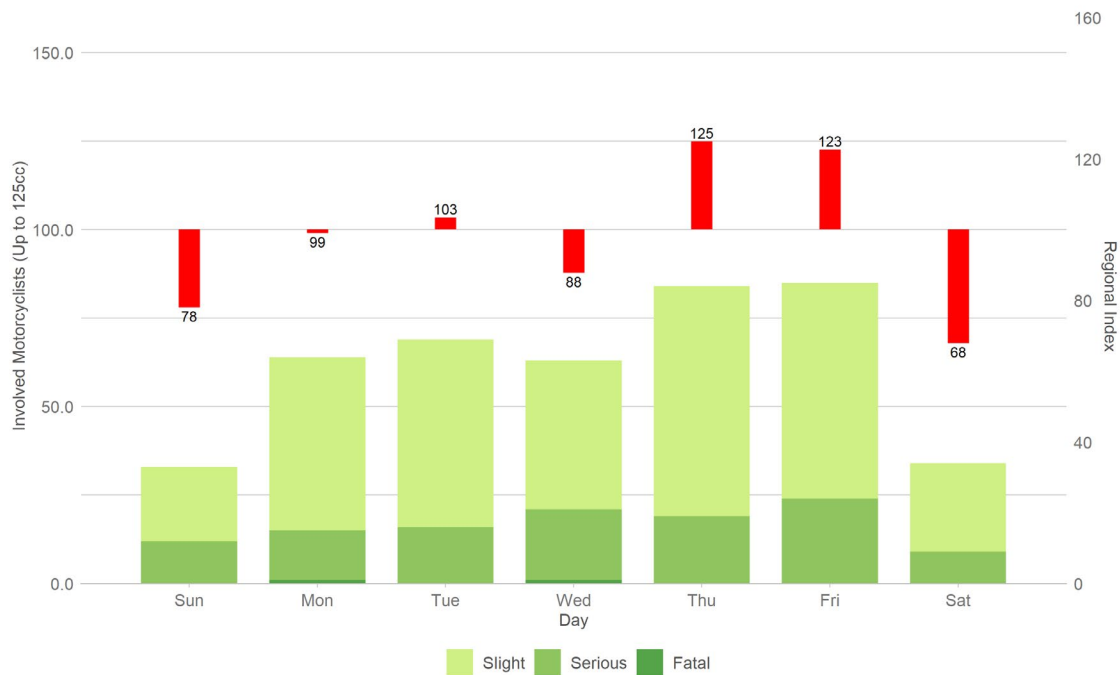
The month of the year in which the small motorcycle riders were involved in collisions was analysed (Figure 11). It shows that fewer collisions occurred in the months of February, March and August and greater collisions occurred in the summer months of June, July and September.

FIGURE 11 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY MONTH OF THE YEAR (2015 - 2019)
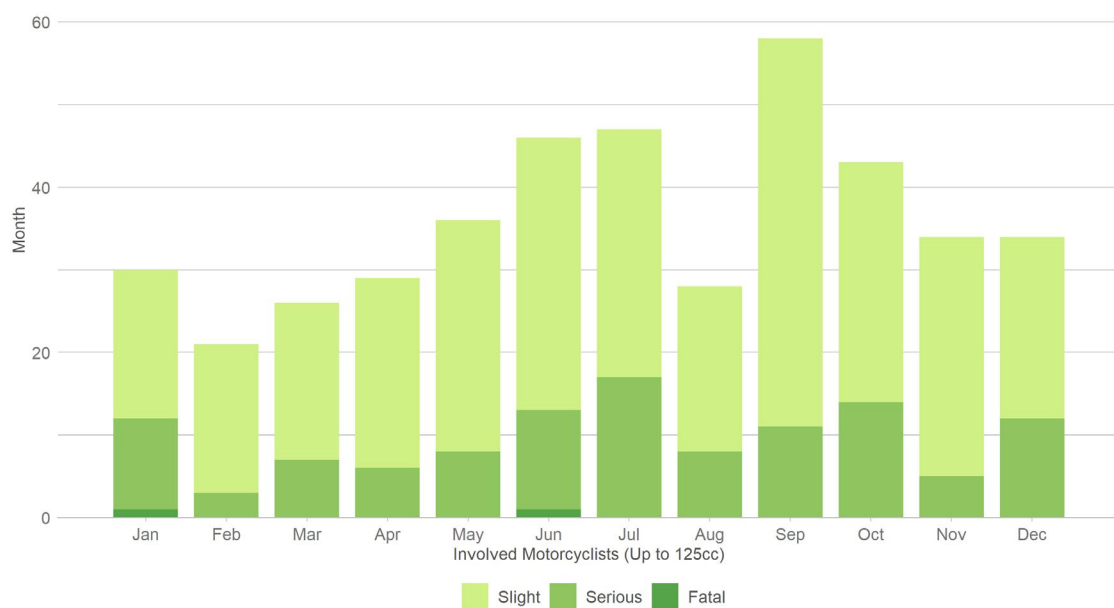
The weather conditions at the time the motorcycle riders were involved in the collisions were examined (Table 3). Most of the small motorcycle riders (83%) were involved in collisions in fine and still weather and this is very similar to all collisions in the south east region (82%).
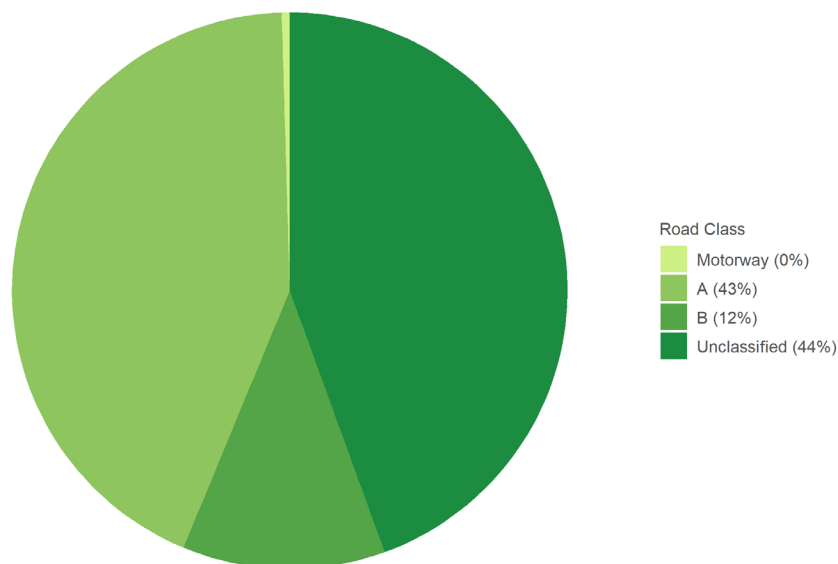
TABLE 3 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY WEATHER CONDITIONS (2015 - 2019)

Weather Conditions	In SRB	In Region	% in SRB	% in Region
Fine with high winds	7	95	2%	1%
Fine without high winds	357	6244	83%	82%
Fog or mist - if hazard	2	34	0%	0%
Other	2	104	0%	1%
Raining or snowing with high winds	2	99	0%	1%
Raining or snowing without high winds	60	954	14%	13%

WHERE?

The next section looks at the road characteristics of where small motorcycle riders were involved in collisions in Safer Roads Berkshire. In terms of road class, 44% of small motorcycle riders were on unclassified roads at the time of their collision, and 43% were on 'A' roads. (Figure 12)

FIGURE 12 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY ROAD CLASS (2015 - 2019)

Road Class
Motorway (0%)
A (43%)
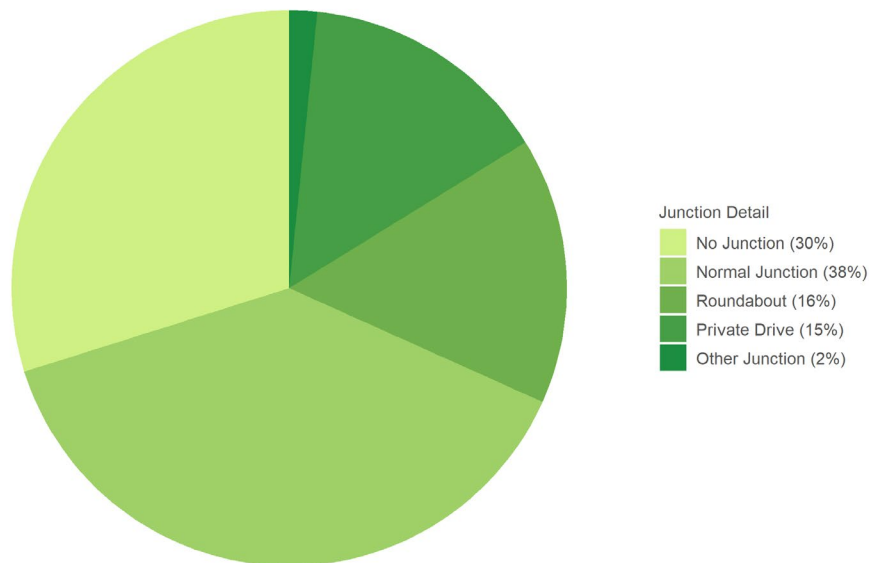B (12%)
Unclassified (44%)

Collisions involving small motorcycle riders tend to be on single carriageway roads (76.6%) with a further 9% on dual carriageways. This is a similar distribution to the south east region. (Table 4)

Insight Studies

TABLE 4 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY CARRIAGEWAY TYPE (2015 - 2019)

Carriageway Type	In SRB	In Region	% in SRB	% in Region
Dual carriageway	39	644	9%	8%
One-way street	6	108	1%	1%
Roundabout	54	645	13%	8%
Single carriageway	331	6113	77%	80%
Slip Road	1	43	0%	1%

Junction details were also analysed and displayed in Figure 13. Most of the small motorcycle riders in Safer Roads Berkshire were at normal junctions at the time of their collision which might indicate issues with visibility (in that other vehicles approaching the junction are pulling out into the path of the motorcycle riders without looking properly/seeing the motorcycle riders) or that the motorcycle riders themselves are exiting junctions into the path of oncoming vehicles. Manoeuvre analysis, discussed in detail later in the How? Section shows that 51% of the motorcycle riders were travelling straight ahead, implying that the other involved vehicles were emerging from the junctions, not the motorcycle rider.

FIGURE 13 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY JUNCTION DETAIL (2015 - 2019)

Junction Detail
- No Junction (30%)
- Normal Junction (38%)
- Roundabout (16%)
- Private Drive (15%)
- Other Junction (2%)

The junction control where small motorcycle riders were involved in collisions were analysed and displayed in Table 5. Overall, 63% of small motorcycle riders involved in collisions in Safer Roads Berkshire were at Give Way or uncontrolled junctions. These are similar proportions to the south east region.

TABLE 5 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY JUNCTION CONTROL (2015 - 2019)

Junction Control	In SRB	In Region	% in SRB	% in Region
Authorised person	1	49	0%	1%
Auto traffic signal	29	402	7%	5%
Give way or uncontrolled	272	4472	63%	59%
Stop sign	1	40	0%	1%
NA	129	2650	30%	35%

Figure 14 shows the locations where collisions involving motorcycles up to 125cc occurred in the form of a heat map. The darker red coloured areas show a higher density of collisions. There are higher collision densities in the urban centres of Slough, Newbury, Bracknell and Wokingham.

FIGURE 14 – HEATMAP OF WHERE MOTORCYCLE RIDERS (UP TO 125CC) ARE INVOLVED IN COLLISIONS IN SAFER ROADS BERKSHIRE (2015 - 2019)
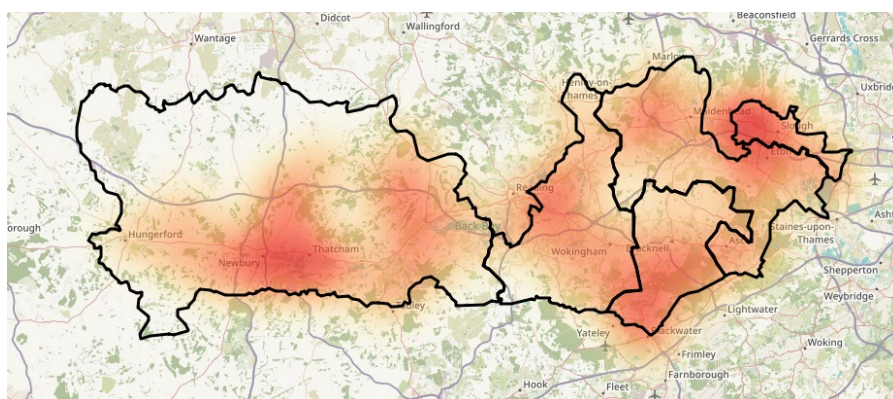
In addition to mapping where small motorcycle riders from Safer Roads Berkshire were involved in collisions, it is possible to analyse the routes where they crashed. Table 6 shows the number of small motorcycle riders who were involved in collision on specific routes in Safer Roads Berkshire. The highest percentage of riders were on unclassified routes (44%) and the top 5 specified routes are: A4 (17%), A329 (6%), A308 (4%), A355 (3%) and A3095 (2%).

TABLE 6 - TOP TEN ROADS IN SAFER ROADS BERKSHIRE WHERE MOTORCYCLE RIDERS (UP TO 125CC) ARE INVOLVED IN COLLISIONS (2015 - 2019)

Road Number	In SRB Motorcycle riders (up to 125cc)	Percentage In SRB Motorcycle riders (up to 125cc)
Unclassified	192	44%
A4	72	17%
A329	25	6%
A308	18	4%
A355	13	3%
A3095	9	2%
A322	8	2%
A339	8	2%
A321	7	2%
B3024	7	2%

Insight Studies

After looking at when and where small motorcycle riders in Safer Roads Berkshire were involved in collisions, the analysis now explores how these collisions occurred.

To understand the circumstances surrounding how small motorcycle riders were involved in collisions, it is important to look at the other vehicles involved. Table 7 shows the number of small motorcycle riders and whether at least one of the other vehicle types was involved. As one motorcyclist can be involved in a collision with multiple different parties and some of the categories are not mutually exclusive (such as a car driver also being a senior driver) the percentages do not add up to 100%. It should also be remembered that the motorcycle riders themselves could be the senior or young drivers in the bottom two rows.

TABLE 7 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY INVOLVEMENT OF OTHER VEHICLES (2015 - 2019)

Collision Involvement	In SRB	In Region	% in SRB	% in Region
Bus Involved	1	62	0%	1%
Car Involved	317	5012	73%	66%
Taxi Involved	8	101	2%	1%
HGV Involved	4	109	1%	1%
Van Involved	24	501	6%	7%
Pedal Cyclist Involved	2	93	0%	1%
Senior Driver Involved	50	1030	12%	14%
Young Driver Involved	251	4112	58%	54%

The analysis shows that a high percentage of the riders were in crashes where a car was involved and that a high percentage of young drivers or riders were involved (which could be the small motorcycle riders themselves). With the young drivers/riders, small motorcycle riders are over-represented as having young drivers in their collisions compared to the south east region.

Most of the small motorcycle riders were involved in a collision with one other vehicle (83%), with only 18% involved in single vehicle collisions.

Number of Vehicles in Collision
1 (18%)
2 (78%)
3 or 4 (5%)
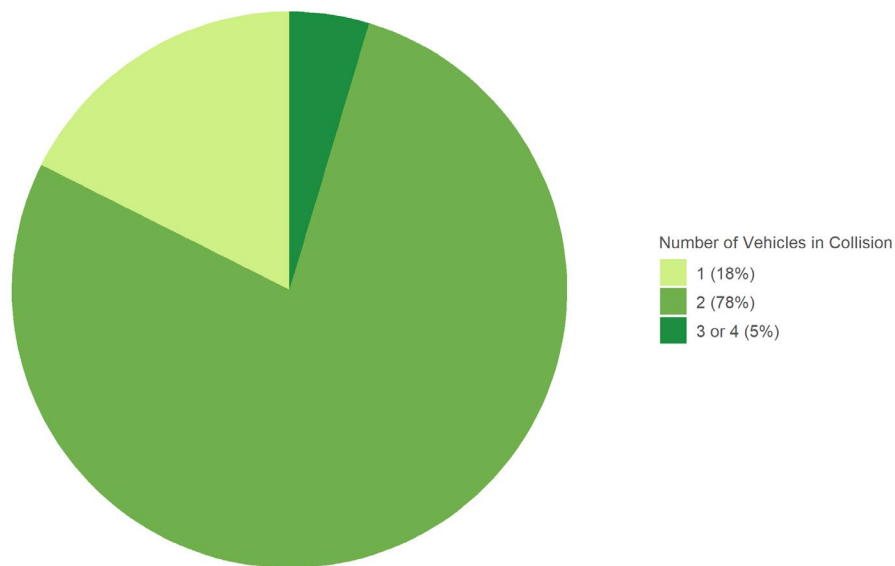
The junction analysis found that 30% of small motorcycle riders in Safer Roads Berkshire were not at a junction at the time of their collision and that it could be the case that other vehicles were exiting junctions into their path. Analysis of the manoeuvres of small motorcycle riders found that 58% were travelling straight ahead and this is slightly higher than for south east motorcycle riders (as shown in Figure 16 by an index of 104). Eleven percent were overtaking offside which is significantly over-represented compared to the south east region, whilst 9% were performing a stop/start manoeuvre which is slightly under-represented compared to small motorcycle riders in the south east. Indices have not been calculated where the number of riders is below 30 or where the group represents less than 1% of the total.

Insight Studies

FIGURE 16 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY VEHICLE MANOEUVRE, WITH REGIONAL INDEX (2015 - 2019)
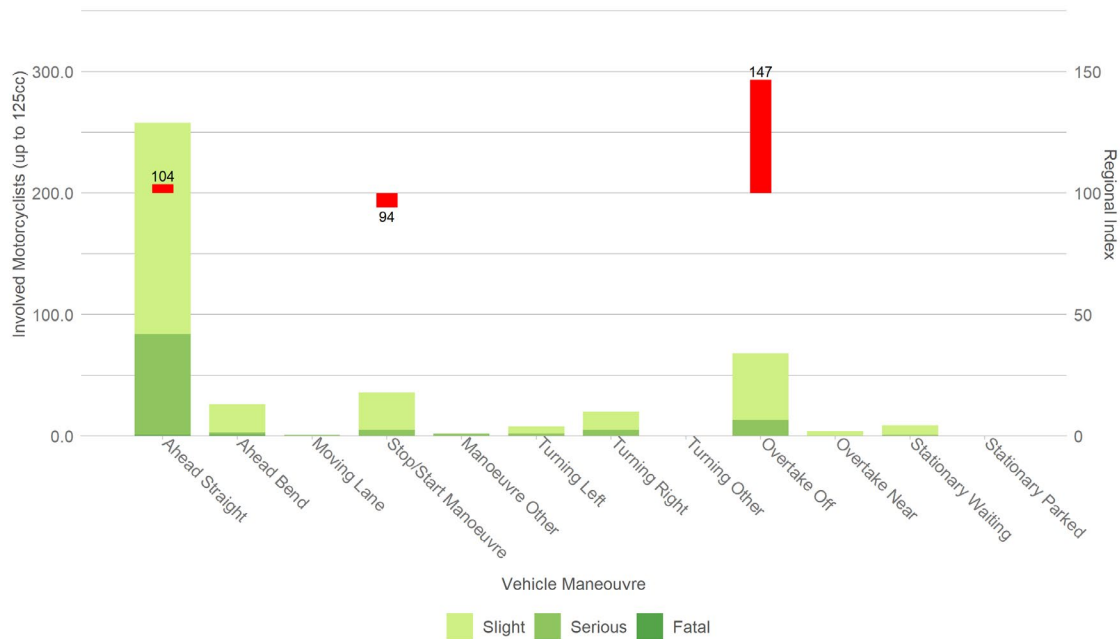
The manoeuvres of the related vehicles can also be analysed. (Figure 17) Only motorised vehicles involved in the collision are included here. The manoeuvre of any other involved motorcyclist, on motorcycles of all engine sizes, is also excluded. It shows that 38% of the other vehicles in collisions with small motorcycles were turning right at the time of the collision and this reinforces the idea that they turned across the path of the motorcyclist.

FIGURE 17 - OTHER DRIVERS INVOLVED IN COLLISIONS WITH MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY VEHICLE MANEOUVRE (2015 - 2019)

It is possible to analyse the contributory factors (CFs) recorded by a police officer when completing the collision records. The following analysis only looks at collisions investigated by the scene by an officer and even then, it needs to be remembered that these factors reflect the officer's opinion at the time of reporting and might not be the results of extensive investigation. Analysis has been undertaken on the collision-involved small motorcycle riders in Safer Roads Berkshire by the CFs assigned to them and by the CFs assigned to the related driver (using data from MAST professional). Riders in collisions in the south east have also been analysed to provide a comparison.

Table 8 shows the proportions of motorcycle riders and drivers of any vehicle who were assigned any contributory factor. It shows that generally just over a half of drivers were thought to have contributed to their collision in some way and were assigned at least one contributory factor. Motorcycle riders on machines up to 125cc were more likely than all vehicles to receive a contributory factor and this applies to riders in collisions in both Safer Roads Berkshire and the south east. This is also true for motorcycles over 125cc.

TABLE 8 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE ATTRIBUTED CONTRIBUTORY FACTORS (2015 - 2019)

Crash Location	All Vehicles % Attributed CF	MC (up to 125cc) % Attributed CF	MC (over 125cc) % Attributed CF
Safer Roads Berkshire	53%	65%	60%
South East	52%	61%	60%

Figure 18 shows the contributory factors assigned to small motorcycle riders as a percentage of all small motorcycle riders (in collisions attended by a police officer) and indexed against CFs assigned to small motorcycle riders in collisions in the south east. Indices were not calculated for CFs representing less than 1% of riders or where the total was less than 30. It should be noted that participants in collisions can be assigned more than one CF so the percentages of vehicles will add up to more than 100%. Individual CFs have been grouped together and the categories are shown in Appendix B – Contributory Factor Groupings. The analysis shows that the highest percentage of small motorcycle riders receive 'Observation Errors' and this is slightly over-represented when compared to small motorcycle riders in the south east region. The 'Nervous Behaviour' contributory factors also feature highly for small motorcycle riders in Safer Roads Berkshire and are over-represented when compared to the region.

FIGURE 18 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY ATTRIBUTED CONTRIBUTORY FACTOR, WITH REGIONAL INDEX (2015 - 2019)

Insight Studies
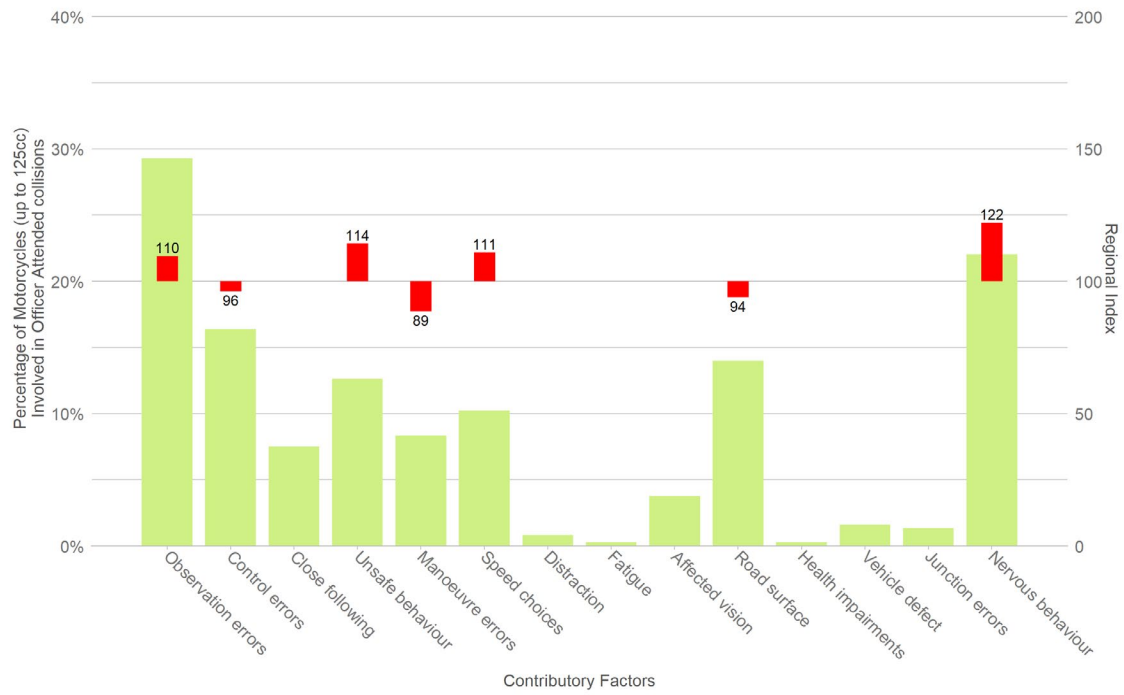
MOTORCYCLE RIDER PROFILES

Moving away from the 'when, where and how' questions, we can now explore the 'who' question. It is essential to understand more about the people involved in the collisions, including information about their everyday lives, as well as demographics.

The ages of motorcycle riders on up to 125cc machines, by severity, are shown in Figure 19. It shows that the single largest group of riders are aged 16 to 19 years old, which accounts for 35% of all riders. This group is slightly over-represented compared to the south east (with an index value of 107). The second largest group is those aged 20 to 24 years old, which is as expected compared to the south east. Although the numbers of those riders aged 30 to 34 are not as high, this age group is over-represented in Safer Roads Berkshire compared to the south east region.

FIGURE 19 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY AGE BAND (2015 - 2019)
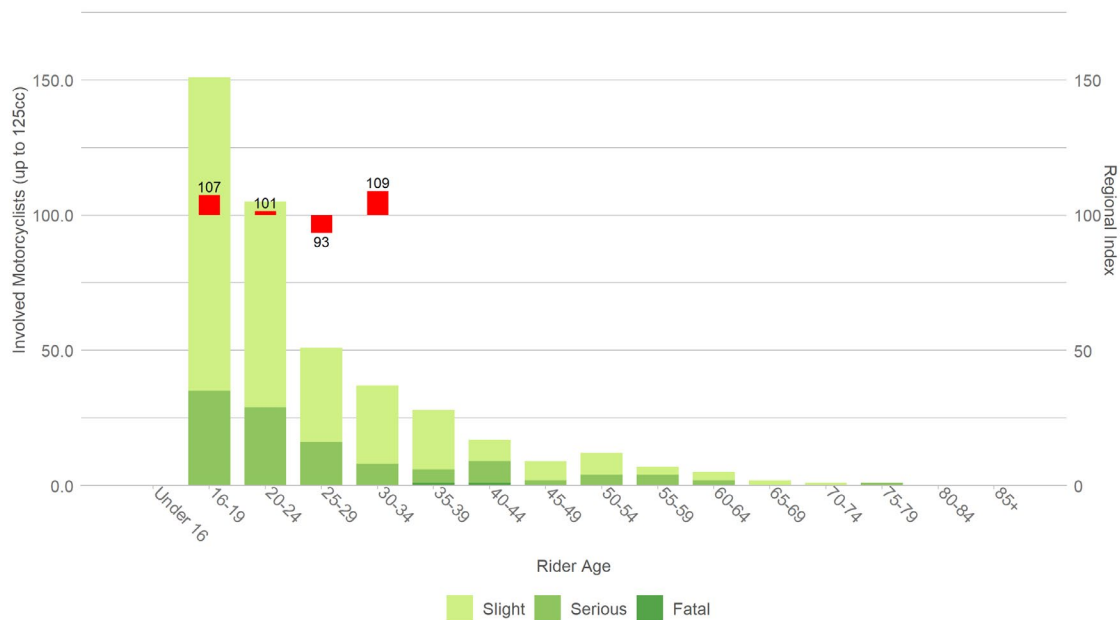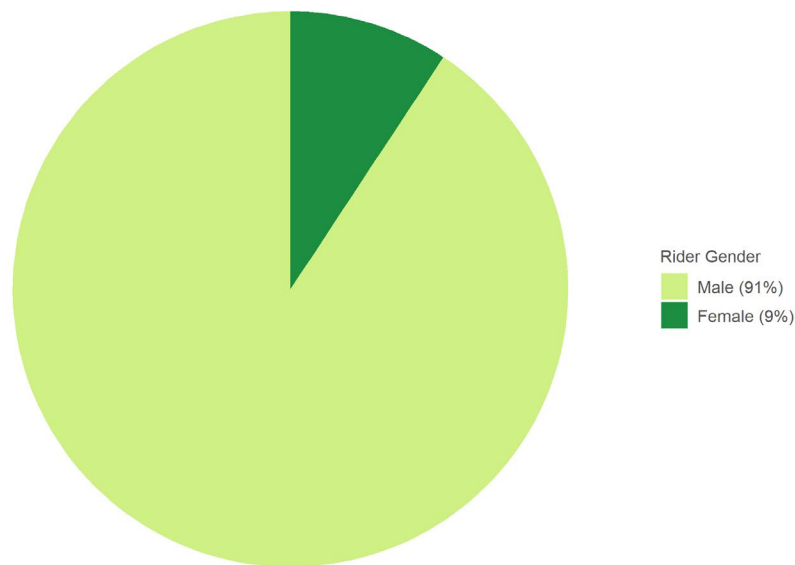

Figure 20 shows that almost all small motorcycle riders who were involved in collisions in Safer Roads Berkshire were male (91%)

Rider Gender
- Male (91%)
- Female (9%)

Journey purpose can be used to gain an idea of what the motorcycle riders were doing at the time of their collision. There are three types of journey purpose recorded in STATS 19: 'school related', where 'school pupil' is the child taking themselves to school and 'school run' where the child is being taken to school; 'work related', separated into 'commute' and 'work' where the latter is a journey undertaken for work purposes; and 'other' includes all other activities (shopping, leisure purposes, driving/riding for fun) but also includes where the journey purpose is not known. It is not possible to tell the proportions of 'not knowns' included in 'other', compared to known journey purpose that wasn't school or work related. This should be borne in mind when using the journey purpose field.

Journey purpose for the small motorcycle riders of Safer Roads Berkshire produces interesting results, as shown in Table 9. In Safer Roads Berkshire 32% of small motorcycle riders were recording as riding for work compared to 26% for the south east. Of note, however, is the fact that no small motorcycle riders were recorded as travelling for the journey purpose 'other' compared to the regional figures. This would warrant further investigation into the use of the 'Other' field in reporting by Safer Roads Berkshire.

TABLE 9 - COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) IN SAFER ROADS BERKSHIRE BY JOURNEY PURPOSE (2015 - 2019)

Journey Purpose	In SRB	In Region	% in SRB	% in Region
Other	0	470	0%	16%
School	11	145	8%	5%
Work Commute	84	1512	60%	53%
Work Journey	45	730	32%	26%

Time of day by journey purpose is shown in Figure 21. It shows that whilst riders who are driving for work and other purposes share a morning peak at 8am, there is a difference in the afternoon and evening with other journey purposes having a higher peak between 4pm and 7pm and work journeys

have a more consistent higher trend between noon and 8 pm and then again increasing at night between the hours of 9 and 10pm. This trend seems to indicate that small motorcycle riders work in industries where deliveries into the evening are more common and possibly some daytime courier work featuring amongst these riders.

FIGURE 21 - TIME OF DAY WHEN MOTORCYCLE RIDERS (UP TO 125CC) ARE IVOLVED IN COLLISIONS BY JOURNEY PURPOSE (2015-2019)
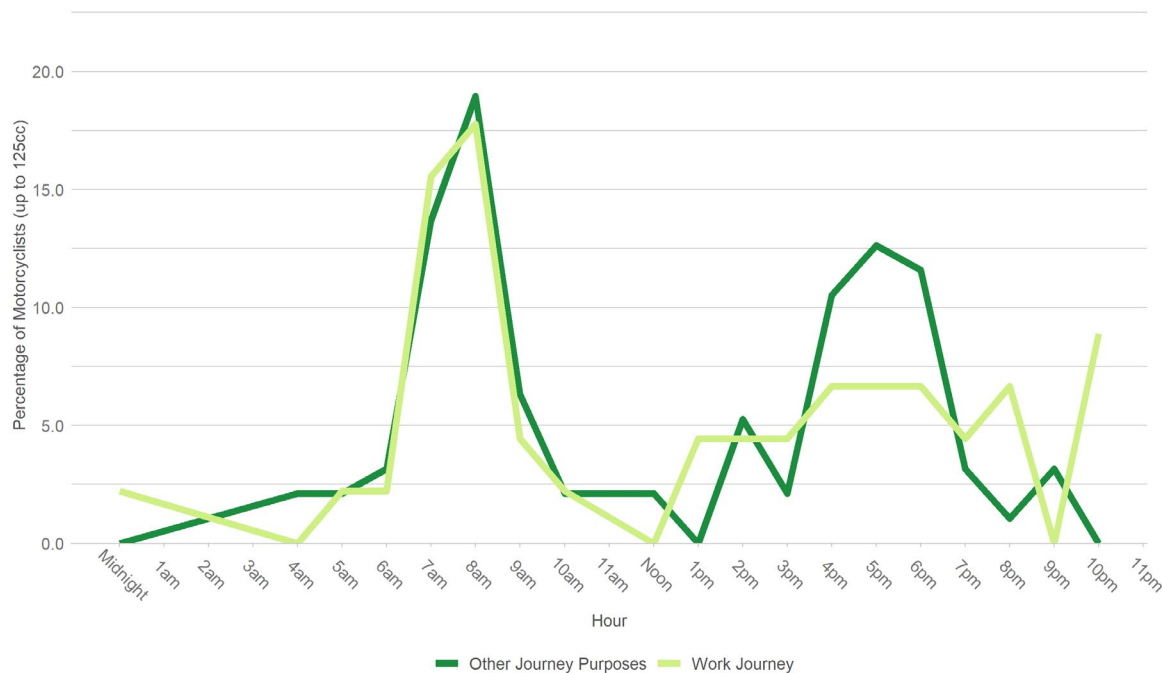
MOSAIC ANALYSIS

As well as demographic and spatial analysis of motorcycle riders, we can also undertake socio-demographic analysis using Mosaic. Mosaic is intended to provide an accurate and comprehensive view of citizens and their needs by describing them in terms of demographics, lifestyle, culture, and behaviour. By matching postcodes, we can segment motorcycle riders into one of 15 groups which can then be split into 66 types; and analyse their relative representation in the statistics based on population figures.

Mosaic classification is based on the individual postcodes provided in STATS 19 records for each casualty and uses the Experian Mosaic socio-demographic classification system (for details see http://www.experian.co.uk/marketing-services/products/mosaic-uk.html) Typically, 85% of postcodes can be matched to a Mosaic group, so this analysis is based on about five out of six of all Safer Roads Berkshire resident small motorcycle riders

In Figure 22 the blue bars indicate the number of small motorcycle riders in each Mosaic group, with figures corresponding to the left-hand vertical axis. The red bars show the "Index" for each Mosaic group. An Index value of 100 indicates that the number of small motorcycle riders is in proportion to the population of Safer Roads Berkshire's communities where that group predominates. A value of 200 would mean that this group is involved in collisions at twice the expected rate; a value of 50 would imply half the expected rate. Displaying the data overlaid on a single chart allows quick and easy

analysis of total small motorcycle riders and relative risk. The Index value becomes less significant as the number of small motorcycle riders decreases and random change lowers confidence levels.

FIGURE 22 - SAFER ROADS BERKSHIRE RESIDENT COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) BY MOSAIC GROUP, WITH INDICES (2015 - 2019)
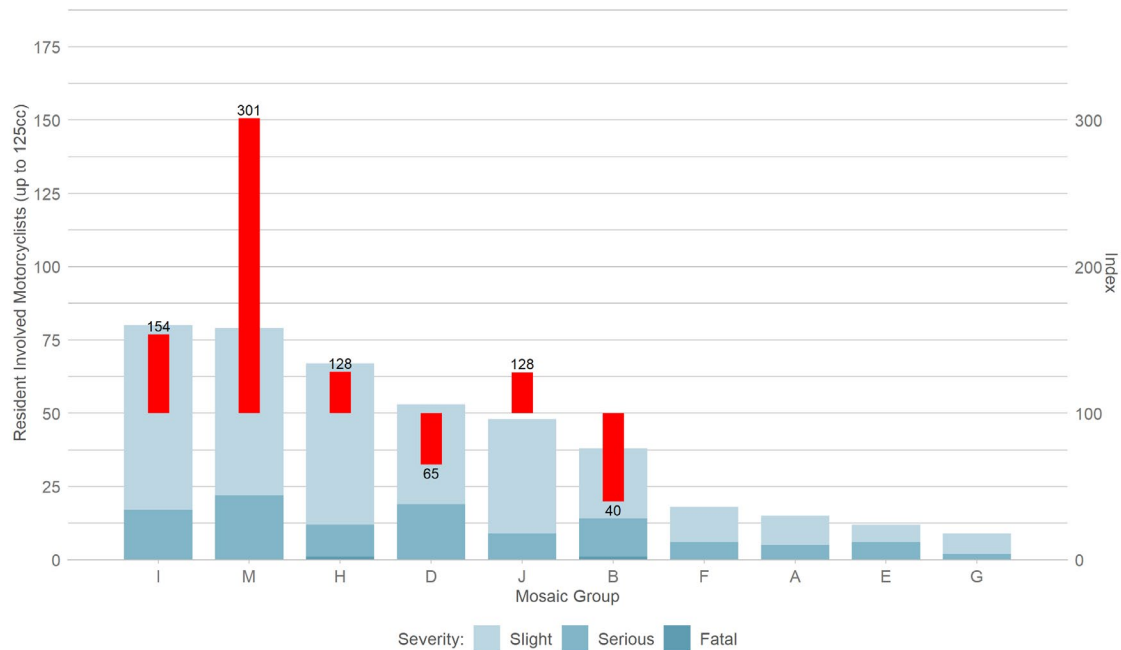
When carrying out Mosaic analysis the approach is to look for both levels of high representation and/or high index scores in individual groups. Index values are not calculated for groups which contain 30 or less motorcycle riders as the number of too low to be meaningfully interpreted. The highest number of small motorcycle riders are from *Residents of settled urban communities with a strong sense of identity* (Group I), *Families with limited resources who budget to make ends meet* (Group M) and *Younger households settling down in housing priced within their means* (Group H) and all of these groups are involved in collisions at higher than the expected level based on their population. There are also higher numbers of *Thriving families who are busy bringing up children and following careers* (Group D) but this group are involved in collisions at lower than the expected level based on the population. Although there are lower numbers of small motorcycle riders from *Educated young people privately renting in urban neighbourhoods* (Group J) they are involved in collisions at a level higher than expected based on their population. Some of the characteristics of these groups are compared in Table 10.

TABLE 10 - CHARACTERISTICS OF MOSAIC GROUPS WITH HIGH NUMBERS OF SMALL MOTORCYCLE RIDERS INVOLVED IN COLLISIONS

	Group I – 'Urban Cohesion'	Group M – 'Family Basics'	Group H – 'Aspiring Homemakers'
Multicultural	✓	-	-
Aged 16-19	✓	✓	✗
Aged 20-24	✓	✓	✓
Young Children in household	✓	✓	✓
Own motorcycle	✓	✓	✓
Low Income	✓	✓	✗
Unemployed/Student	✓	✗	✗
Works in Accommodation and Food Service	✓	✓	✗
Works in Transport and storage	✓	✓	✓
Works in manufacturing	✗	✓	✓
Works in Public administration and defence	✗	✗	✓
Confidence in Police	✓	✗	✓
Use internet every day	✗	✓	✓
Mobile call	✓	✓	✓
SMS	✓	✓	✓
Email	✗	✓	✓
Post	✓	✓	✗
Landline	✓	✓	✗
Prefer not to be contacted	✗	✗	✗
Like new technology	✓	✓	✓
Use Facebook weekly	✓	✓	✓
Use Twitter weekly	✓	✓	✓

Table 10 summarises some of the main characteristics of Mosaic Groups identified. This table shows which characteristics the Groups have, indicated by a tick where the characteristic is over-represented. It shows that there are some variations amongst the three groups. Motorcycle ownership is a common theme across all three groups. People from group I tend to be older than groups M and H. Groups I and M have higher than expected workers in the accommodation and food service industry whilst group M has higher than expected numbers of people working in manufacturing and public administration. In terms of communication preferences, all three groups prefer communication by mobile phone and use the internet and new technologies regularly.

The Mosaic profiling suggests that there are some differences between small motorcycle riders involved in collisions in Safer Roads Berkshire but there are also several similarities. The STATS19 and Mosaic analysis are used to create 'personas' later in this document to provide a complete insight into the types of small motorcycle riders involved in collisions in Safer Roads Berkshire.

The following map (Figure 23) show the Lower Layer Super Output Areas (LSOAs) where groups I, M and H are the dominant group. For further information about super output areas, refer to https://www.ons.gov.uk/methodology/geography/ukgeographies/censusgeography#super-output-area-soa
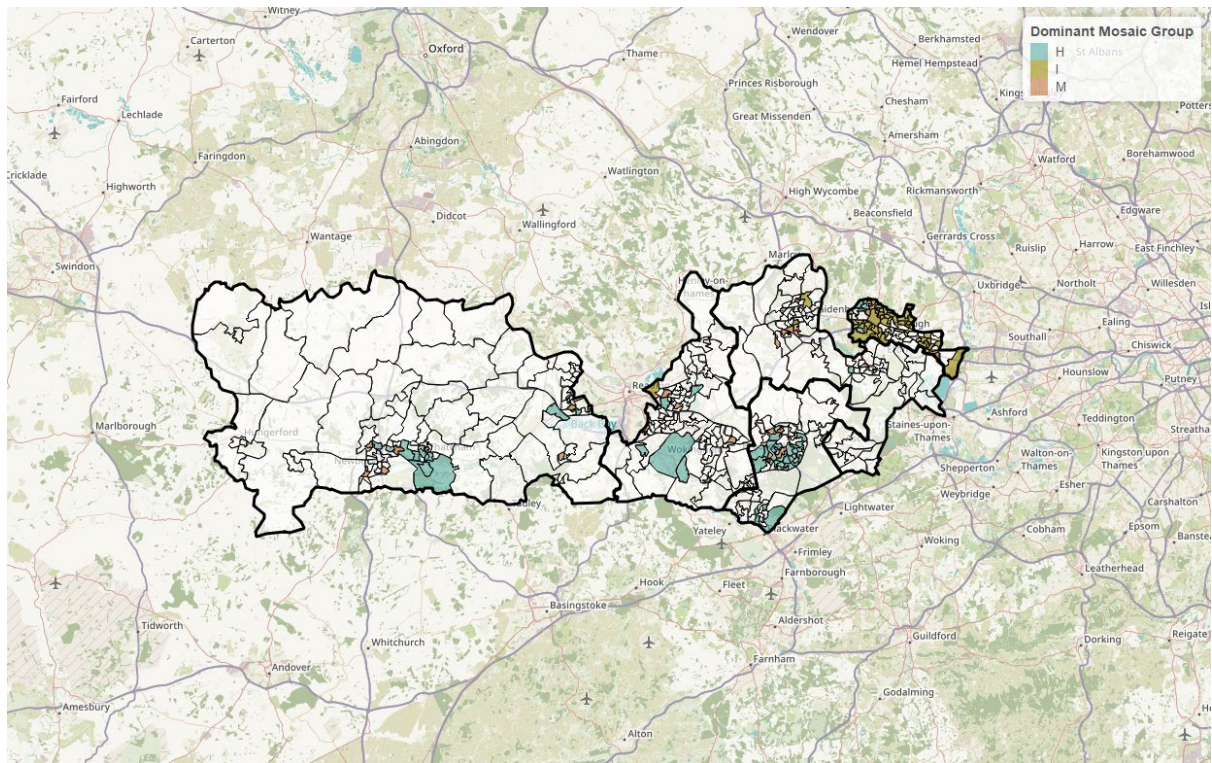
Table 11 provides a summary of some main characteristics of the groups identified and these can be used to create a picture of the target audience in terms of economic and educational position and family life. This information is invaluable for understanding target audiences and knowing how to communicate with them.

TABLE 11 - SUMMARY OF CHARACTERISTICS OF OVER-REPRESENTED MOSAIC GROUPS

Group I Urban Cohesion	Group M Family Basics	Group H Aspiring Homemakers
These communities consist of extended families and older people who live in diverse city suburbs. They live in accessible suburbs close to the centres of larger towns and cities. Household incomes are moderate, derived from work in lower managerial, intermediate and semi-routine occupations. They like new technology and have up to date phones. Mobile and SMS are their communication preferences. They are in reasonably good health and have a reasonable level of knowledge with regard to the environment.	These communities consist of families with children who have limited budgets and can struggle to make ends meet. Their homes are low cost and are often found in areas with fewer employment options. They are typically aged in their 30s and 40s and have school aged children. Limited qualifications mean that people can struggle to compete in the jobs market, and rates of unemployment are above average. Employment is often in low wage routine and semi-routine jobs. They are keen social networkers and prefer to use mobile phones and text messages.	These communities are typically younger households who have, often, only recently set up home. Couples can be married or more likely cohabiting and where there are children they are usually of nursery or primary school age. They usually own their homes in private suburbs. The majority of them are in full-time employment. They own smartphones and are keen social networkers and download a large number of apps

InsightStudies

As well as looking at the Mosaic socio-demographic classifications, it is possible to look at relative wealth using the IMD values for each postcode. IMD uses a range of economic, social and housing data to create a single deprivation score for each small area. The analysis (Figure 24) uses deciles, which creates ten groups of equal frequency, ranging from the 10% most deprived areas to the 10% least deprived areas. The number of small motorcycle riders involved in injury collisions in each decile has been indexed against the population of each decile living in Safer Roads Berkshire. As with Mosaic indexing an Index value of 100 indicates that the number of small motorcycle riders is in proportion to the population of Safer Roads Berkshire's communities from the IMD decile. A value of 200 would mean that riders from a decile are involved in collisions at twice the expected rate; a value of 50 would imply half the expected rate. Where there are less than 30 small motorcycle riders belonging to an IMD decile an index value is not calculated as the numbers are too low to be meaningful.

FIGURE 24 - SAFER ROADS BERKSHIRE RESIDENT COLLISION-INVOLVED MOTORCYCLE RIDERS (UP TO 125CC) BY HOME IMD DECILE (2015 - 2019)
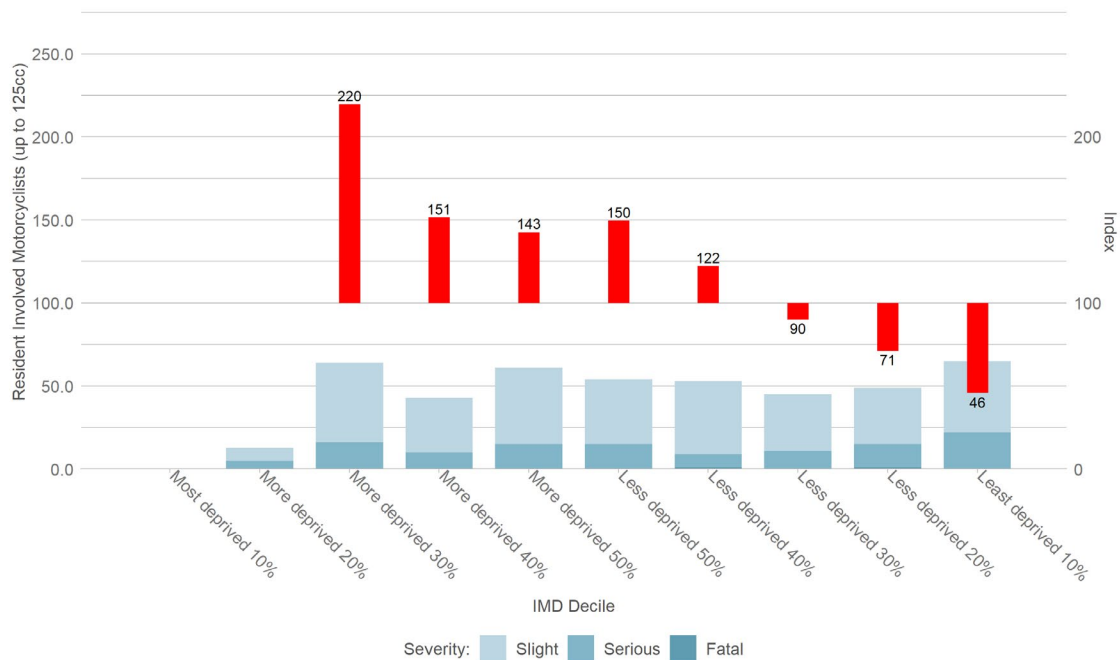
Small motorcycle riders from Safer Roads Berkshire involved in collisions are from a wide range of IMD deciles, however they tend to be significantly over-represented in the more deprived deciles; in particularly the more deprived 30% decile.

Following the analysis of risk, it is necessary to combine the elements of collision profiling to create a persona or personas which capture the key characteristics of those communities or groups most at risk. Although a persona will not typify all, or perhaps even a majority of those involved in collisions, it should represent a significant proportion of those most vulnerable.

The analysis of the sociodemographic data as well as the collision information has allowed a picture to be built up about the kinds of motorcycle riders from Safer Roads Berkshire who are involved in collisions. More than one type of motorcycle riders has emerged. The findings allow key characteristics to be collated into personas. Parallels have been drawn from the multiple datasets in the creation of these personas to ensure alignment along clear data points.

There are **3** personas which have emerged from the analysis:

1. – **'Billy'** – is aged between 16 and 19 years old and is doing an apprenticeship. He lives with his Mum and three younger siblings in a terraced house. His community belongs to Mosaic Group M. The family has a very low household income, and he is training to work in a routine occupation in transport and storage; administrative and support service; or water supply, sewerage, and waste management. Billy can't drive and doesn't own a car, although he might aspire to own one when he is older. Billy rides a motorcycle with an engine up to 125cc and is likely to be involved in a collision during the rush hour peaks of 8am and 5pm. Billy is most often travelling straight ahead or turning right at the time of his collision. He could perhaps be persuaded to improve how visible he is to other motorists (through clothing and visibility additions to his motorbike). There could also be a skills deficit that might need to be addressed – Billy is often considered to have contributed to his collisions through observation errors (failed to look properly or failed to judge other's path or speed) or nervous behaviour (including nervous, uncertain, or panic, learner or inexperience or unfamiliar with the vehicle). These contributory factors suggest that some training could be beneficial, especially as there is a peak in collisions in September and October, perhaps when Billy first starts using his motorbike to commute to his apprenticeship. Billy's low-income might indicate that bike maintenance and the procurement of appropriate safety equipment is an issue. Billy's family has a negative view of the police and lives in an area with high crime so other agencies might be more appropriate to use for message delivery.

2. – '**Ryan**' – is in his mid-20's and lives with his partner Katie in a two-bed house in the suburbs. They have a child at nursery. They have a low to mid household income and his community belongs to Mosaic Group H. Ryan studied A levels and has a mid-level position within Electricity, Gas, steam, and air-conditioning; Manufacturing; or Public administration and defence. Ryan uses an up to 125cc motorcycle for commuting and he is likely to be involved in collisions between 7-8am and 4-7pm. Ryan is most often travelling straight ahead. He could perhaps be persuaded to improve how visible he is to other motorists (through clothing and visibility additions to his motorbike). There could also be a skills deficit that might need to be addressed – Ryan is often considered to have contributed to his collisions through observation errors (failed to look properly or failed to judge other's path or speed), speed choices (exceeding the speed limit or travelling too

fast for conditions), control errors (sudden braking, swerving or loss of control) or nervous behaviour (including nervous, uncertain, or panic, learner or inexperience or unfamiliar with the vehicle). These contributory factors suggest that some training could be beneficial. Ryan has neither a positive nor negative view of the police so they could be used for engagement with him along with other agencies. He does like using new technology. He uses the internet regularly and accesses several social media platforms so these could be used to deliver messages to him.

3. – **'Saeed'** – is in his early 20s and lives with his parents, Sajid and Shazia, and his three younger siblings in a terraced house which they own in Slough. He lives in a Mosaic Group I neighbourhood. Saeed works as a food delivery rider, using a small motorcycle for his job. He is likely to be involved in collisions on weekdays, early to late in the evenings. Like Billy and Ryan, he is likely to be travelling straight ahead near junctions, where other vehicles (especially cars and vans) turn right across him. Observation errors are an issue for both Saeed and the other parties involved in his collisions – increasing visibility and raising awareness of other road users could help reduce risk. Pressures to deliver food quickly may also contribute to speed, unsafe behaviours and observation errors. Unlike Billy, Saeed holds a positive view of the police and they could be used for engagement with him. Like Ryan, Saeed is a fan of new technology and uses the internet and social media platforms regularly.

SUMMARY OF OTHER EVIDENCE AND SUCCESSFUL SCHEMES

SUMMARY OF OTHER EVIDENCE

PROTECTIVE EQUIPMENT

A review of evidence related to motorcycle safety found that protective equipment is effective in reducing injury. Looking at the effectiveness of motorcycle helmets in reducing the risk of head injury, it was estimated that helmets reduce the risk of death by 42% and reduce the risk of head injury by 69%.[1]

"Motorcycle protective clothing has been associated with a significantly reduced risk of injury in crashes, particularly when body armour was fitted. Compared to those wearing non-motorcycle clothing, motorcyclists wearing motorcycle protective clothing fitted with body armour were significantly less likely to sustain injuries to the protected areas. The risk of any foot or ankle injuries was reduced by 53 per cent by non-motorcycle boots when compared to shoes or trainers, a risk reduction similar to motorcycle boots."[2]

CONSPICUITY

The analysis of Safer Roads Berkshire Berkshire motorcyclists found that 22% of collisions occurred in the dark and a majority were near to junctions when the motorcyclist was travelling straight ahead, and another vehicle was turning right out of the junction. It means that gaining an understanding of visibility and conspicuity is important to reducing the number of collisions involving Safer Roads Berkshire resident motorcyclists. One literature review looked at the effectiveness of various interventions designed to improve the conspicuity of motorcyclists. It set out that there are three terms commonly referred to as conspicuity:

- *"Visibility – the extent to which an object stands out from its surroundings when observers are aware of its location.*
- *Search conspicuity – the extent to which an object stands out from its surroundings when observers are searching for it within a scene.*
- *Attention conspicuity – the extent to which an object stands out from its surroundings when observers are viewing the scene, but not searching deliberately for the object."*[3]

The review also discusses the term 'looked but did not see' and that this is used when a range of cognitive and perceptual failures have occurred when a motorist pulls out of a junction into a motorcyclist's path, such as:

- *"Sometimes drivers simply do not look at all when pulling out of a junction – this is not a conspicuity issue.*
- *Sometimes drivers look, but they do not do so for long enough or in the correct places within the scene – measures that increase attention conspicuity should be useful in avoiding this failure.*
- *Sometimes drivers look adequately, but they still fail to detect an oncoming motorcyclist – measures that increase search conspicuity should be useful in avoiding this failure.*
- *Sometimes drivers look and detect an oncoming motorcyclist, but fail to assess its 'time to collision' correctly – measures that provide a greater amount of visual information on which drivers can base their estimates of time to contact should be useful in avoiding this failure."*[4]

The above can be summarised in Figure 25. The first potential failure is where a driver emerges from the junction without looking at all and this could be due to negligence or deliberate risk taking. Increasing the conspicuity of motorcyclists will not change the driver's behaviour in this case.

The second potential failure is when the driver has looked towards the oncoming traffic but has done so inadequately. It could be that the driver has looked for too short a time or failed to look in the places where motorcycles would be located. This is where increasing attention conspicuity would help as it would help the motorcyclist grab the attention of the driver.

The third potential failure is when the driver looks in the direction of oncoming traffic for an adequate amount of time and looks in the correct locations but still fails to detect that the motorcyclist is present. In these situations, interventions which improve the search conspicuity of the motorcyclist would help the driver detect it – by making the motorcyclist more visible when the driver looks directly at or for the motorcycle.

The fourth failure is when the driver has detected the motorcyclist but has failed to assess the approach speed of the motorcyclist (because of the small size) and therefore cannot assess the time which is available to the driver to undertake the manoeuvre. "*This may be a particular issue in night-time collisions since bikes tend to only have a single headlamp, which further reduces the information available to driver by which to judge their approach speed.*"[5]

FIGURE 25 - POTENTIAL UNDERLYING FAILURES IN 'LOOKED BUT DID NOT SEE' COLLISIONS[6]
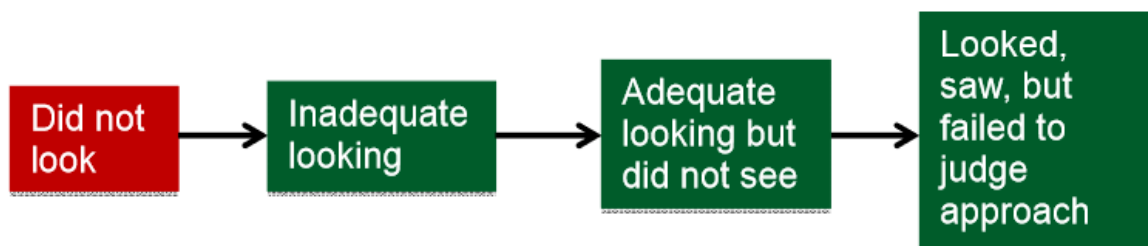
The literature review found that:

- "*There is evidence demonstrating that bright clothing and daytime running lights can improve conspicuity.*
- *Lighting that accentuates the form of the motorcycle helps observers to determine the time to arrival of the approaching bike (especially at night).*
- *The evidence indicates that colour can improve the effectiveness of interventions e.g. coloured motorcycle lights improve visibility against surrounding vehicles with white lights.*
- *Effectiveness can depend on the background surroundings (higher contrast with background improves visibility and conspicuity) and riders should be aware of these limitations.*"[7]

The pattern of collisions involving Safer Roads Berkshire resident motorcyclists is replicated elsewhere in the country. One research project found that "*the analysis of collision data suggests that some of the most common motorcyclist collisions involve errors on behalf of other road users, for example car drivers who fail to give way to an approaching motorcycle at a T-junction.*"[8] The project undertook three studies to explore these types of collisions further:

1. Increasing car drivers' empathy by showing hazard perception clips from the motorcyclist's point of view.
2. Understanding how drivers look for motorcyclists at T-junctions (There were three groups of driver: novice, experienced and dual drivers – who are motorcyclists and car drivers).
3. Attempting to change the behaviour of car drivers with regard to their eye movements and response times through the application of three training interventions based on the look, perceive and appraise chain of behaviours.

With the second study which explored how drivers look for motorcyclists at T-junctions, eye movement monitoring found that drivers who were also motorcyclists (dual drivers) paid more attention to approaching motorcycles than to cars "*possibly reflecting the fact that they are difficult to see (low salience) and difficult to appraise (compared to cars, their greater acceleration and manoeuvrability make their actions less predictable). Novice drivers' gazes are relatively short on both vehicles (that is, attention to cars and motorcycles is equally poor compared with the dual drivers), while the experienced drivers tend to have shorter gazes on motorcycles than cars. This suggests that the experienced drivers are either not realising that they are looking at a motorcycle, or quickly decide that it does not require as much attention as a car.*"[9] The study found that those drivers who are also motorcyclists are more likely to spend longer time looking at the motorcyclists whilst the shorter gazes of the novice and experienced drivers suggest that they may be more susceptible to failures of perception. Training drivers in Study Three had no appreciable positive impact on decision times or eye movements, however, car drivers' empathy to motorcyclists did improve in Study One following the presentation of hazard perception video clips taken from the motorcyclist's perspective. Attitudes towards motorcyclists were also seen to improve through hazard-based training.[10]

YOUNG RIDERS

Looking to the younger riders, rider age, alcohol impairment, speed, rider attention, road surface and road class have an important influence on collision severity.[11] The non-usage of protective clothing by novice motorcyclists, recognised as a risk-taking behaviour associated with other risk-taking behaviours, is associated with youth, the type of motorcycle that they ride (particularly scooters), and a range of beliefs about appropriate conditions and benefits of usage. Credible and accessible information sources are required to ensure riders are able to make informed decisions about what they wear. In particular, information about crash risk and the benefits of protective clothing should be developed for scooter riders and younger riders. Given the increasing use of social media in the dissemination of information, this may provide important opportunities for accessing these population groups.[12]

One study found out that, for 30mph urban roads, the data suggested that promoting 'desirable' affective attitudes and increasing riders' perceptions of controllability was likely to be a useful strategy for reducing speeding behaviour. For dual carriageways and motorways, the data suggested a need to target affective attitudes, self-identity and social identity constructs. Group identification moderated the relationship between perceived group norm and intention, suggesting that interventions either need to decrease the extent to which riders perceive speeding to be the norm for their in-group or encourage riders to identify with other groups, for which speeding is not perceived to be the norm.

Road safety interventions need to be carefully targeted, taking account of the different cognitive predictors of intention to speed on different road types.[13]

Research has been undertaken to try to provide a better understanding of the needs, motivations and perspectives with respect to road safety.[14] The research aimed to address:

- How do motorcyclists make decisions about issues that impact on their safety?
- How do these decision-making strategies which motorcyclists use relate to their actual risk associated with their choice? And
- What are the opportunities which would influence the decision-making process of motorcyclists in a positive way?

The research used a combination of qualitative and quantitative approaches to try to meet the aims. The qualitative part of the research yielded an understanding of the motivations of 66 riders from different areas of the country and who rode different types of motorcycle and for different purposes. The qualitative work was used to design and interpret the quantitative element of the study, which involved asking 1,019 motorcyclists questions from a structured questionnaire. Seven segments of motorcyclists were created, with 'Car Aspirants' who are young people looking forward to getting their first car when age/finances allow – but for the time being just happy to have got their own wheels.

Two main dimensions of the segments were quantified: how passionate members of the segment are about riding and how important performance in terms of the bike and the rider are.

On either measure (accidents-per-year or accidents-per-mile), Car Aspirants and Look-at-me Enthusiasts have the highest accident propensity. Both have mean accident propensity scores significantly higher than the overall mean.

Respondents were asked a range of questions which were designed to understand their perceptions of risk. Car Aspirants appear to have given the risk of riding less thought than some of the other segments.

> "A very limited amount of information and engagement seems to make Car Aspirants significantly more risk-conscious that they were before…. The combination of a low 'resting awareness of risk' with a tendency to take risk seriously when they do become aware may explain some otherwise puzzling patterns in Car Aspirants' reported behaviour. On the one hand, they appear to more likely than average to consider riding in jeans and T-shirt… On the other hand, they are significantly more likely than average to say they would definitely not ride after dropping their helmet on a hard surface (43% against 31% of total sample). It would seem that messages about the risks attached to a dropped helmet have reached this audience more effectively than messages about safety gear. On balance, the attitudes of Car Aspirants to risk may be described as low awareness but high educability."[15]

Motorcycles are most often used for work purposes for courier firms or for food delivery companies. A study[16] commissioned by Transport for London (TfL) sought to provide an understanding of road safety issues for courier and food delivery riders. The study involved quantitative research, based on telephone interviews with 155 individuals working in courier and food delivery companies. The research set out to profile the structure of each industry (in terms of types of trip, number and type of employees and how they are employed) as well as to gauge levels of awareness of health and safety and road safety amongst the companies. There were a number of key characteristics of food delivery riders and the companies they worked for:

- Peak times for delivery are 6pm to 10pm.
- 81% of the companies stated that the majority of their riders were aged 21 to 30 years old.
- 60% were a franchise/part of a chain.
- 72% employ full time riders and 76% employ part time riders.
- 60% employ contracted riders and 50% employ freelance riders.
- 37% employ 2 or 3 riders whilst 28% employ 11 to 50 riders (with a mean number of 8 riders)
- The industry is transient with 21% of companies having a usual rider employment period of 1 to 6 months and 42% having 6 months to 1 year as the usual employment period.
- 45% of the companies make 10 to 50 deliveries a day.
- The average rider mileage per day is 23 miles.
- Food delivery riders tend to be employed for short shifts – 82% of companies have average rider shifts of 6 hours or less.
- 78% of food delivery companies employ riders on a fixed salary.
- One third of food delivery companies place a time limit on delivery and there is an overall pressure to deliver the food quickly whilst still hot.
- The food delivery companies require the following levels of experience:
  - 30% required no previous experience.
  - 31% required good local knowledge.
  - 12% required at least one year's riding experience.
  - 7% required a CBT qualification (Compulsory Basic Training)
- Over 60% of food delivery companies employ riders who only have a provisional licence.
- 12% of the food delivery companies only check riders' licences when they start, 21% check yearly and a further 18% check every 6 months.
- 46% of food delivery companies check the motorcycles daily or remind the riders to check themselves to ensure they are roadworthy.
- 19% of food delivery companies offer incentives to improve skills and standards of riding (incentives include financial rewards or offering free training courses).
- The food delivery companies were asked about their agreement on a number of statements. The following percentages agreed or strongly agreed with the statements:
  - 76% - "injuries and accidents are a real concern to our organisation."
  - 45% - "as an organisation we could do more to improve the safety of our riders."
  - 36% - "there is a need in this organisation to improve the training we give our riders."
  - 29% - "time deadlines that are placed on our drivers jeopardise their safety."

- 16% - "time and money are more important to this company than the safety of riders."
- 51% of food delivery companies provide formal training schemes and 62% provide riding techniques guidance to new riders.
- 32% of food delivery companies had experienced at least one damage only incident in the previous 12 months and 25% had experienced at least one collision which had resulted in injury to one of their riders.
- Collisions resulted in an average of 3 rider days lost and 4 days spent arranging insurance and repairs.[17]

Working with hot food delivery companies to train their employees and ensure they are using good quality personal protective equipment could be beneficial.

EXISTING SCHEMES

The following are examples of existing high profile or long running schemes and interventions, designed to address motorcycle collisions issues. There are more small motorcycle schemes for younger riders available to review than those aimed at delivery riders.

RideFree - *https://www.safedrivingforlife.info/ridefree/about*

The Driver and Vehicle Standards Agency (DVSA) and Highways England developed RideFree – a combination of eLearning pre-course modules and an enhanced version of the CBT syllabus. It's based on evidence and tailored to the experiences of real learners and real trainers. The course has won a Prince Michael International Road Safety Award and a Chartered Institution of Highways and Transportation (CIHT) Kier Road Safety Award.

It is free to complete and is available nationally. Road safety practitioners can signpost novice riders to the resource and encourage local trainers to participate in the scheme.

National Young Riders Forum – *https://shinysideup.co.uk/nyrf/*

The National Young Rider Forum (NYRF) is a group of Road Safety Professionals, joining their expertise to specifically look at Young Motorcyclists. This vulnerable group are aged between 16 to 24 years and ride powered two wheelers of up to 125cc.

The forum members bring a wealth of expertise from all corners of Road Casualty reduction and include representatives from Local Authority Road Safety Teams, Safer Roads Partnerships, Motorcycle Industries Association (MCIA), Motorcycle Action Group (MAG), Police forces, Fire & Rescue and the DVSA.

The first decision the NYRF made was to commission a piece of research which would help us to know and understand much more about our Young Rider. Only when we have that knowledge can we put together effective, engaging, informative, interesting and appropriate road safety resources to specifically target our Young Riders.

Insight Studies

Ridestart - *https://saferrider.org/ridestart/*

This all-day course, aimed at 15 to 17 year olds who would like to understand more about powered two wheels, consists of four workshops:

- Practical Ride: Motorcycle training 'off road' incorporating all the basic riding skills.
- Road Safety and Law - Understanding attitude and behaviour to reduce your road risk. Also test your theory knowledge and understanding of the law.
- Protective Gear and First Aid - Guidance on safety clothing and equipment. Also covering basic first aid knowledge and skills.
- Basic Mechanics - Learn simple maintenance to reduce your bike running costs and keep it roadworthy.

Staffordshire Young Riders - *http://staffsyoungriders.co.uk/*

Staffordshire young riders' website contains information on training, maintenance and equipment, and includes the 'Biker Jack' campaign, which is a young rider mobile app and series of safety-related videos.

Street Spirit - *https://www.street-spirit.co.uk/*

Street Spirit is a website containing information on protective equipment, behaviour and training. There is also a full 360-defree film to help riders with road positioning skills.

APPENDICES

APPENDIX A - CONTRIBUTORY FACTOR GROUPINGS

To facilitate insight into specific road safety issues, Area Profile documents can include sections which analyse collisions on a network and/or resident casualties/drivers based on contributory factors assigned by attending police officers. While conducting this analysis, it has often been found useful to group together certain factors which reflect broadly similar aspects of road risk.

Injudicious Action	Driver Errors or Reactions	Driver Impairment or Distraction	Behaviour or Inexperience	Other
Traffic Contraventions	**Manoeuvre Errors**	**Substance Impairments**	**Nervous Behaviour**	**Vehicle Defects**
Disobeyed automatic traffic signal	Poor turn or manoeuvre	Impaired by alcohol	Nervous, uncertain or panic	Tyres illegal, defective or under-inflated
Disobeyed double white lines	Failed to signal or misleading signal	Impaired by drugs (illicit or medicinal)	Learner or inexperienced driver/rider	Defective lights or indicators
Disobeyed 'Give way' or 'Stop' signs or markings	Passing too close to cyclist, horse rider or pedestrian		Inexperience of driving on the left	Defective brakes
Disobeyed pedestrian crossing facility			Unfamiliar with model of vehicle	Defective steering or suspension
Illegal turn or direction of travel				Defective or missing mirrors
				Overloaded or poorly loaded vehicle or trailer
Speed Choices	**Control Errors**	**Distraction**	**Unsafe Behaviour**	**Road Surface**
Exceeding speed limit	Sudden braking	Driver using mobile phone	Aggressive driving	Poor or defective road surface
Travelling too fast for conditions	Swerved	Distraction in vehicle	Careless, reckless or in a hurry	Deposit on road (e.g. oil, mud, chippings)
	Loss of control	Distraction outside vehicle		Slippery road (due to weather)
Close Following	**Observation Error**	**Health Impairments**	**Pedal Cycle Behaviour**	**Affected Vision**
Following too close	Failed to look properly	Uncorrected, defective eyesight	Vehicle travelling along pavement	Stationary or parked vehicle(s)
	Failed to judge other person's path or speed	Illness or disability, mental or physical	Cyclist entering road from pavement	Vegetation
			Not displaying lights at night or in poor visibility	Road layout (e.g. bend, winding road, hill crest)
			Cyclist wearing dark clothing at night	Buildings, road signs, street furniture
	Junction Errors	**Fatigue Impairment**	**Pedestrian Behaviour**	Dazzling headlights
	Junction overshoot	Fatigue	Crossing road masked by stationary or parked vehicle	Dazzling sun
	Junction restart (moving off at junction)		Failed to look properly	Rain, sleet, snow or fog
			Failed to judge vehicle's path or speed	Spray from other vehicles
			Wrong use of pedestrian crossing facility	Visor or windscreen dirty or scratched
			Dangerous action in carriageway (e.g. playing)	Vehicle blind spot
			Careless, reckless or in a hurry	
			Impaired by alcohol	
			Impaired by drugs (illicit or medicinal)	
			Pedestrian wearing dark clothing at night	
			Disability or illness, mental or physical	

APPENDIX B - COMPLETE LIST OF MOSAIC TYPES

Below is a complete list of all the Mosaic Types, with descriptions, shown in the Mosaic Group to which they belong.

Group	Description	Type	Description
A	Country Living	A01	Rural Vogue
		A02	Scattered Homesteads
		A03	Wealthy Landowners
		A04	Village Retirement
B	Prestige Positions	B05	Empty-Nest Adventure
		B06	Bank of Mum and Dad
		B07	Alpha Families
		B08	Premium Fortunes
		B09	Diamond Days
C	City Prosperity	C10	World-Class Wealth
		C11	Penthouse Chic
		C12	Metro High-Flyers
		C13	Uptown Elite
D	Domestic Success	D14	Cafes and Catchments
		D15	Modern Parents
		D16	Mid-Career Convention
		D17	Thriving Independence
E	Suburban Stability	E18	Dependable Me
		E19	Fledgling Free
		E20	Boomerang Boarders
		E21	Family Ties
F	Senior Security	F22	Legacy Elders
		F23	Solo Retirees
		F24	Bungalow Heaven
		F25	Classic Grandparents
G	Rural Reality	G26	Far-Flung Outposts
		G27	Outlying Seniors
		G28	Local Focus
		G29	Satellite Settlers
H	Aspiring Homemakers	H30	Affordable Fringe
		H31	First-Rung Futures
		H32	Flying Solo
		H33	New Foundations
		H34	Contemporary Starts
		H35	Primary Ambitions
I	Urban Cohesion	I36	Cultural Comfort
		I37	Community Elders
		I38	Asian Heritage
		I39	Ageing Access
J	Rental Hubs	J40	Career Builders
		J41	Central Pulse
		J42	Learners & Earners
		J43	Student Scene
		J44	Flexible Workforce
		J45	Bus-Route Renters
K	Modest Traditions	K46	Self Supporters
		K47	Offspring Overspill
		K48	Down-to-Earth Owners
L	Transient Renters	L49	Disconnected Youth
		L50	Renting a Room
		L51	Make Do & Move On
		L52	Midlife Stopgap
M	Family Basics	M53	Budget Generations
		M54	Childcare Squeeze

InsightStudies

		M55	Families with Needs
		M56	Solid Economy
N	Vintage Value	N57	Seasoned Survivors
		N58	Aided Elderly
		N59	Pocket Pensions
		N60	Dependent Greys
		N61	Estate Veterans
O	Municipal Challenge	O62	Low Income Workers
		O63	Streetwise Singles
		O64	High Rise Residents
		O65	Crowded Kaleidoscope
		O66	Inner City Stalwarts

---

[1] http://www.roadsafetyobservatory.com/Review/10088

[2] *ibid*., p.4

[3] Helman et al., p.3

[4] *ibid*., p.4

[5] *ibid*., p.19

[6] *ibid*., p.18

[7] http://www.roadsafetyobservatory.com/Review/10088 (p.16)

[8] Crundall, D., Clarke, D and Shahar, A., *Car Drivers' Attitudes and Visual Skills in Relation to Motorcyclists – Road Safety Research Report No.121*, (Department for Transport, London, 2011), p.9

[9] *ibid*., p.11

[10] *ibid*., p.12

[11] *Identifying the psychological determinants of risky riding: An application of an extended Theory of Planned Behaviour.* Chorlton, K., Conner, M., Jamson, S**.** s.l. : Accident Analysis and Prevention, 2012, Vol. 49, pp. 142-153.

[12] *Novice riders and the predictors of riding without motorcycle protective clothing.* de Rome, L., Ivers, R., Haworth, N., Heritier, S., Fitzharris, M. s.l. : Accident Analysis and Prevention, 2011, Vol. 43, pp. 1095-1103.

[13] *Predicting motorcyclists' intentions to speed: Effects of selected cognitions from the theory of planned behaviour, self-identity and social identity.* Elliott, M.A. s.l. : Accident Analysis and Prevention, 2010, Vol. 42, pp. 718-725.

[14] Christmas, S, et al. *Passion, performance, practicality: motorcyclists' motivations and attitudes to safety.* Berkshire : Transport Research Laboratory, 2009.

[15] *ibid.,*

[16] Baverstock, A., Reeve, W. and Burgess, A., *Understanding Road Safety issues for Courier and Food Delivery Riders: Quantitative Research Report*, (Synovate, London, 2007)

[17] *ibid*., pp.6-32

Insight Studies