Towing Drivers involved in collisions on the Strategic Road Network

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Registered office Bridge House, 1 Walnut Tree Close, Guildford GU1 4LZ
Highways England Company Limited registered in England and Wales number 09346363

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Disclaimer

Contents

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This report provides insight into drivers of motor vehicles who were towing when involved in police reported injury collisions between 2006 and 2015, which was the most recent available finalised data set at the time of commission. The definition of towing used in this report includes single trailers, double trailers, caravans and other tows, but excludes articulated vehicles.

The fundamental purpose of the report is to understand in detail the kinds of people who are exposed to road risk while towing on the strategic road network. Because of this person-centred approach, it would not be appropriate to confine analysis exclusively to towing drivers who suffered injury, but to rather to take a more inclusive approach in order to maximise insight.

As a consequence of this approach, it is important to note that:

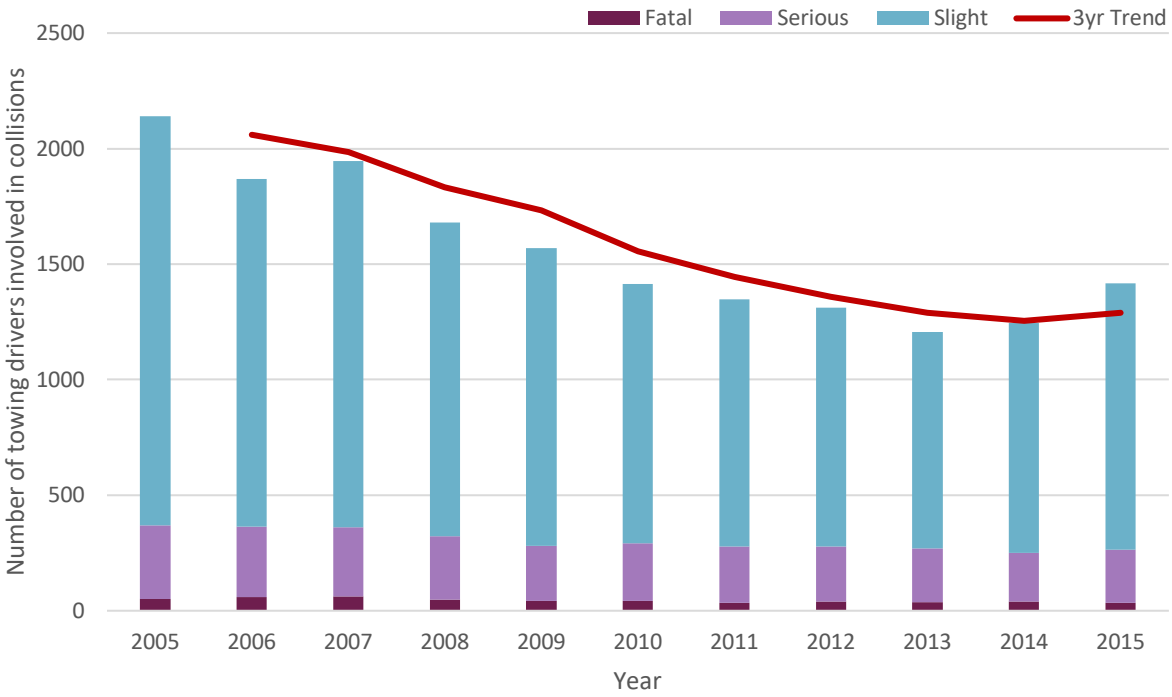
- references to “towing drivers” refer to all drivers with any of the towing types specified above who were involved in an injury collision in any way, regardless of whether they became a casualty or not; and

- all references to “collision severity” refer to the most grievous injury suffered by any casualty involved in the event, regardless of whether that casualty was a towing driver or not.

Introduction

In Great Britain in 2015, 35 towing drivers were involved in fatal collisions, and a further 229 in serious and 1,154 in slight collisions. The casualties in these collisions could be the driver themselves and/or other parties. Figure 1 puts these collision involvement figures for Great Britain in context. Towing drivers involved in collisions, by severity, since 2005 are shown as bars, while the red trend line indicates the average collision involvement over the last three years. It shows a general downward trend of drivers involved in collisions from 2005 until 2013, with small increases in 2014 and 2015.

FIGURE 1 – TOWING DRIVERS FROM GREAT BRITAIN INVOLVED IN COLLISIONS ON GREAT BRITAIN'S ROADS BY SEVERITY (2005-2015)



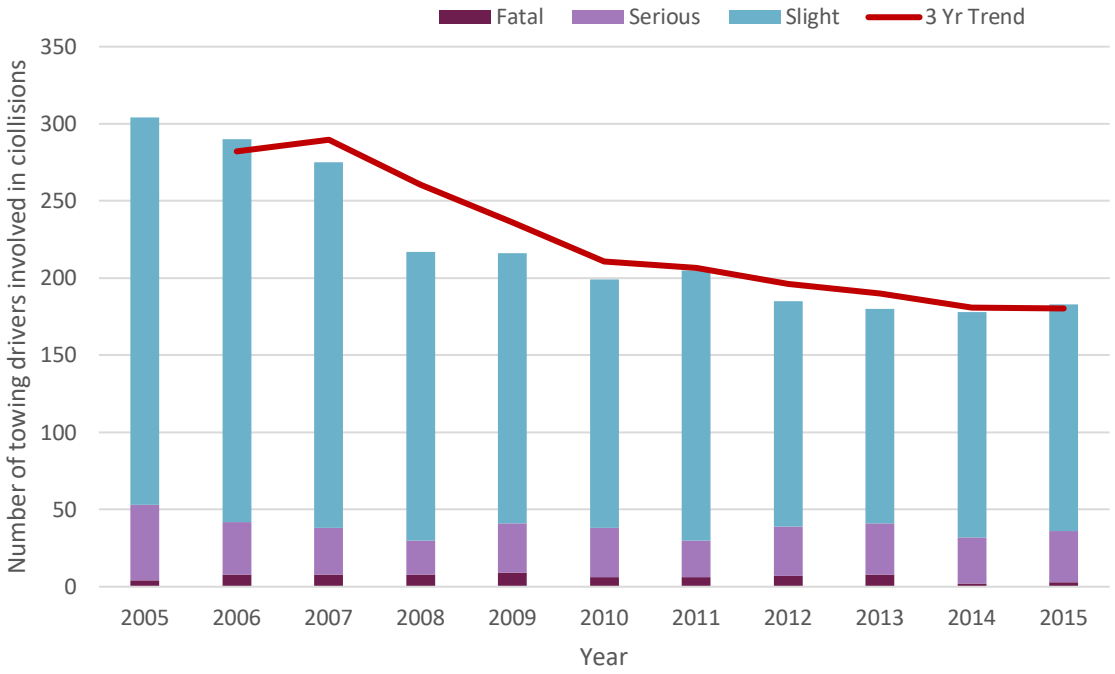
This report sets out analysis undertaken using STATS19 collision data for 2006 to 2015 from MAST, an online analysis tool which combines casualty and collision data from the Department for Transport with socio-demographic insights created by Experian through Mosaic Public Sector. The postcodes of drivers and casualties involved in collisions are used to determine where they live, and therefore to which Mosaic *Groups* these individuals are likely to belong. This can be used by road safety professionals to understand who needs to be targeted in road safety interventions. The report focuses on drivers of motor vehicles with tows (excluding articulated vehicles) from England who have been involved in collisions anywhere on the Strategic Road Network (SRN). The intention of this report is to provide Highways England with a full understanding of the types of collision involving towing drivers on the SRN and to equip them with the tools to target the issue.

The report works through the analysis by first determining the extent to which drivers who are towing are involved in collisions on the SRN, and in what context they are involved. The location of the collisions will be examined to determine if the riders are involved in collisions on strategic roads in their home region or elsewhere on the network.

A large part of the analysis focuses on profiling the drivers, 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, rurality and Mosaic

Groups. Profiling in this way allows the practitioner to understand how towing drivers will respond to a road safety intervention and in what way it should be delivered.
In 2015 on the Highways England Strategic Road Network (SRN), 3 towing drivers from England were involved in fatal collisions and a further 33 in serious and 147 in slight collisions. The casualties in these collisions again could be the drivers themselves and/or other parties. Figure 2 puts the driver collision involvement figures for the SRN in context. It shows the number of drivers involved in collisions, by severity, since 2005 in the bars and the red line indicates the average collision involvement over the last 3 years. It shows a downward trend, with numbers levelling off from 2012.

FIGURE 2 – TOWING DRIVERS FROM ENGLAND INVOLVED IN COLLISION ON THE HIGHWAYS ENGLAND STRATEGIC ROAD NETWORK (SRN) BY SEVERITY (2005-2015)



Risk Profile

This profile covers two distinct areas: information about the collision and information about the person involved. Both are relevant to the analysis and are considered separately.

Collision Profiles

WHAT?

This section looks at what types of vehicle and tows were involved in collisions on the SRN. Between 2006 and 2015, towing car drivers (including 6 minibus drivers) accounted for 53% of all towing drivers or riders involved in collisions, but in comparison only accounted for 38% of those involved in KSI collisions. There are a small number of towing motorcycle riders involved in collisions, and these have a high KSI ratio, although absolute numbers are low. Towing light goods vehicle drivers accounted for 12% of collisions and towing heavy goods (excluding articulated) vehicle drivers accounted for 24% of collisions, with both having a similar percentage of KSI collisions. Towing tractor drivers (and other agricultural vehicles) accounted for 8% of all collisions but 16% of all KSI collisions. A small number of towing drivers of other vehicle types were also involved in collisions. The actual numbers are shown in Table 1 below. Comparisons with drivers/riders from England involved in collisions on all roads in England have been made and 100-based indices calculated (for totals greater than 30 and over 1% of the total). Where drivers from England involved in collisions on the SRN are over-represented in collisions compared to England's roads as a whole, the value in the last column is over 100. This is the case for car and heavy goods (excluding articulated) vehicle drivers. Towing tractor drivers have a low index (38), however this could be because these drivers are more likely to use smaller local roads. Other vehicle drivers (Buses, unknown vehicles and vehicles recorded as 'Other) also have a low index (65) although the sample size is quite small.

TABLE 1 – 2006-2015 TOWING DRIVERS FROM ENGLAND INVOLVED IN COLLISIONS ON THE STRATEGIC ROAD NETWORK (SRN)

Vehicle Type	Fatal	Serious	Slight	Total	% KSI	% of All KSI	% of All Collisions	All roads Index
Car	15	125	996	**1136**	12%	38%	53%	**113**
Motorcycles	2	9	13	**24**	46%	3%	1%	-
Light Goods	5	42	206	**253**	19%	13%	12%	**92**
Heavy Goods (excluding articulated)	27	73	412	**512**	20%	27%	24%	**153**
Tractor	13	46	101	**160**	37%	16%	8%	**38**
Other	3	7	33	**43**	23%	3%	2%	**65**

After looking at the types of vehicles which drivers are using whilst towing, it is possible to analyse the different types of tows. Between 2006 and 2015, caravans accounted for 25% of all collisions involving towing drivers and 19% of all KSI collisions. Other tows accounted for 10% of all collisions and 12% of all KSI collisions. Whilst multiple-trailers accounted for both 4% of all collisions and KSI collisions, and single-trailers accounted for 60% of all collisions and 65% of all KSI collisions.

Again, comparisons with drivers/riders from England involved in collisions on all roads in England have been made. Drivers towing caravans are considerably over-represented with an index of 217, showing that drivers towing caravans are 117% more likely to be involved in a collision on the SRN than on any road in England. This may in part be because drivers towing caravans are more likely to use strategic roads than other towing drivers. Drivers of other-tow types are under-represented on the SRN compared to all roads in England with an index of 70 whilst drivers of single trailers are slightly under-represented with an index of 88. Drivers towing multiple trailers are represented in line with the all roads in England rate.

TABLE 2 – 2006-2015 TOW TYPES OF DRIVERS FROM ENGLAND INVOLVED IN COLLISIONS ON THE STRATEGIC ROAD NETWORK (SRN)

Tow Type	Fatal	Serious	Slight	Total	KSI	% of all KSI	% of All collisions	All roads index
Caravan	9	60	465	**534**	13%	19%	25%	**217**
Other Tow	3	40	177	**220**	20%	12%	10%	**70**
Multiple Trailers	4	10	63	**77**	18%	4%	4%	**99**
Single Trailers	47	192	1033	**1272**	19%	65%	60%	**88**
Not Known	2		24	**26**	8%	1%	1%	-

Figure 3 shows the indices for towing drivers from England that are involved in collisions on the SRN, compared to those involved in collisions on all roads in England with 2005 as a base. Drivers of tows on the SRN have followed a similar downward trend to those involved in England as a whole. Since 2013, although not significantly large, there has been a very slight upward trend.

FIGURE 3 – TOWING DRIVERS INVOLVED IN COLLISIONS IN ENGLAND INDICES, WITH 2005 AS A BASE

WHEN?

This section of the analysis looks at when towing drivers were involved in collisions on the SRN between 2006 and 2015.

FIGURE 4 – TIME OF DAY WHEN TOWING DRIVERS WERE INVOLVED IN COLLISIONS ON THE SRN ON WEEKDAYS (2006-2015)

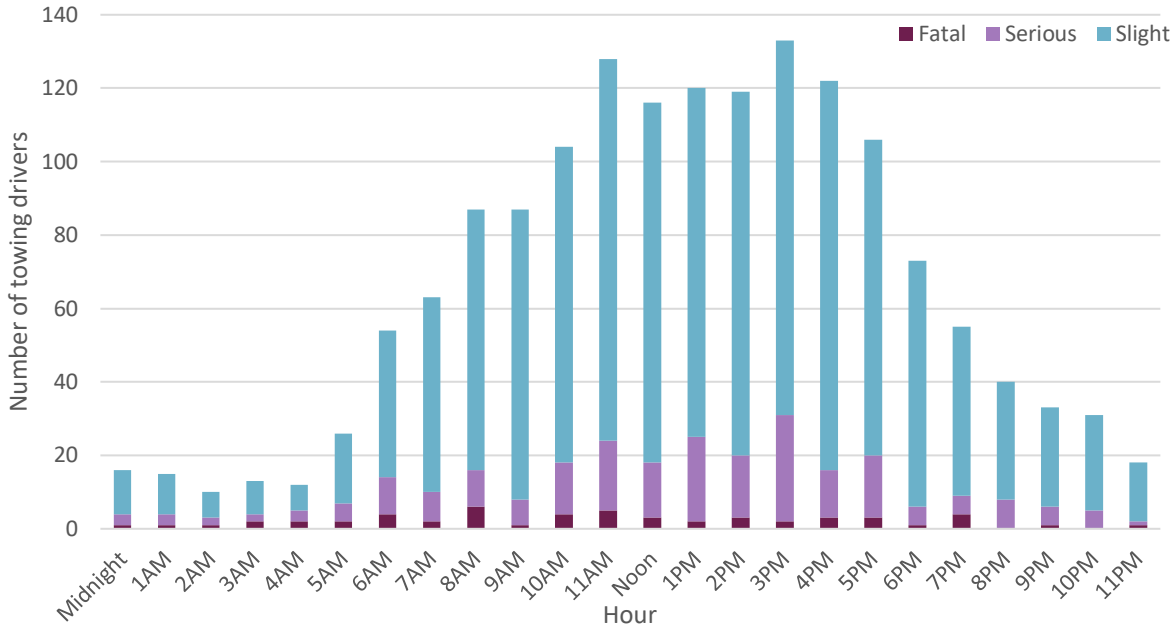
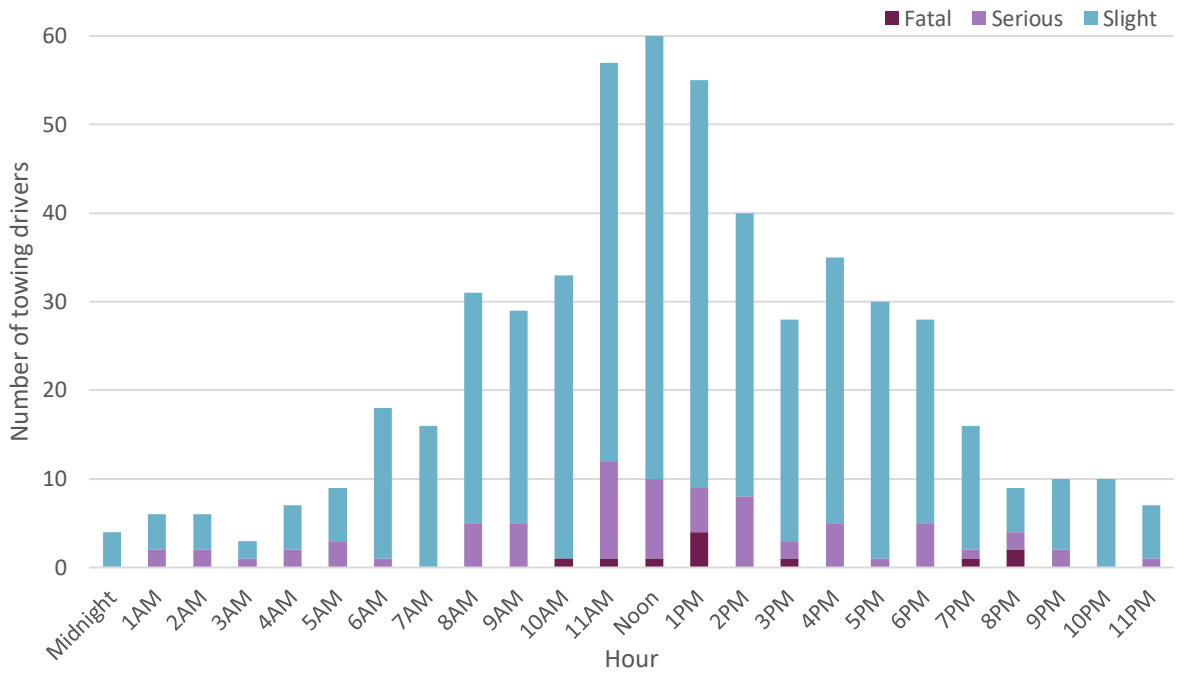


Figure 4 shows the time of day when towing drivers were involved in collisions on the SRN on weekdays. There is one extended peak during the middle of the day between 10am and 5pm, with collisions increasing throughout the morning peaking at 3pm, and decreasing during the evening hours. Figure 5 shows the time of day when towing drivers were involved in collisions at weekends. Similar the weekdays, the peak in collisions is during the middle of the day, however the peak is much shorter and confined to between 11am and 1pm.

FIGURE 5 – TIME OF DAY WHEN TOWING DRIVERS ARE INVOLVED IN COLLISIONS ON WEEKENDS (2006-2015)



In order to understand if the time of day analysis is a feature of towing drivers' collisions or if this is a trend unique to the SRN, analysis has been undertaken comparing towing drivers involved in collisions on the SRN compared to those on all England's roads. Figure 6 shows the time of day when towing drivers are involved in collisions on the SRN as well as in collisions on all roads in England. Generally, both follow a similar pattern, although on all roads, after peaking at 11am, numbers fall briefly before peaking again at 3pm, whereas on the SRN numbers only continue to fall after peaking at 11am.

FIGURE 6 – TIME OF DAY WHEN TOWING DRIVERS ARE INVOLVED IN COLLISIONS ON THE SRN AND ON ALL ENGLAND'S ROADS

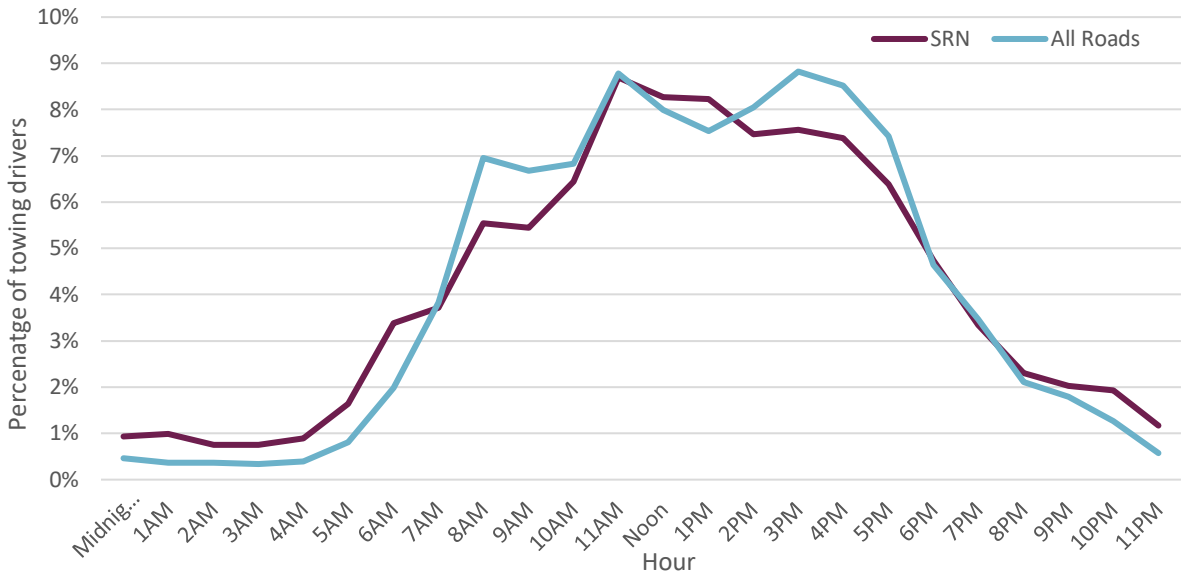


Figure 7 shows the difference between drivers towing caravans and other tow types on the SRN. Drivers towing caravans are involved in collisions at a much higher rate during the middle of the day shown by a sharp peak, with the hours between 10am and 1pm accounting for 46% of these collisions compared to 27% for drivers of other tow types.

FIGURE 7 – TIME OF DAY WHEN DRIVERS TOWING CARAVANS AND OTHER TOW TYPES WERE INVOVLED IN COLLISIONS ON THE SRN

The days of the week on which the towing drivers were involved in collisions are shown in Figure 8. The red bars compare towing drivers involved in collisions on the SRN with those on all England's roads. For towing drivers involved in collisions on the SRN, there is a fairly even number throughout the week, with Friday noticeably higher than other days, although it is not noticeably over-represented compared to all England roads. Sunday has the least number of collisions involving towing drivers although it is slightly over-represented along with Saturday, compared to towing drivers involved in collisions on all England's roads. Collisions on Monday to Thursday are generally represented in line with all England's roads, although Wednesday is under-represented (index of 86).

FIGURE 8 – DAY OF WEEK WHEN TOWING DRIVERS WERE INVOLVED IN COLLISIONS ON THE SRN

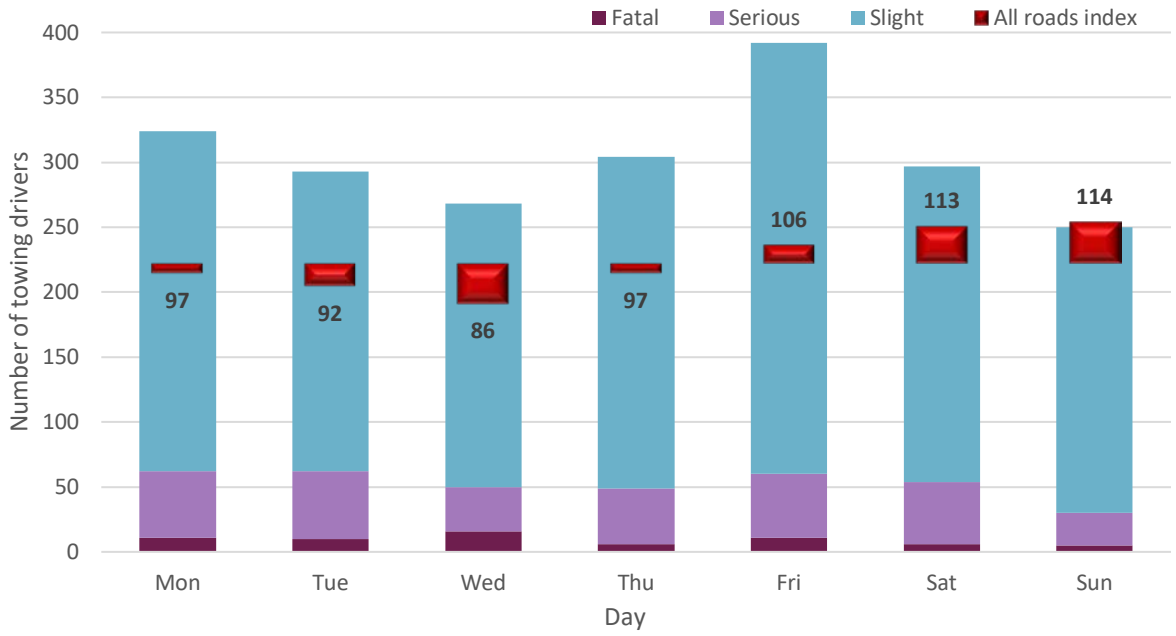
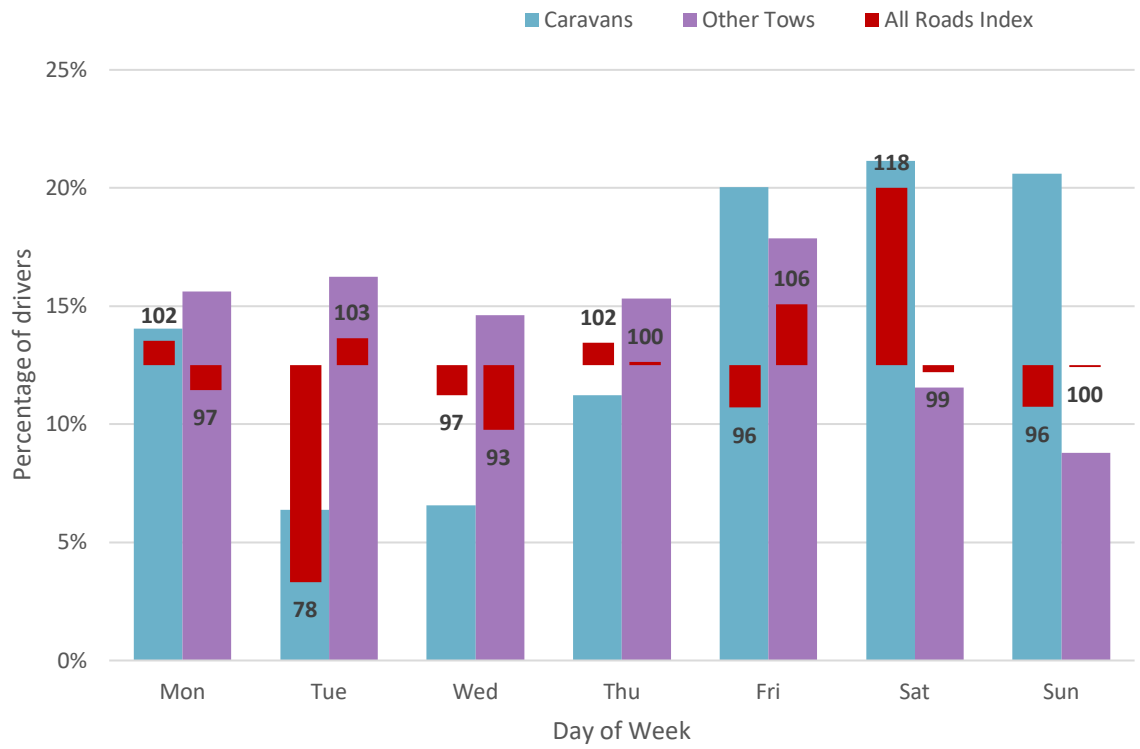


Figure 9 below shows the difference between drivers towing caravans and other tow types, indexed against the equivalent for all roads in England. Those drivers towing caravans were more often involved between Friday and Sunday, which account for 62% of all collisions compared to 39% of collisions on these days for drivers of all other tow types. Tuesdays and Wednesdays account for the lowest proportion of collision involving drivers towing caravans at 13%, which compared to 31% for drivers of other tow types. When compared to all roads in England, drivers towing caravans were over-represented on Saturdays and under-represented on Tuesdays, whilst drivers of other tow types were marginally under-represented on Tuesdays.

FIGURE 9 – DAYS OF WEEK WHEN DRIVERS TOWING CARAVANS AND OTHER TOW TYPES WERE INVOVLED IN COLLISIONS ON THE SRN



The month of the year in which towing drivers were involved in collisions on the SRN are shown in Figure 10. There is a peak in July and August which together account for 27% of all collisions, and lows in December and January with 5% in each month. The five months between November and March accounts for only 29% of collisions involving towing drivers. The red bars show the index score compared to all roads in England. The months of November to January are under-represented, whilst July, as well as containing the highest numbers, is also over-represented. The remaining months are generally represented as expected in line with the all roads in England rates.

Figure 11 shows the breakdown by month for caravans and all other tow types. Of all collisions involving caravans, collisions between October and March account for only 14%, with numbers increasing throughout the year before peaking in August with 22%. Forty-two percent of all collisions involving caravans occur between July and August coinciding with the summer holiday season. When compared to other tow types there is a more even split throughout the year, although numbers are lowest in December and January (6% in each) and peak in July with 12%.

FIGURE 10 – MONTH OF YEAR WHEN TOWING DRIVERS WERE INVOLVED IN COLLISIONS ON THE SRN

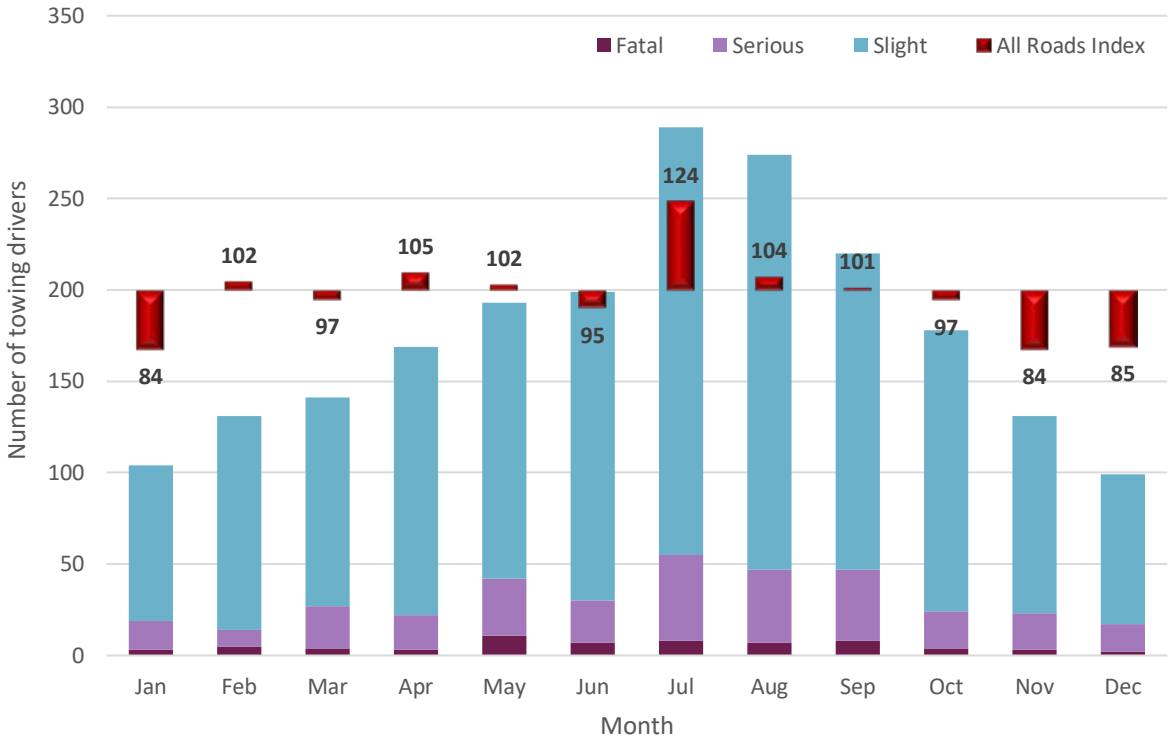


FIGURE 11 – PERCENTAGE OF DRIVERS INVOLVED IN COLLISIONS BY MONTH ON THE SRN

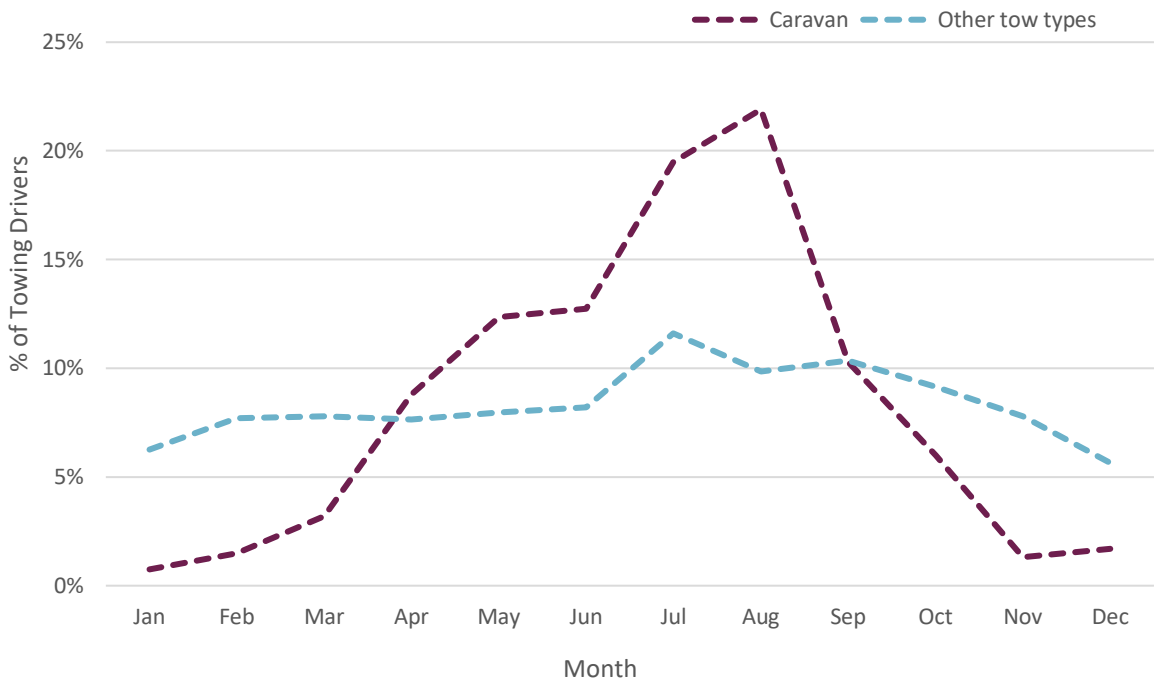


Table 3 below shows the weather conditions when towing driving were involved in collisions compared to all drivers on the SRN. Also shown is the comparison between towing drivers and all drivers on all roads in England.

TABLE 3 – WEATHER CONDITIONS WHEN TOWING DRIVERS WERE INVOLVED IN COLLISIONS COMPARED TO ALL DRIVERS

	SRN		All England Roads	
Weather Conditions	**Towing Drivers**	**All Drivers**	**Towing Drivers**	**All Drivers**
Fine & Windy	4%	2%	2%	1%
Fog or Mist	1%	1%	1%	1%
Other	1%	2%	2%	2%
Wet & Still	8%	13%	10%	13%
Wet & Windy	2%	2%	1%	2%
Fine & Still	83%	79%	83%	80%
Not Known	1%	1%	1%	2%

Associated with weather is the road surface condition. Seventy-six percent of towing drivers were involved in collisions on dry roads at the time of their collision, (this is slightly higher than on all roads in England), with a further 22% on wet or damp road surfaces.

WHERE?

The next section looks at the road characteristics of where towing drivers were involved in collisions.

In terms of road class, 54% of towing drivers were involved in collisions on A roads with the remaining 46% on Motorways. As shown below in Figure 12, towing drivers have the largest proportion of SRN collisions on 70mph roads - 78% compared to 71% of all drivers. Towing drivers have a similar percentage of collisions on 60mph roads to all drivers, although on 30-50mph towing drivers have only 8% compared to 15% for all drivers.

FIGURE 12 – TOWING DRIVERS INVOLVED IN COLLISIONS ON THE SRN COMPARED TO ALL VEHICLE DRIVERS BY ROAD SPEED LIMIT

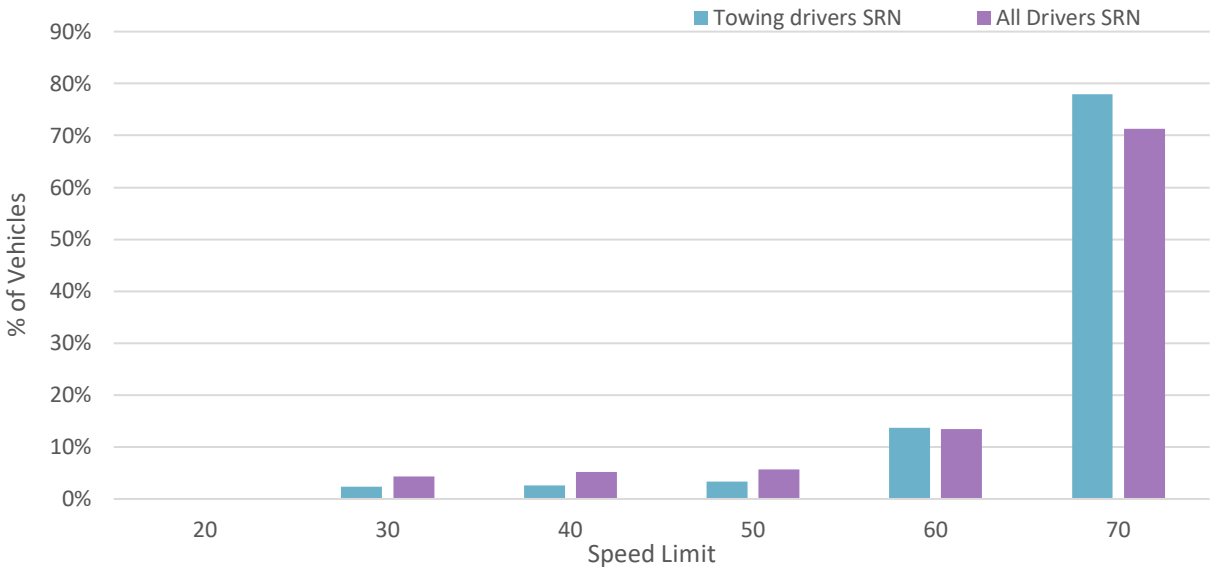
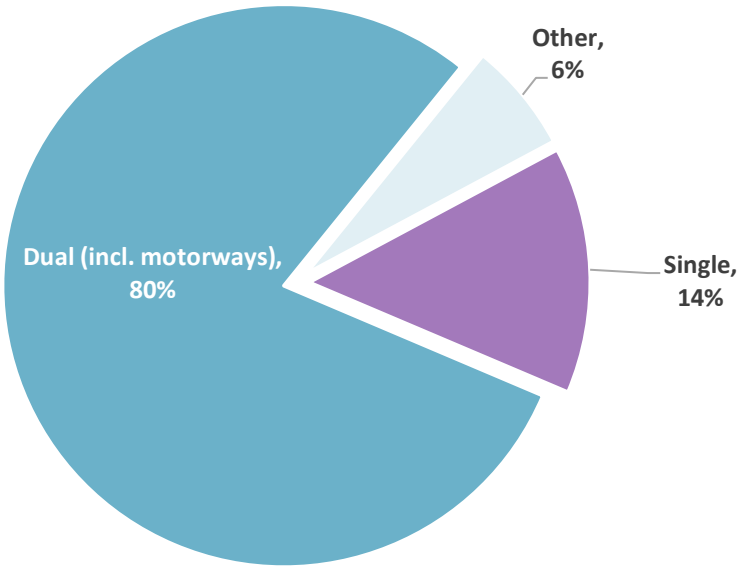


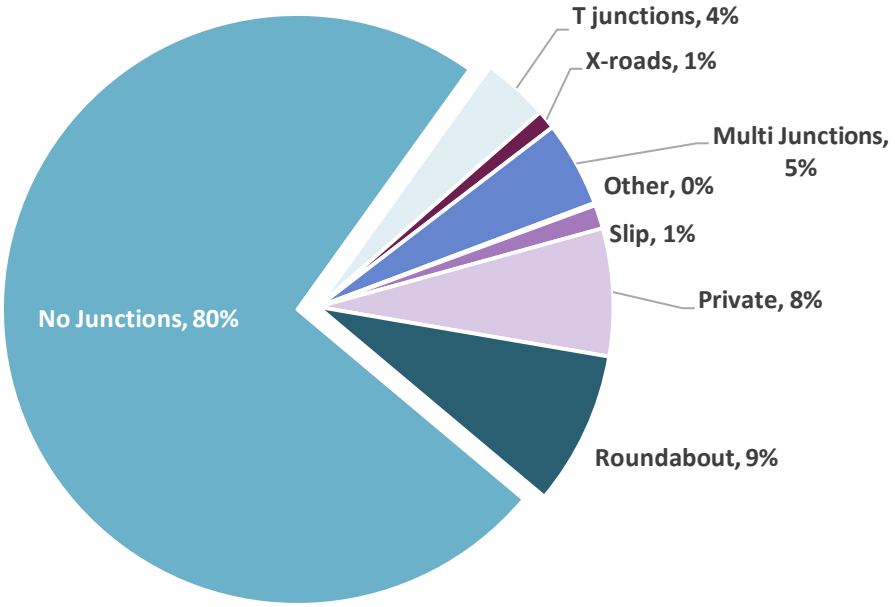
Figure 13 below shows the type of road where towing drivers were involved in collisions. Seventy-nine percent of towing drivers were involved in collisions on dual carriageways (including motorways) compared to 14% on single carriageway roads. Towing drivers involved on dual carriageways are 10% over-represented compared to drivers of all vehicles on the SRN. The remaining are involved in collisions on roundabouts (4%) and one way/slip roads (3%).

FIGURE 13 – ROAD TYPE WHERE TOWING DRIVERS WERE INVOLVED IN COLLISIONS



Junction details were also analysed and are displayed in Figure 14. Eighty percent of towing drivers involved in collisions on the SRN, were not at a junction at the time of their collision which is a slight over-representation compared to all drivers on the SRN (regardless of towing). Of the remaining 20%, 8% were involved at slip roads, 5% were involved at roundabouts and 4% at T-junctions, which are all under-represented compared to all drivers on the SRN.

FIGURE 14 – JUNCTION DETAILS WHERE TOWING DRIVERS ARE INVOLVED IN COLLISIONS



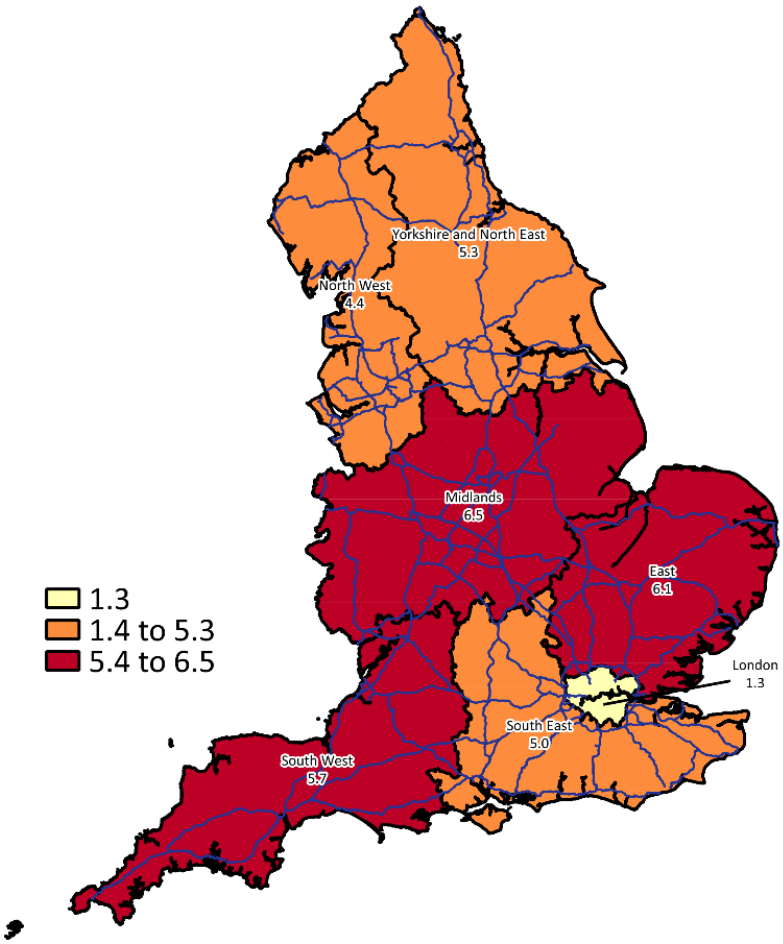
The junction control where the towing drivers were involved in collisions were analysed and is shown in Table 4. Overall, on the SRN, 18% of towing drivers were involved in collisions at Give Way or uncontrolled junctions, compared to 25% for all motor vehicle drivers.

TABLE 4 – JUNCTION CONTROL WHERE TOWING DRIVERS WERE INVOLVED IN COLLISIONS

Junction Control	Towing Drivers on SRN	All drivers on SRN
Authorised person	0%	0%
Auto traffic signal	2%	4%
Give way or uncontrolled	18%	25%
Not Applicable	63%	56%
Stop sign	0%	0%
Unknown	17%	15%

Figure 15 below shows the regional rate of resident towing drivers involved in collisions compared to the national rate, with the strategic road network highlighted in blue. The Midlands has the highest rate with 6.5 (drivers per year per 1,000,000 population), followed by the East and South West with 6.1 and 5.7 respectively. The lowest rate is in London with 1.3 towing drivers per year, per 1,000,000 adult population. To see the breakdown within each region, see Appendix C – Maps, starting with Figure 29 showing East of England output.

FIGURE 15 – ANNUAL AVERAGE TOWING DRIVERS ON THE SRN - BY REGION OF RESIDENCY, PER 1,000,000 ADULT POPULATION



HOW?

After looking at when and where towing drivers on the SRN were involved in collisions, the analysis now explores how these collisions occurred.

In order to understand the circumstances surrounding how towing drivers were involved in collisions, it is important to look at the other vehicles involved. Table 5 shows the percentages of towing drivers where at least one of the other types of vehicle was involved. As drivers 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 towing drivers themselves could be the senior or young drivers in the bottom two rows.

TABLE 5 - NUMBER OF TOWING DRIVERS BY OTHER VEHICLES INVOLVED (NOT EQUAL TO 100% AS MULTIPLE PARTIES CAN BE INVOLVED)

Crash Involved	SRN	All England Roads
Bus involved	0%	1%
Car involved	72%	68%
Motorcycle involved	2%	8%
HGV (excluding articulated) involved	15%	7%
Van involved	9%	6%
Pedal cycle involved	1%	9%
Senior (over 60) driver involved	13%	15%
Young (under 25) driver involved	11%	14%

The analysis shows that a high percentage of the towing driver were in collisions where a car was involved, with 73% of crashes involving a car on the SRN compared to 68% on all roads in England. Towing drivers were involved in collisions with Motorcycles and Pedal cycles less often than on all roads in England, most likely because cyclists avoid these routes and also, along with mopeds, aren't allowed on motorways. Towing drivers were involved in collisions with HGV's and Van's more often on the SRN, possibly as there is a higher proportion of these vehicle types on the SRN.

FIGURE 16 – TOWING DRIVERS INVOLVED IN COLLISIONS ON THE SRN BY THE NUMBER OF VEHICLES INVOLVED IN THE COLLISION

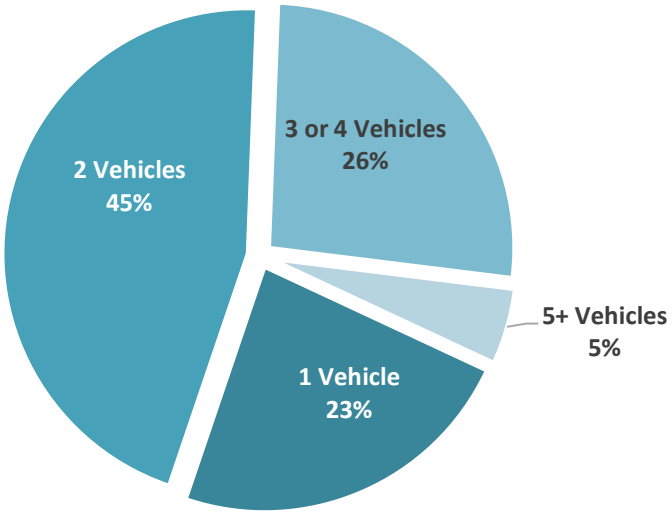


Figure 16 and Table 6 show towing driver collisions by the number of involved vehicles. Forty-six percent of towing drivers who were involved in a collision on the SRN collided with one other vehicle. This is 28% lower than towing drivers involved in collisions on all roads in England, but similar to all vehicles on the SRN (regardless of whether they are towing). Twenty-three percent of towing drivers were involved in single vehicle collisions, which is 66% higher than the rate for towing drivers on all roads in England and twice the rate for drivers of all vehicles (regardless of whether towing) on the SRN. Thirty-one percent of towing drivers were involved in collisions with 3 or more vehicles, 35% higher than towing drivers on all roads in England but 22% lower than all vehicles (regardless of towing) on the SRN.

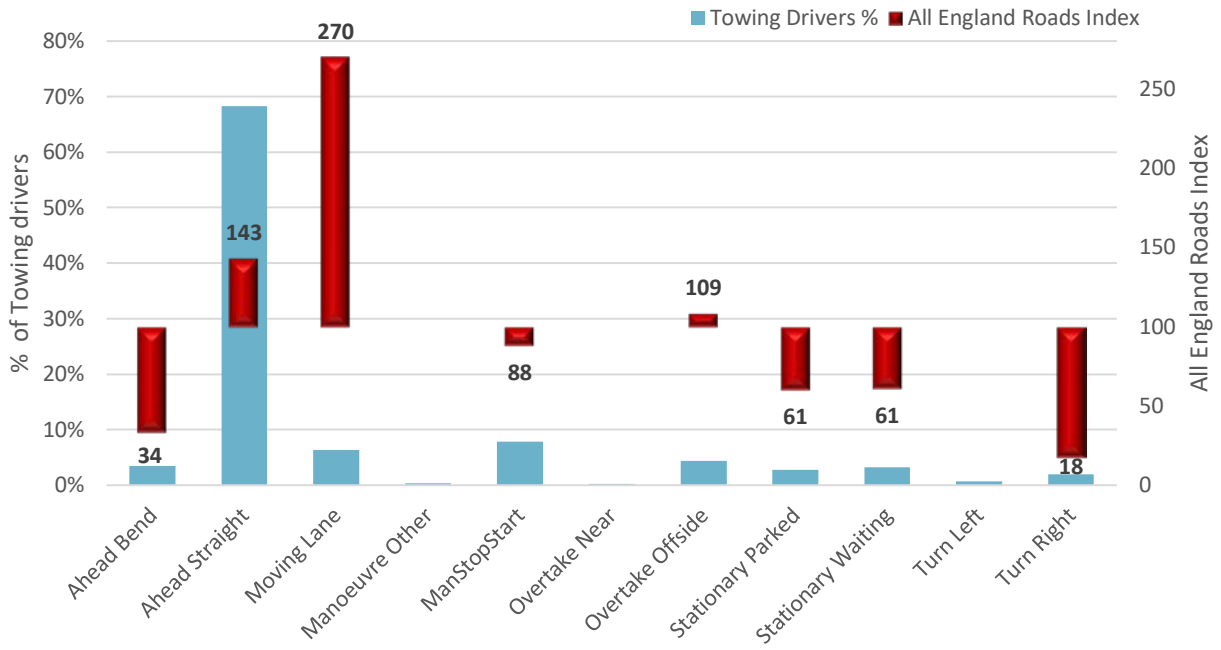
TABLE 6 – TOWING DRIVER COLLISIONS BY NUMBER OF INVOLVED VEHICLES, INDEXED AGAINST ALL ROADS AND ALL SRN VEHICLES

Vehicles involved	SRN	%	Index v All Roads	Index v All SRN Vehicles
1	495	23%	166	209
2	966	45%	72	93
3 or 4	561	26%	125	83
5+	106	5%	146	61

Looking at who the casualties were, 49% of towing drivers involved in collisions on the SRN were injured themselves, similar to the average of 54% of all drivers (regardless of towing) injured on the SRN. On all roads in England, 27% of towing drivers were injured themselves, 45% lower than towing drivers on the SRN. Twenty-nine percent of towing drivers involved in collisions on the SRN had a passenger casualty, higher than on all roads on England (12%) and higher than the average for all drivers on the SRN (regardless of towing) with 19%. There were just 2% of towing drivers on the SRN who injured a pedestrian in their collision (compared to 6% on all England's roads).

Analysis of the manoeuvres of towing drivers on the SRN found that 68% were travelling straight ahead and this is higher than manoeuvres for towing drivers on all roads in England (as shown in Figure 17 below by an index of 143). Eight percent were performing a stop-start manoeuvre, which is slightly under-represented (index of 88) compared to towing drivers on all England roads, whilst 6% were moving lane, which is considerably over-represented (index of 270). However, this could be as the SRN contain a number of roads with multiple lanes whereas when compared to all roads in England (including the SRN) there is a greater proportion of single lane roads. Stop-Start manoeuvres account for 4% which is slightly over-represented (index of 109) and there is some under-representation amongst the remaining manoeuvres although the sample sizes are quite low.

FIGURE 17 – MANOEUVRES OF TOWING DRIVERS ON THE SRN, WITH INDEX AGAINST TOWING DRIVERS ON ALL ENGLAND ROADS



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 at 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 result of extensive investigation. Analysis has been undertaken on the collision-involved towing drivers/riders on the SRN by the CFs assigned to them, and also by the CFs assigned to the related driver (using data from MAST Professional).

	SRN	All England Roads
Towing Drivers	62%	57%
All Drivers	55%	58%

shows the proportions of towing drivers who were assigned a CF on the SRN and on all roads in England, compared to all drivers (regardless of towing). It shows that 62% of towing drivers are thought to have contributed to their collision in some way and were assigned at least one contributory factor. This compares to 55% for drivers of all vehicles on the SRN and 57% for towing drivers on all England's roads.

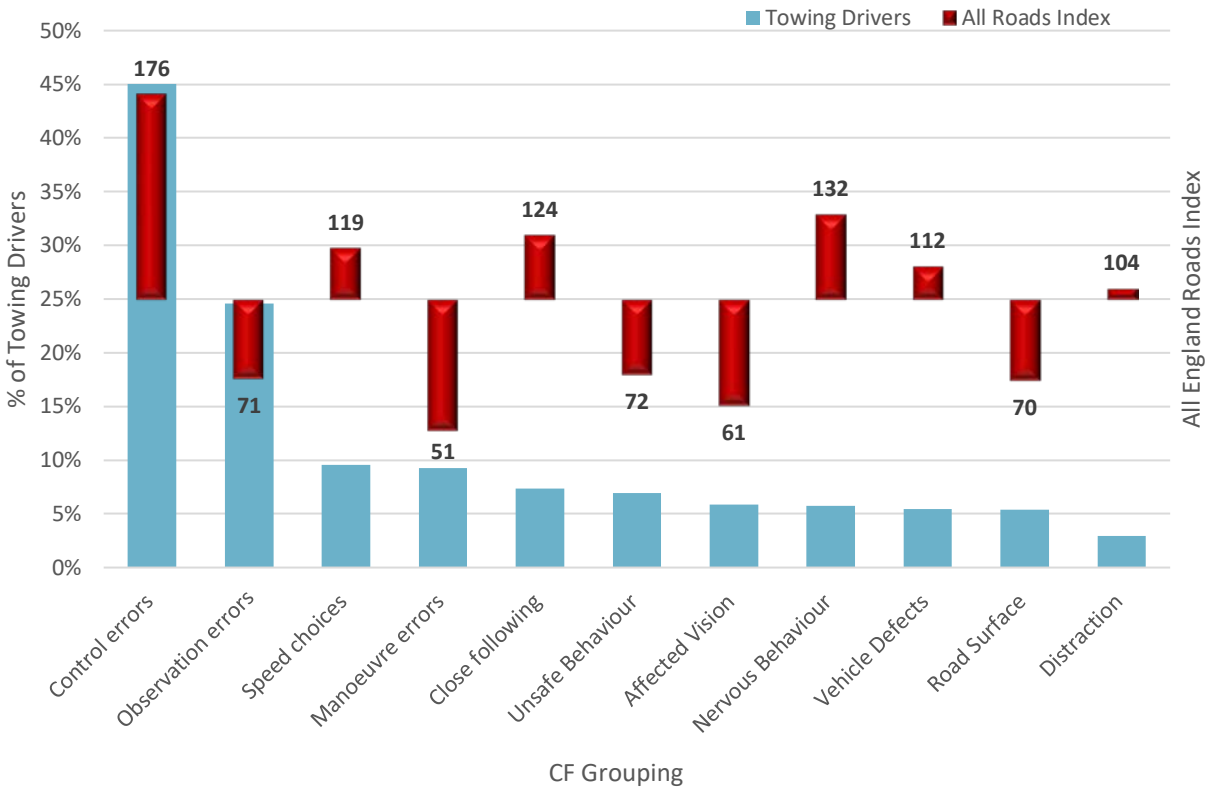
TABLE 7 – PROPORTION OF TOWING DRIVERS ASSIGNED ANY CONTRIBUTORY FACTOR

	SRN	All England Roads
Towing Drivers	62%	57%
All Drivers	55%	58%

Figure 18 below shows the contributory factors with the highest proportions, assigned to towing drivers on the SRN as a percentage of all drivers receiving any CF (in collisions attended by a

police officer), and indexed against CFs assigned towing drivers involved in collisions on all roads in England. Indices were not calculated for CFs representing less than 1% of drivers 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 (45%) of towing drivers receive 'Control Errors' and this is over-represented compared to all roads in England, with an index of 176. 'Observation Errors' was attributed to 25% of towing drivers but was under-represented when indexed against all roads in England by 29%. 'Speed Choices' (10%), 'Close Following' (7%) and 'Nervous Behaviour' (6%) were all over-represented, whilst 'Manoeuvre Errors' (9%), 'Unsafe Behaviour' (7%) and 'Affected Vision' (6%) were all under-represented.

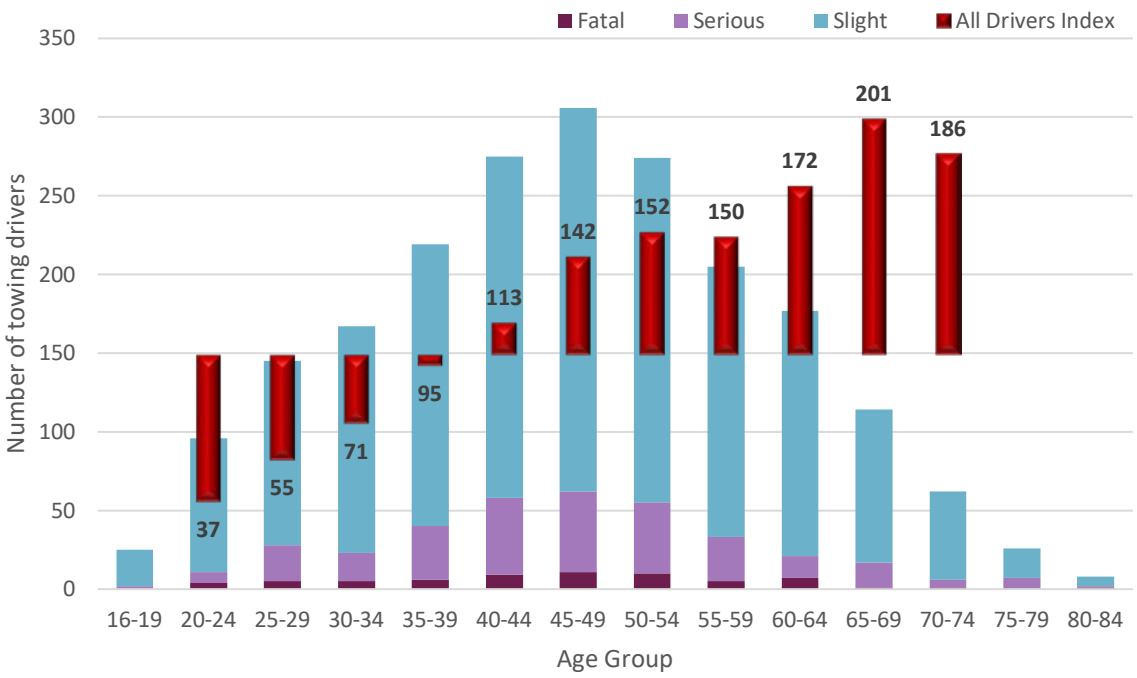
FIGURE 18 – TOWING DRIVERS INVOLVED IN COLLISIONS ON THE SRN ATTRIBUTED CF'S



Towing Driver 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.

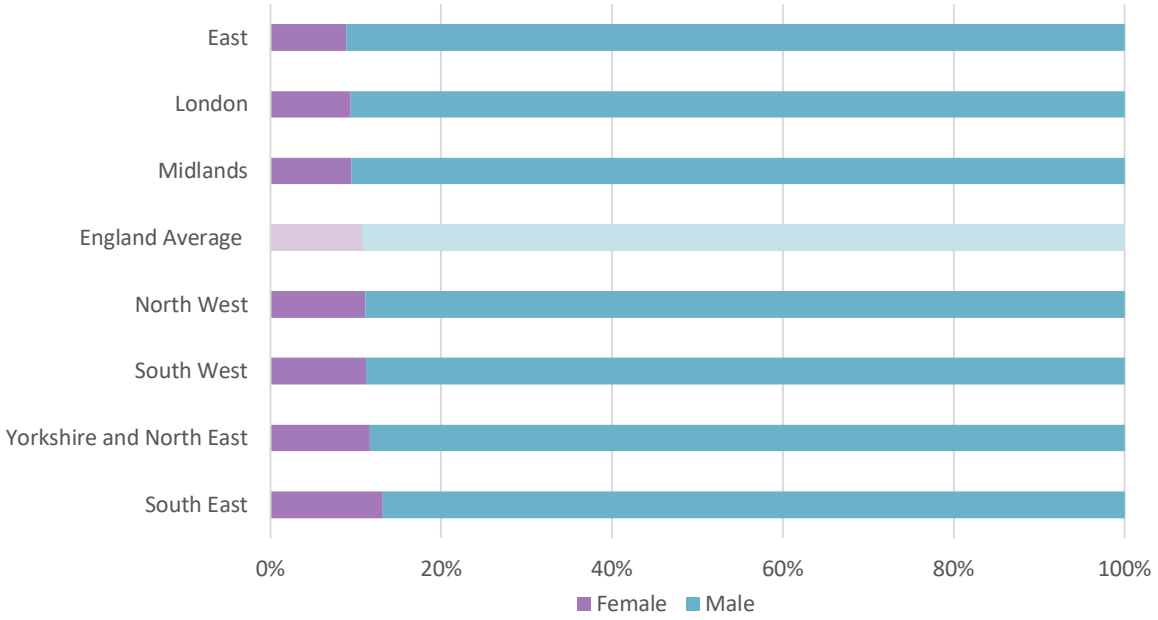
FIGURE 19 – AGE OF TOWING DRIVERS FROM ENGLAND INVOLVED IN INJURY COLLISIONS ON THE STRATEGIC ROAD NETWORK



The ages of towing drivers from England, by severity are shown in Figure 19. It shows that the single largest group are aged from 45-49 which accounts for 14% of the total number of towing drivers involved in injury collisions on the Strategic Road Network. Towing drivers aged 40-54 account for 40% of all towing drivers involved in collisions on the SRN. These numbers are indexed against all drivers (regardless of towing) involved in injury collisions on the SRN. There is under-representation amongst 20-34 year olds and over-representation amongst 40-74 year olds, in particular those aged between 60 and 74 who are considerably over-represented.

Figure 20 shows the gender breakdown by home region for all towing drivers. The South East has the highest proportion of female towing drivers involved in collisions with 13%, whilst the East has the fewest with 9%. The average for England is 11% female and 91% male.

FIGURE 20 – GENDER OF TOWING DRIVERS FROM ENGLAND, INVOLVED IN COLLISIONS ON STRATEGIC ROAD NETWORK



Journey purpose shown in Table 8 can be used to gain an idea of what the towing drivers were doing at the time of their collision. There are three types of journey purpose recorded in STATS19: 'school related', where 'school pupil' is a student taking themselves to school or another educational institution and 'school run' where a 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 journey purpose is not known. It is not possible to tell the proportions of 'not knowns' included in 'other', compared to known journey purposes which were not school or work-related. This should be borne in mind when using the journey purpose field. Commuting and school run/pupil have been condensed together in the table below as the sample size is so low.

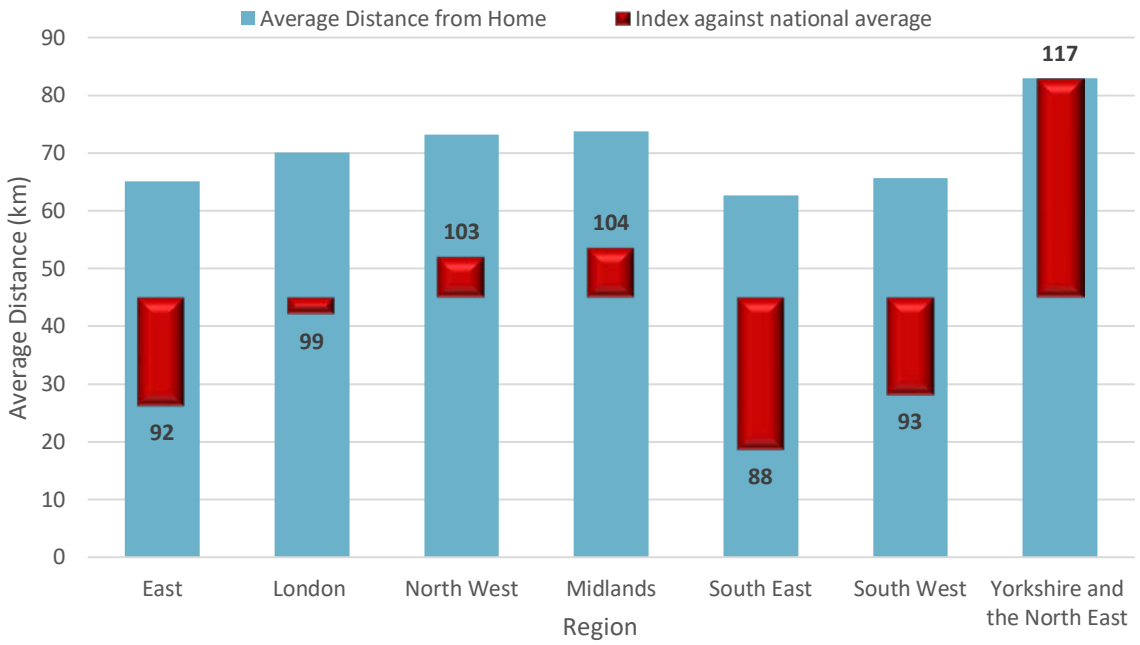
For commuting, all regions have a very small number of drivers involved in collisions. In the majority of regions, 'Other' represent the highest proportion with the South West and Yorkshire and the North East with the highest at 58%, with the Midlands lowest at 48%. For 'Work', the Midlands has the highest proportion at 49%, whilst the South West has the lowest at 40% compared to the national average of 45%.

TABLE 8 – JOURNEY PURPOSE OF TOWING DRIVERS INVOLVED IN COLLISIONS

Region	Commute work/school	%	Other	%	Work	%	Total
East	9	3%	145	49%	139	47%	293
London	2	2%	43	51%	40	47%	85
Midlands	12	2%	262	48%	267	49%	541
North West	6	2%	129	51%	117	46%	252
South East	9	3%	191	53%	158	44%	358
South West	5	2%	147	58%	103	40%	255
Yorkshire and North East	3	1%	201	58%	140	41%	344
Total	43	2%	1118	53%	964	45%	2128

Distance from home can be calculated in kilometres using the distance between crash location and home postcode for each driver, averaged across the whole group of towing drivers. The calculation does not plot along routes but is instead an 'as the crow flies' distance. Figure 21 below shows the average distance from home for towing drivers, indexed against the national (England) average for each region.

FIGURE 21 – AVERAGE DISTANCE FROM HOME FOR TOWING DRIVERS INDEXED AGAINST NATIONAL SRN AVERAGE



In England, towing drivers were on average 71km from home at the time of their collision. Residents of the South East were closest to home on average (62.7km) and are lower than the national rate along with the East (65.1), South West (65.7) and London (70.1). Yorkshire and the North East is most over-represented and drivers from here are on average 17% further

away from home than the national average (index 117). Drivers from the Midlands (73.7km) and North West (73.2km) are also slightly further from home at the time of their collision.
Figure 22 below shows the percentage of towing drivers involved in collisions (on the strategic road network) in their home region, indexed against towing drivers involved in collisions on all roads in the region. The South West has the highest proportion of towing drivers involved in collisions in their home region with 77% of drivers involved on the SRN in their home region with the remaining 23% involved in other regions, this compares to towing drivers from London which is the lowest with just 8% involved in collisions here, with the remaining 92% involved in other regions. When indexed against towing drivers involved in collision on all roads, towing drivers from most regions are under-represented as they are less likely to be involved in a collision in their home region when on the SRN, than on all roads apart from Yorkshire and the North East which is considerably over-represented.

Due to there being much shorter lengths of strategic road in the London region, there are only a handful of towing drivers involved in collisions on the SRN here, with numbers too low to calculate an index score.

FIGURE 22 – COLLISION INVOLVED TOWING DRIVERS IN THEIR HOME REGION ON THE SRN

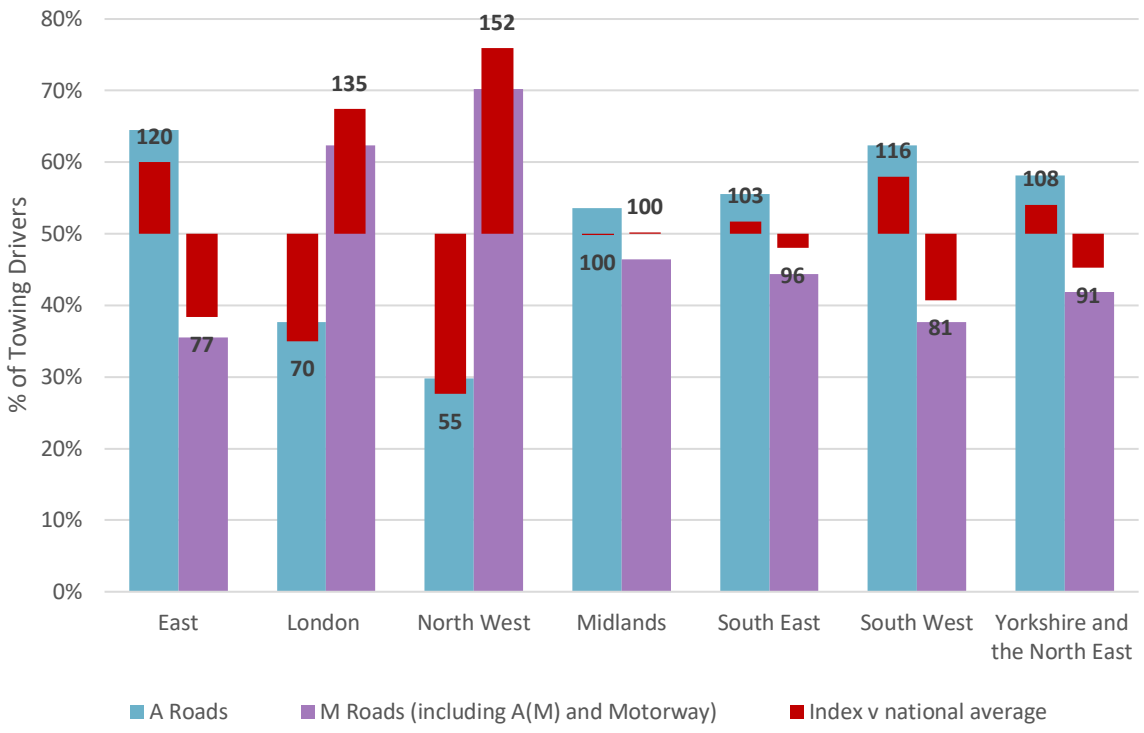
Table 9 below shows the percentage of towing drivers from a region involved in collisions in that region, by road class. For example, 87% of the towing drivers from the South West involved in collisions on A-roads, were involved on A-roads in the South West. Towing drivers from the East, South West and South East have the highest percentage of collision involvement in their home regions on A-roads. Towing drivers from the North West and South East have the highest percentage of collision involvement in their home regions on Motorways.

TABLE 9 – % OF TOWING DRIVERS FROM EACH REGION, INVOLVED IN COLLSIONS IN THAT REGION, BY ROAD CLASS

Region	% on A-Road	% on Motorways
East	80%	47%
London	3%	11%
Midlands	70%	45%
North West	69%	66%
South East	73%	73%
South West	87%	59%
Yorkshire and North East	68%	56%

Figure 23 below shows the overall breakdown of collisions involving towing drivers, by road class and indexed against the national average. On A-roads, towing drivers from the East and South West are over-represented, whereas those from London and the North West are most under-represented. On M-roads, towing drivers from London and the North West are the most over-represented, whilst those from the East and South West are under-represented. Interestingly towing drivers from London and the North West are the only regions where there are a greater number of injury collisions on M-roads than on A-roads.

FIGURE 23 – COLLISIONS INVOLVING TOWING DRIVERS BY HOME REGION AND ROAD CLASS



Mosaic Analysis

Mosaic classification is based on the individual postcodes provided in STATS 19 records for each driver and uses the Experian Mosaic socio-demographic classification system (for details see **http://publicsector.experian.co.uk/Products/Mosaic Public Sector.aspx**). Typically, 85% of postcodes can be matched to a Mosaic Type, so this analysis is based on about five out of six of all towing drivers. There are between 3 and 7 Mosaic Types in each group, and for this analysis Mosaic Group has been used as the most appropriate choice for available sample sizes.

The blue bars indicate the number of towing drivers 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 towing drivers is in proportion to the adult population of England'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 towing drivers and relative risk. The Index value becomes less significant as the number of towing drivers decreases and random change lowers confidence levels.

FIGURE 24 – TOWING DRIVERS BY MOSAIC GROUP, INDEXED AGAINST ENGLAND ADULT RESIDENTS

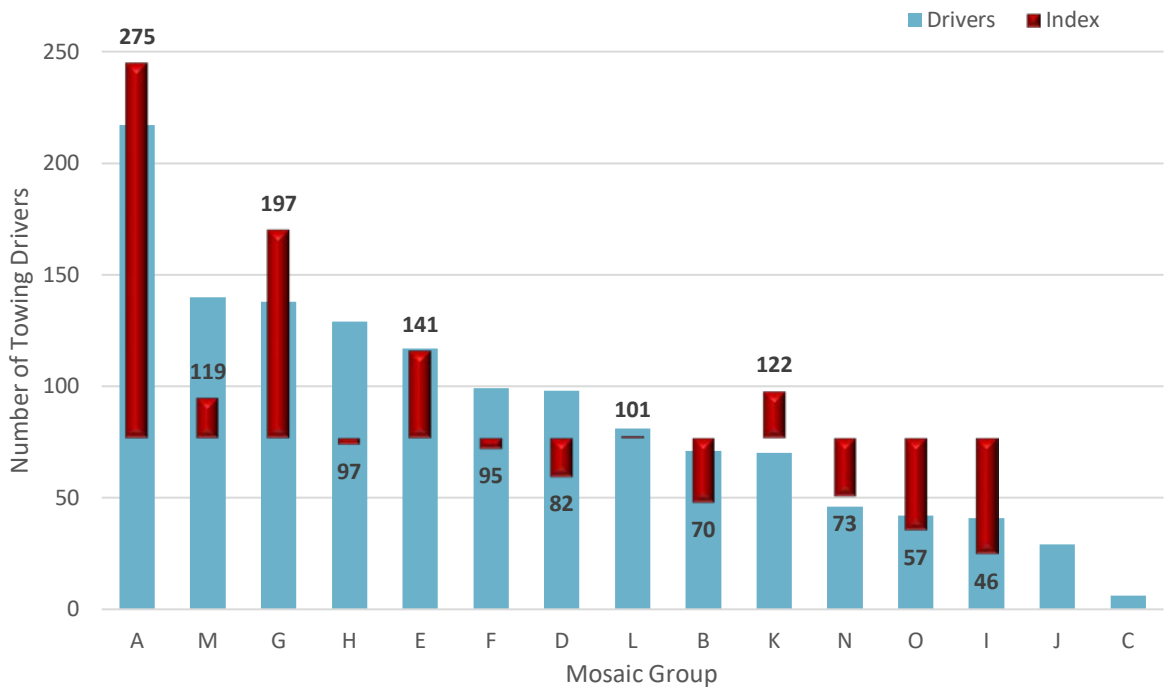


Figure 24 shows towing drivers involved in collisions by Mosaic Group of the postcode they live in. The red bars show the index value based on the population of these groups living in England. The highest number comes from *Country Living* (Group A), with this group also significantly over-represented. With slightly less numbers *Family Basics* (Group M) and *Suburban Stability* (Group E) are over-represented and *Rural Reality* (Group G) is significantly over-represented. *Modest Traditions* (Group K) are also over-represented although the sample sizes are lower.

Table 10 below details some most over-represented Mosaic Groups amongst towing drivers in England. They have been selected based on the Groups over-represented with the largest sample sizes.

TABL E 10 – PROFILE OF THE MOST OVER-REPRESENTED MOSAIC GROUPS

Group A Country Living
Country Living consists of affluent people who can afford to live in pleasant rural locations surrounded by agricultural landscapes. This population is divided between those still in work and retired people. These people live in attractive, spacious detached homes that are often period properties or named buildings, and the majority are owned. Incomes are good, either derived from occupational pensions, commuting to well-paid professional jobs or running successful farms or their own businesses - Country Living contains the highest proportion of self-employed people of any group. Asset holdings in the form of stocks and shares are high. Living in the least densely populated rural locations means car ownership is high. Most households have at least two cars for tasks from grocery shopping, to doing the school run and commuting to work. Although broadband speeds may be low, the internet is used for practical purposes as it gives this group access to a broader range of products and services than are available locally. The latest technology is not high on their agenda and mobiles aren't used extensively, probably due to less than reliable signals.
Group G Rural Reality
Rural Reality are a mix of families, mature couples and older singles living in rural locations in lower cost housing. Some live in developments that have sprung up around villages, others in scattered hamlets or in remote communities. These tend not to be picture-postcard country properties, but more affordable two or three bedroom bungalows, semis or terraces often built post-war or more recently. Seventy per cent of this group own their own homes, while others rent from social landlords. Overall more people are employed than retired. Those employed may work in agriculture and related industries, or in local manufacturing or retail. People are more likely to have lower level supervisory roles, routine and semi-routine jobs than managerial roles. A relatively high proportion of these people are self-employed. Rural Reality are unlikely to use digital technology in their work, and slower broadband speeds can limit internet use at home. However, they sometimes use auction sites for buying and selling items, and order groceries from mainstream supermarkets online. Satellite TV is popular as are local newspapers and local radio.

Group E
Suburban Stability

Suburban Stability are typically mature couples or families, some enjoying recent empty-nest status and others with older children still at home. They live in mid-range family homes in traditional suburbs where they have been settled for many years.
Households within Suburban Stability are mostly headed by people aged between 45 and 65. A significant proportion are still supporting adult children who may be studying, looking for work or enjoying their parents help while they save money for their own future.
Their typical home is a mid-range traditional three bedroom inter-war or post-war semi-detached house built for families in, what are now, established suburbs. These are settled households, most moved into their homes when their children were young, and the average length of residency is 17 years.
Many years employment in a range of lower managerial, supervisory and technical occupations means that Suburban Stability have been able to afford to buy their own homes. Many have paid off the mortgage altogether and others have a relatively small amount left outstanding.
Incomes within this group are respectable and lives are generally comfortable, though the pre-retirement empty-nesters will feel considerably better off than those whose adult children have not yet left, or have returned home. These families can feel stretched, particularly when the younger generation are not contributing to the household finances.
As a group, they are reasonably tech-savvy, though they do not rush to buy the latest gadgets. They access the internet daily via broadband and will use it for researching products and services.
Comprising mainly older working couples and families, Suburban Stability have low levels of dependency on the state for financial support.

Index of Multiple Deprivation (IMD)

As well as looking at the Mosaic socio-demographic classifications, it also possible to look at relative deprivation using the UK 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 of the country. The analysis uses deciles, which creates ten groups of equal frequency across the entire population, ranging from the 10% most deprived areas to the 10% least deprived areas. Figure 25 below shows the breakdown of towing drivers from England who were involved in collisions on the strategic road network. There is a fairly even split between the deciles with 47% of towing drivers coming from the most deprived 50% of the population and 53% coming from the least deprived 50% of the population.

FIGURE 25 – IMD OF TOWING DRIVERS

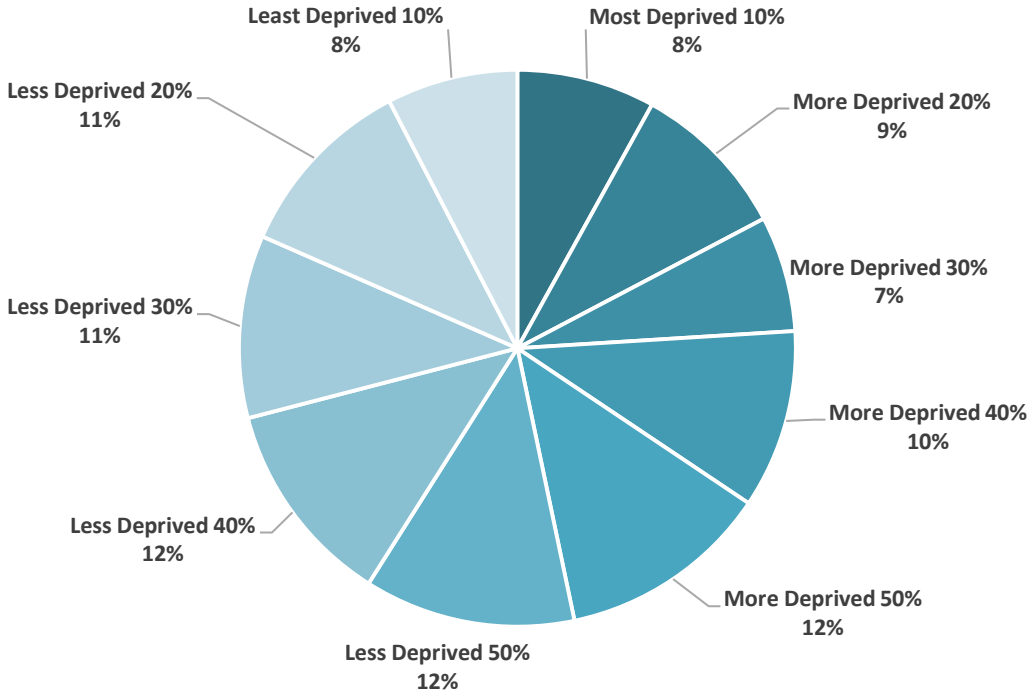


Figure 26 and
Figure 27 below show the breakdown by region of towing drivers within the least deprived 10-50% IMD deciles and the most deprived 10-50% compared to the national average. The regions with the highest percentage of towing drivers from the least deprived deciles are from the East, South West and South East, with the South-East also over-represented. The regions with fewer towing drivers from the least deprived deciles and most under-represented are Yorkshire and North East and London. When looking at the most deprived deciles this pattern reverses with the East, South West and South East accounting for the smallest percentage and the most under-represented. London is the most over-represented.

FIGURE 26 – REGIONAL BREAKDOWN OF TOWING DRIVERS IN THE LEAST DEPRIVED 10-50% IMD DECILES

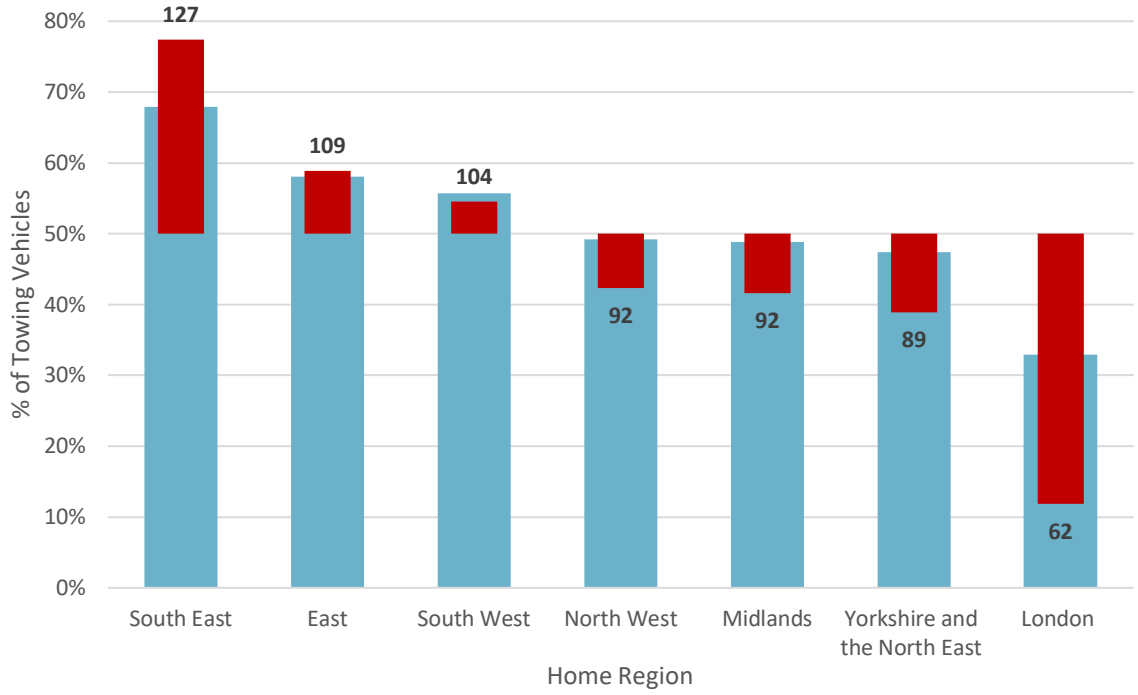


FIGURE 27 – REGIONAL BREAKDOWN OF TOWING DRIVERS IN THE MOST DEPRIVED 10-50% IMD DECILES

Personas

The analysis of the socio-demographic data as well as the collision information has allowed a picture to be built up about the kinds of towing drivers who are involved in collisions. More than one variety of towing driver has emerged, in terms of socio-demographic profiling and collision analysis. These findings allow key characteristics to be collated into personas. Parallels have been drawn from the multiple data sets in the creation of these personas to ensure alignment along clear data points.

There are **2** personas which have emerged from the analysis:

1 – 'Richard' – is in his early 50's and lives in a large detached rural home with his wife. His community belongs to Mosaic Group A. They have a large household income and Richard runs his successful farm. He is likely to have studied A-levels (or equivalent) and possibly a degree at University before starting work in the agricultural industry. Richard is likely to be involved in collisions throughout the middle of the day between 9am and 6pm whilst working. Although Richard is most likely to be involved in a collision whilst travelling straight ahead he is also exposed to risk while changing lane, and is most likely to be involved in 2 vehicle collisions. Richard is most likely to be towing a single trailer at the time of his collision, with this tow type over-represented compared to the national rate. Richard is generally confident in the police so they could be used to engage with him. Richard isn't particularly a fan of new technology and will generally upgrade only when old devices have broken. He uses the internet throughout the week, doesn't use social media and of the national newspapers he is most likely to read the Daily Telegraph. He most often shops for groceries at Waitrose, and is in good health.

2 – 'Adrian' – is in his early 50's and lives alone in a detached bungalow in a rural village location. His community belongs to Mosaic Group G. He has a modest household income and works in agriculture. He is likely to have studied GCSE'S and A-Levels (or equivalent) before gaining employment in the agricultural industry. Adrian is likely to be involved in collisions throughout the middle of the day between 8am and 4pm whilst working. Adrian is most likely to be involved in a collision whilst travelling straight ahead, and is most often in 2 vehicle collisions. Adrian is slightly most likely to be towing a single trailer at the time of his collisions. Adrian is generally confident in the police so they could be used for engagement with him. He doesn't use social media, but does use the internet on a weekly basis for browsing and email access. Adrian favours reading newspapers including The Daily Record and The Sun and often shops at local supermarkets such as Co-Op and Spar. Although most data used in this report is based on the last 10-year period, Mosaic profiles can only take the last 5-years into account. The resulting smaller sample sizes have limited the data available for generating personas. However, by profiling this data set with Mosaic 'Super Groups', which combine the standard Mosaic Groups, it is possible to identify a third, more generalised, supplementary persona.

The Caravaner is a male driver who is towing a caravan. He is typically in his 40's or 50's, comes from a middle-income family and does not live in a rural area. However, due to the limitations on dataset size, it is not possible to provide a more detailed picture for this driver.

Appendix A – Mosaic Group Composition

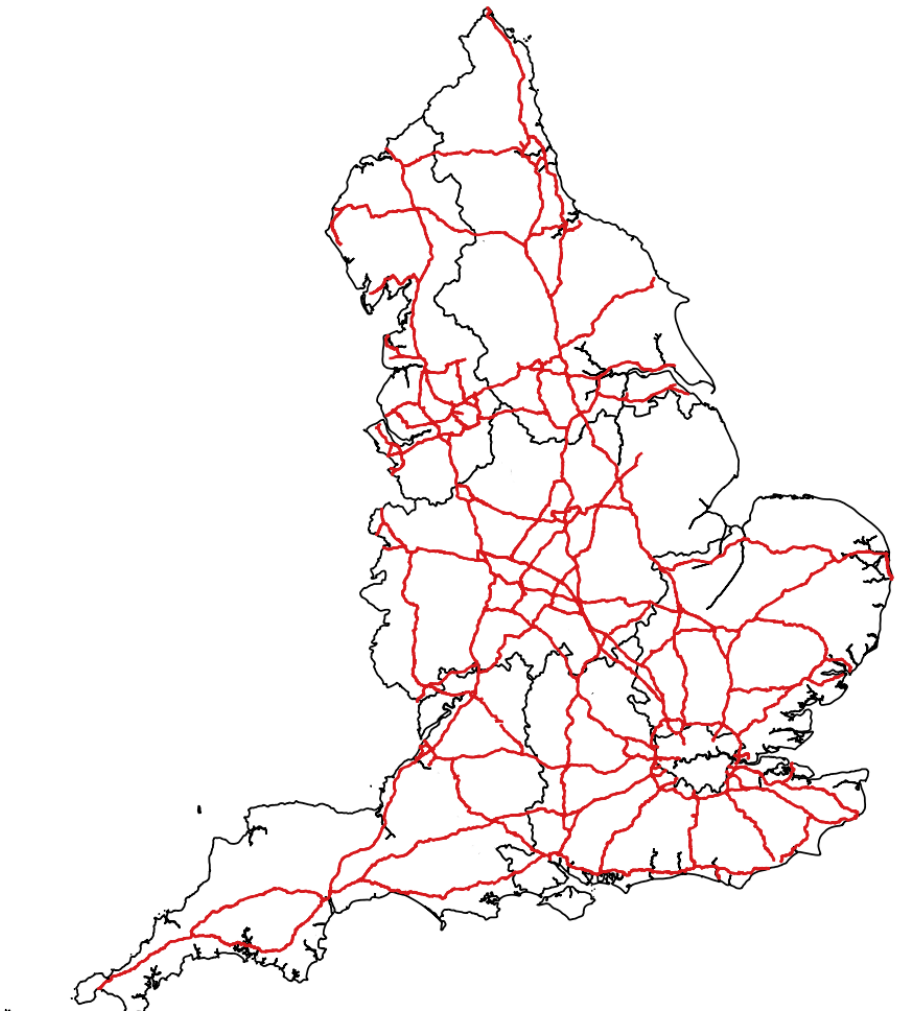
Group	Name	Description
A	Country Living	Well-off owners in rural locations enjoying the benefits of country life
B	Prestige Positions	Established families in large detached homes living upmarket lifestyles
C	City Prosperity	High status city dwellers living in central locations and pursuing careers with high rewards
D	Domestic Success	Thriving families who are busy bringing up children and following careers
E	Suburban Stability	Mature suburban owners living settled lives in mid-range housing
F	Senior Security	Elderly people with assets who are enjoying a comfortable retirement
G	Rural Reality	Householders living in inexpensive homes in village communities
H	Aspiring Homemakers	Younger households settling down in housing priced within their means
I	Urban Cohesion	Residents of settled urban communities with a strong sense of identity
J	Rental Hubs	Educated young people privately renting in urban neighbourhoods
K	Modest Traditions	Mature homeowners of value homes enjoying stable lifestyles
L	Transient Renters	Single people privately renting low cost homes for the short term
M	Family Basics	Families with limited resources who have to budget to make ends meet
N	Vintage Value	Elderly people reliant on support to meet financial or practical needs
O	Municipal Challenge	Urban renters of social housing facing an array of challenges

Appendix B – Contributory Factor Groupings

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 C – Maps

FIGURE 28 – MAP OF THE ROADS ON THE STRATEGIC ROAD NETWORK



In order to analyse where towing drivers who were involved in collisions on the strategic road network are from, a rate of drivers per year (2006-2015) per 1 million adult population has been calculated for each local authority district. The following maps (Figures 29-35) show the percentage difference to the national rate for each local authority district in England, by region. For example, the rate for South Norfolk of 3.8 drivers per 1,000,000 adult population is 24% lower than the national rate of 5.0.

FIGURE 29 – PERCENTAGE DIFFERENCE TO NATIONAL RATE BY LOCAL AUTHORITY DISTRICT - EAST OF ENGLAND

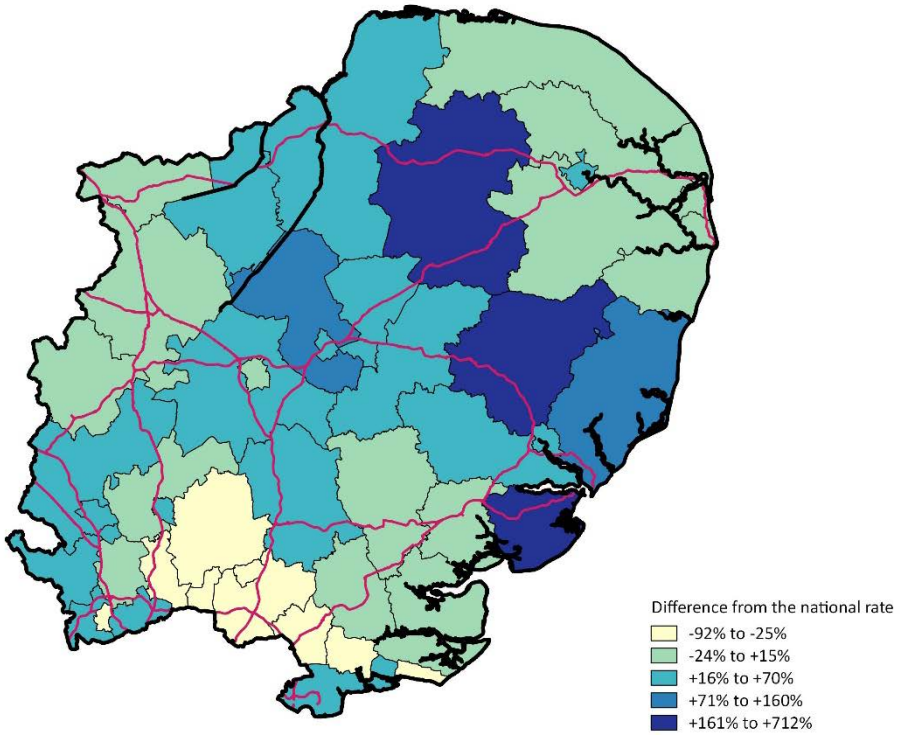


FIGURE 30 - PERCENTAGE DIFFERENCE TO NATIONAL RATE BY LOCAL AUTHORITY DISTRICT - LONDON

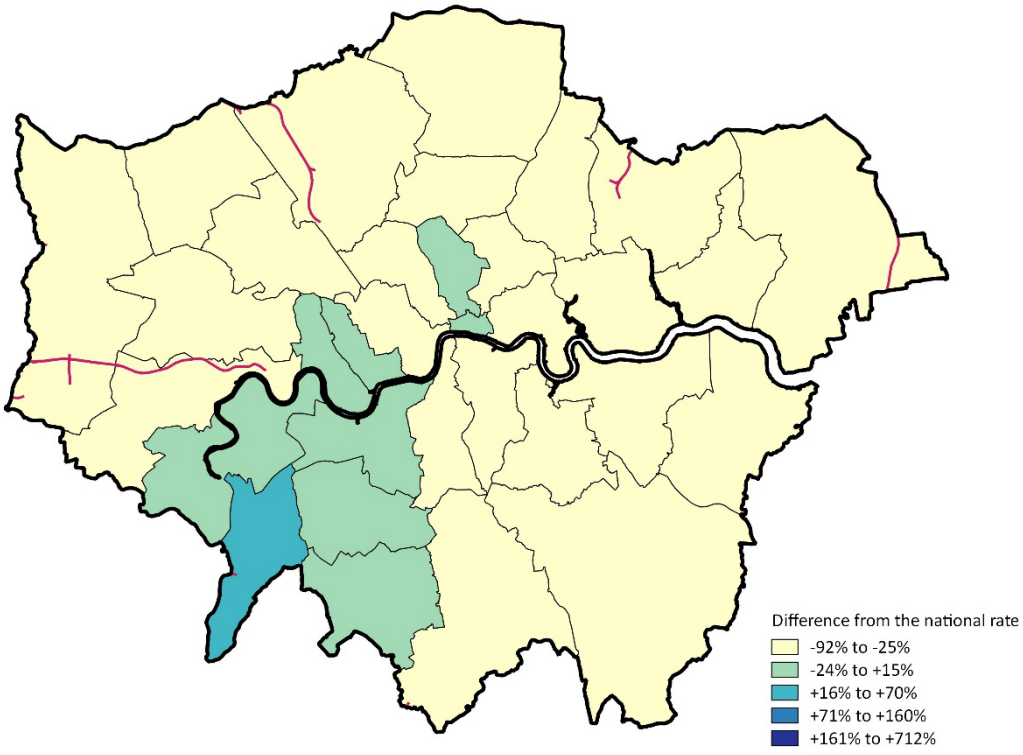


FIGURE 31 – PERCENTAGE DIFFERENCE TO NATIONAL RATE BY LOCAL AUTHORITY DISTRICT - MIDLANDS

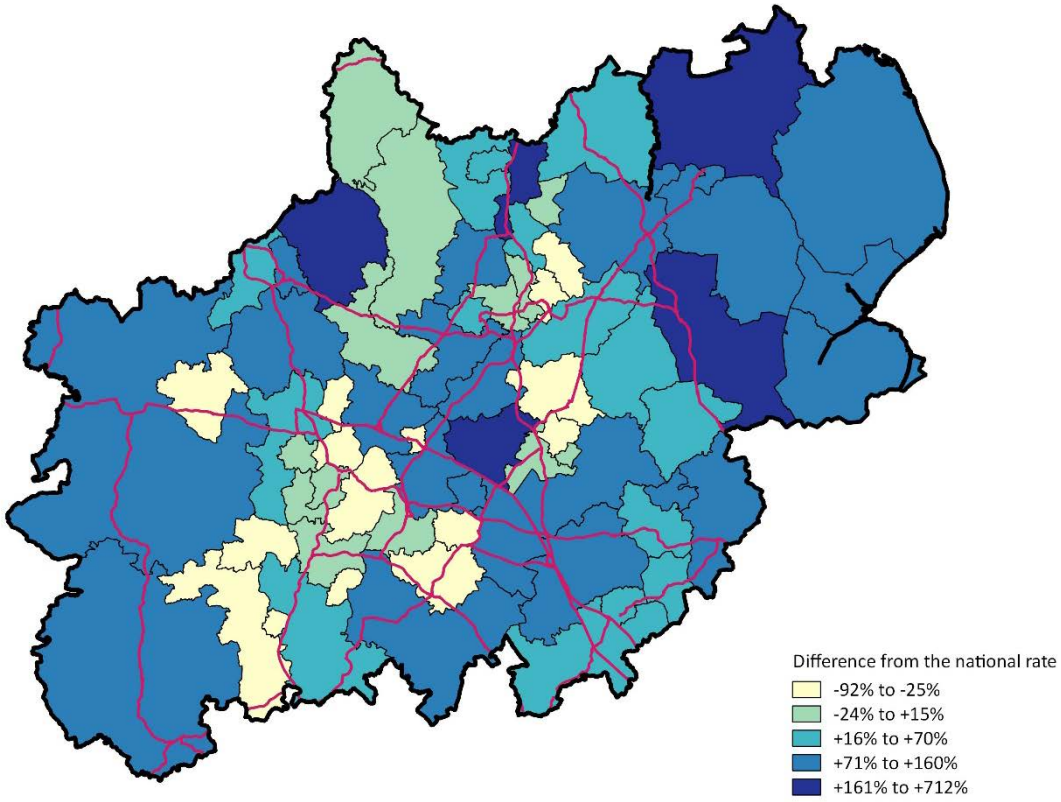


FIGURE 32 – PERCENTAGE DIFFERENCE TO NATIONAL RATE BY LOCAL AUTHORITY DISTRICT - NORTH WEST

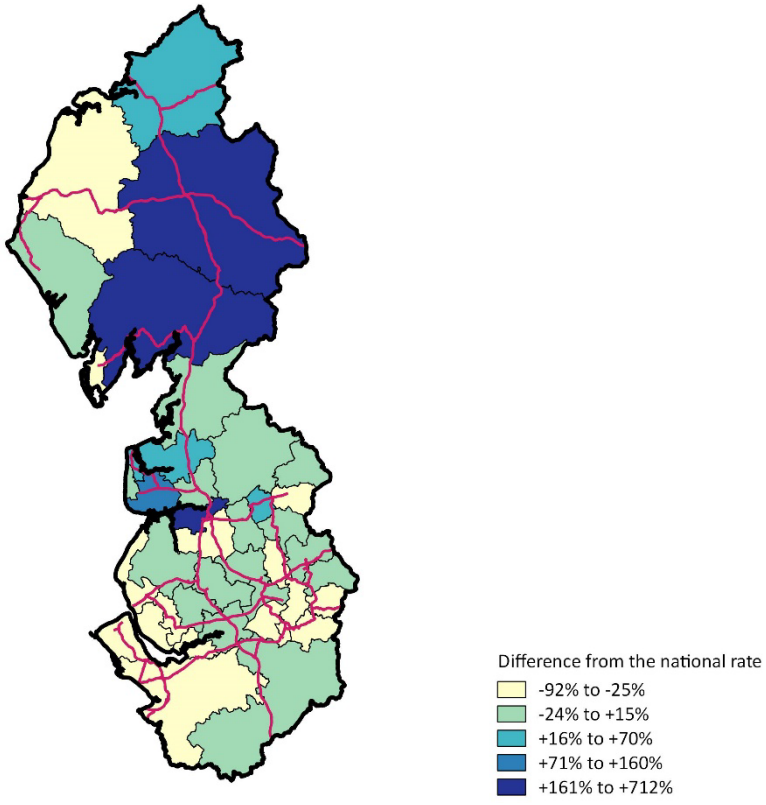


FIGURE 33 – PERCENTAGE DIFFERENCE TO NATIONAL RATE BY LOCAL AUTHORITY DISTRICT - SOUTH EAST

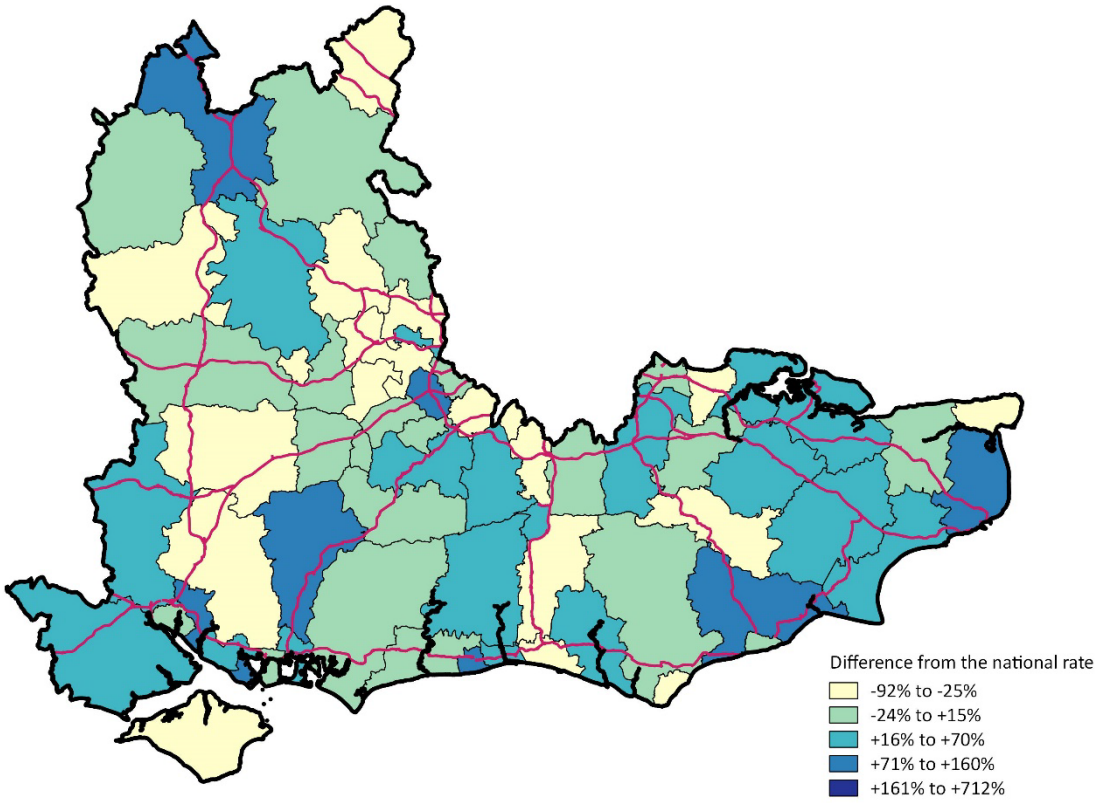


FIGURE 34 – PERCENTAGE DIFFERENCE TO NATIONAL RATE BY LOCAL AUTHORITY DISTRICT - SOUTH WEST

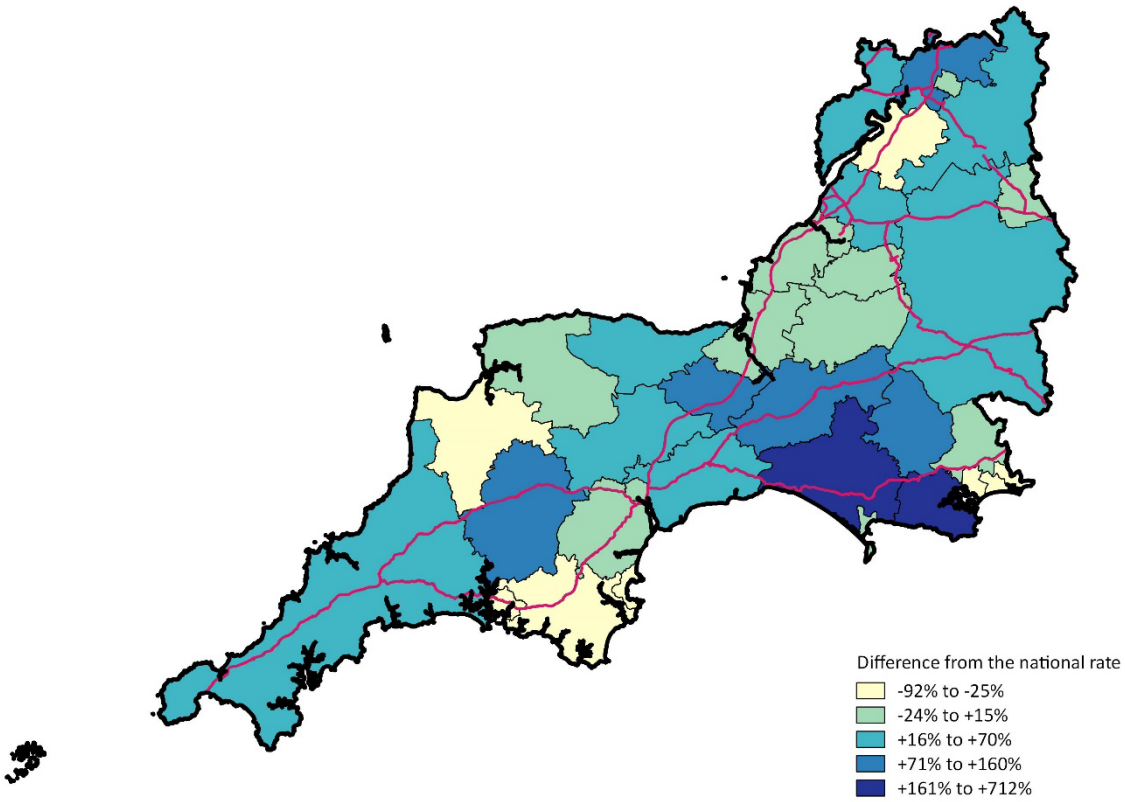


FIGURE 35 – PERCENTAGE DIFFERENCE TO NATIONAL RATE BY LOCAL AUTHORITY DISTRICT - YORKSHIRE AND NORTH EAST