YOUNG DRIVERS' RURAL ROAD RISK ANALYSIS

Introduction

The AA is planning to run an awareness campaign about the risks on rural roads specifically focussing on young drivers, defined here as those aged between 17 and 24 inclusive and excluding motorcyclists.

EuroRAP data includes the numbers of reported injury crashes on all rural 'A' roads in Britain, and these figures can be cross-referenced with the ages of the drivers involved. Two separate analyses have subsequently been conducted based on crash data for 2013-2018 inclusive to give, for each route:

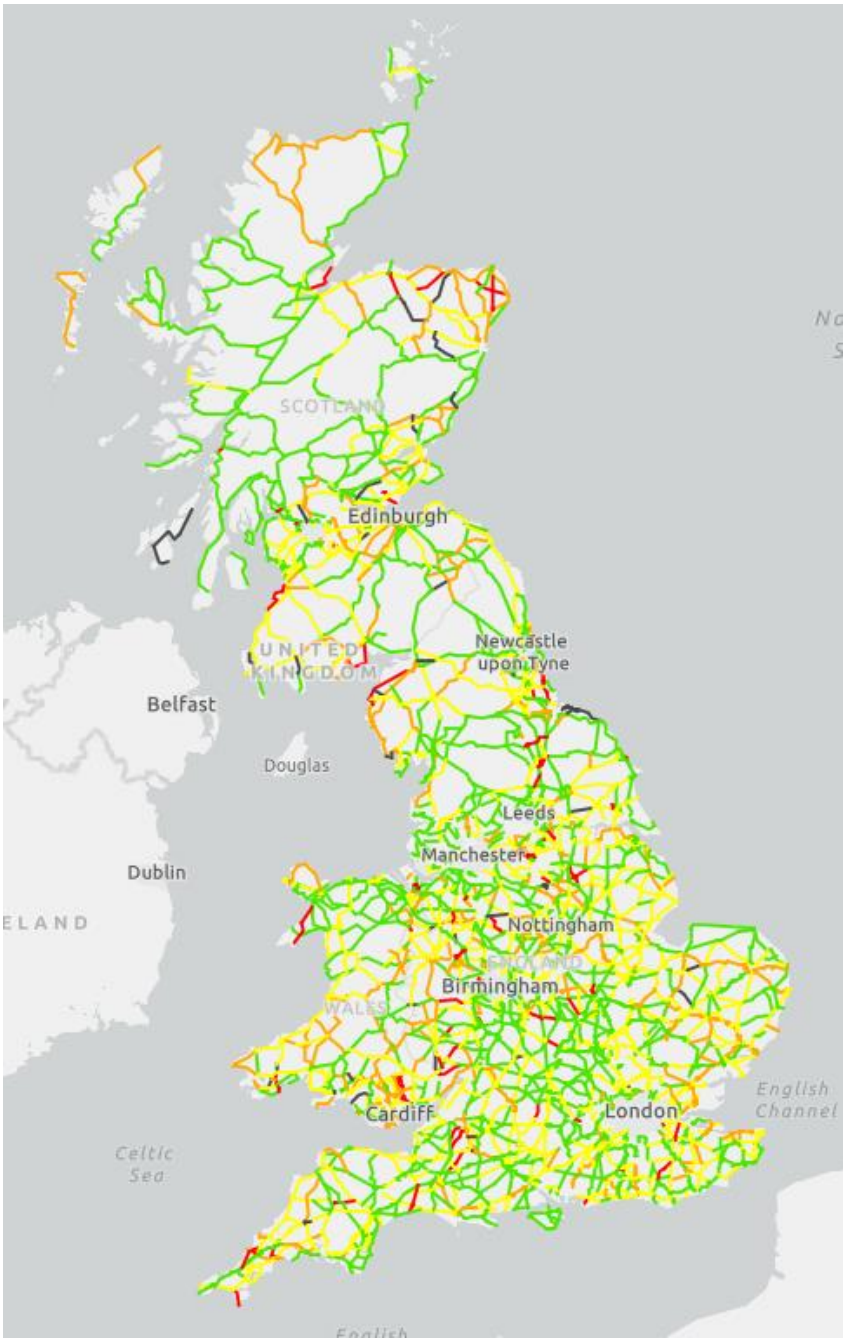
1. The percentage of crashes which involved young drivers, indicating the crash risk relative to that of other drivers
2. The number of crashes involving young drivers per kilometre, indicating the young driver collision density

A robust dataset indicating the proportion of travel on any given route which involves young drivers is not available. This means that it is not possible to ascertain, for each route, whether a relatively high proportion of crashes involving young drivers or a relatively high young driver crash density is because:

- Young drivers are more likely to be involved in a reported injury crash per kilometre driven,
- Young drivers use the road concerned more, or
- Some combination of the two.

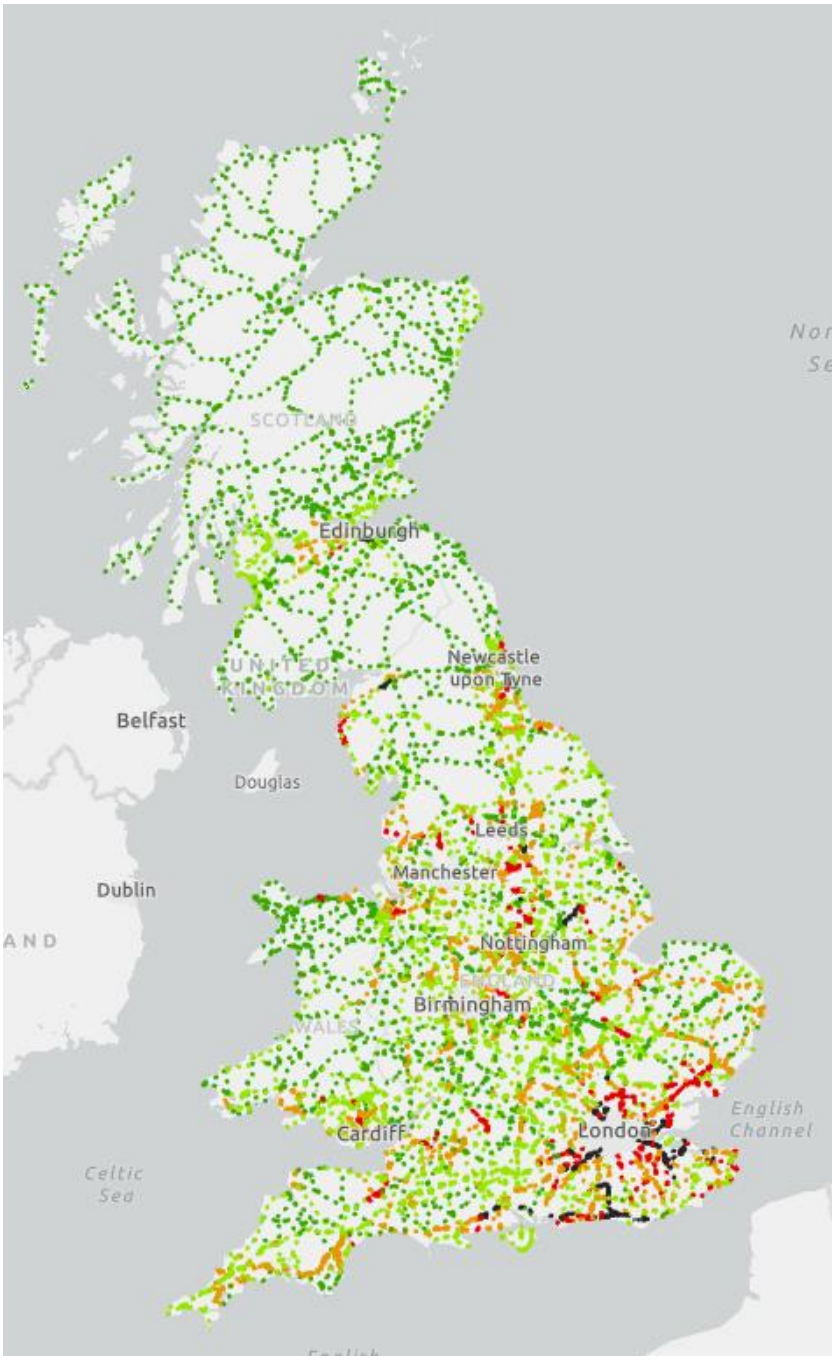
Nonetheless, these analyses remain informative in terms of the routes on which young drivers are most likely to be involved in a crash. The results of these analyses have been allocated to five different bands in both cases and these are presented on an interactive web map, screenshots of which appear on the following pages. Routes shown in green have a relatively low young driver crash risk or a relatively low young driver collision density, for example, whereas those shown in black have a relatively high young driver crash risk or a relatively high young driver collision density. The Road Safety Foundation and Agilysis have provided the data underpinning these web maps to the AA, along with the primary region, police force, local authority and road type associated with each route.

For example, the A52 in Derbyshire, managed by Highways England, is in the highest (worst) band for both young driver risk relative to other drivers and for young driver crash density, with 32 out of 82 reported injury crashes involving young drivers between 2013 and 2018; it is primarily a dual carriageway and is approximately 11km long. On the other hand, the A683 in Cumbria is primarily a single carriageway which is approximately 35km long with just one reported injury crash (out of 18) between 2013 and 2018 involving a young driver; this places it in the lowest (best) band for both young driver risk relative to other drivers and for young driver crash density. Few routes in England or Wales have as good a record for young drivers though various routes in Scotland have achieved a similar performance.



RSF Rural Routes by Percentage of all Crashes

- High
- Medium-high
- Medium
- Low-medium
- Low



RSF Rural Routes by Collision Density

- High
- Medium-high
- Medium
- Low-medium
- Low

In addition to the above analysis, we have carried out an exploratory analysis of the national picture for young drivers involved in collisions on all rural roads (i.e. not just rural 'A' roads) for 2013-2018 (six years). This exploratory analysis is available in full in a spreadsheet, and some of the key findings are:

- Young drivers are over-represented in rural road crashes relative to all roads by around 9%.
- July, August, October and November appear to be the most concerning months for crashes involving young drivers on rural roads: as well as these four months being those in which there are most crashes on rural roads involving young drivers, proportionally more crashes involving young drivers occur on rural roads in these months too.
- Young drivers appear to be proportionally more likely to be involved in reported injury crashes on rural roads in the morning.
- The proportion of crashes involving young drivers which are on Sundays is 9% higher on rural roads than it is on urban roads; the proportion of crashes on rural roads which are on Sundays is some 24% higher for young drivers than it is for other drivers.
- Substance impairment is attributed to a young driver in 9% of young driver rural road crashes on Sundays but just 4% on other days; it is most commonly attributed to young drivers in crashes between midnight and 8am.
- Fatigue is attributed to a young driver in 3% of young driver rural road crashes on Sundays compared with 2% on other days.
- Crashes involving young drivers on rural roads are much more likely to involve a single vehicle than is the case for other drivers.
- Although the general distribution across the year of single vehicle young driver rural road crashes is similar to that of all young driver rural road crashes, such crashes are most common in November, December and January.
- Single vehicle crashes involving young drivers on rural roads are most common at the weekends, and in the evenings and in the early hours: more than half of single vehicle young driver rural road crashes occur in the dark, compared with around a third of all young driver rural road crashes, and, on weekdays, over a quarter of single vehicle crashes involving young drivers on rural roads occur between 9pm and 1am.
- More than a third of crashes involving young drivers on rural roads in darkness are single vehicle run-offs; crashes involving young drivers on rural roads are more than twice as likely to be single vehicle run-offs when it is dark than during daylight.
- Almost a third of crashes involving young drivers on rural roads in adverse weather conditions are single vehicle run-offs; crashes involving young drivers on rural roads are more than 50% more likely to be single vehicle run-offs in adverse weather conditions than when the weather is fine. Almost a third of single vehicle young driver rural road crashes occur in adverse weather conditions, compared with a quarter of single vehicle young driver urban road crashes and with a fifth of all young driver rural road crashes.
- Almost a third of crashes involving young drivers on rural roads in adverse road surface conditions are single vehicle run-offs; crashes involving young drivers on rural roads are more than twice as likely to be single vehicle run-offs in adverse road surface conditions than in dry road surface conditions. More than half of single vehicle young driver rural road crashes occur in adverse surface conditions, compared with less than half of single vehicle

young driver urban road crashes and with less than half of all young driver rural road crashes.

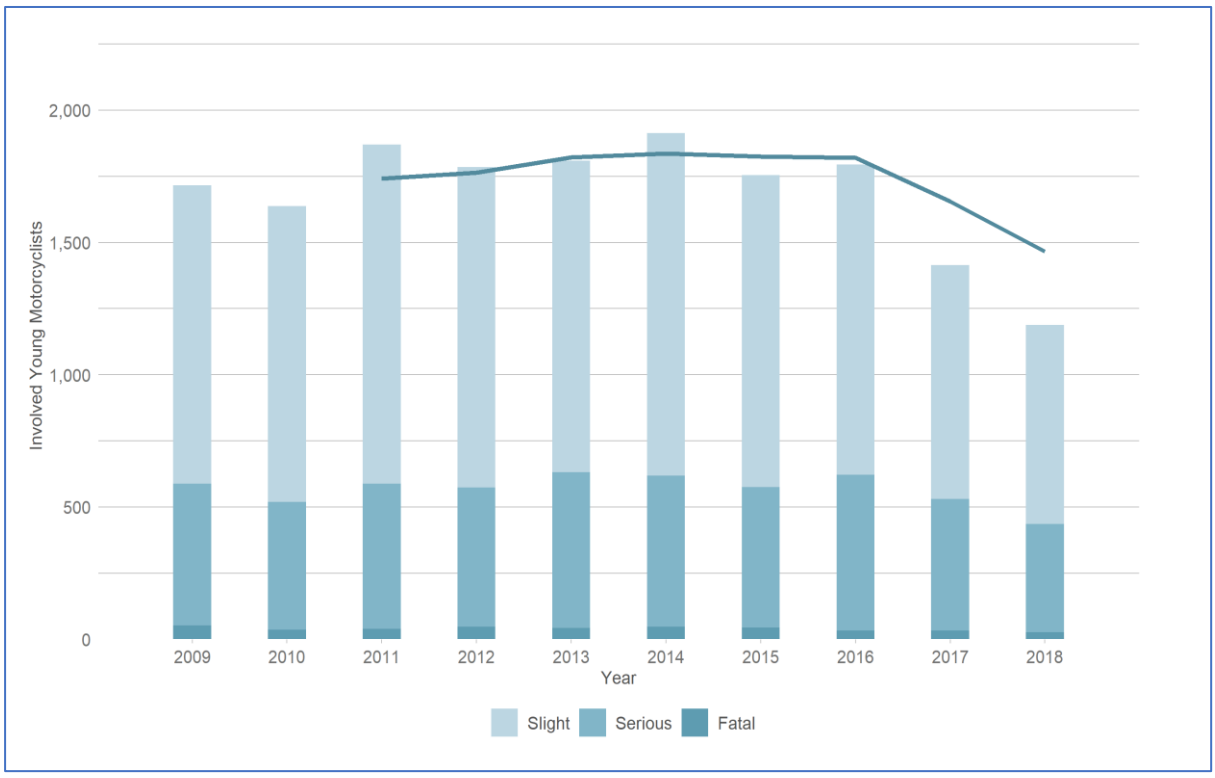
- Whilst the majority of single vehicle crashes involving young drivers on rural roads result in a single non-pedestrian casualty, more than a quarter result in more than one non-pedestrian casualty.
- 20% of single vehicle young driver rural road crashes result in a death or serious injury compared with 17% of all young driver rural road crashes.

The rest of this report describes some of these findings in more detail, having first presented an overview of the numbers of young motorcyclists involved in crashes on rural roads.

Disclaimer: This report has been prepared by the Road Safety Foundation and by Agilysis. Any errors or omissions are the authors' sole responsibility. Any views expressed in this report are those of the authors and not necessarily those of the Road Safety Trust.

Young motorcyclists involved in crashes on rural roads

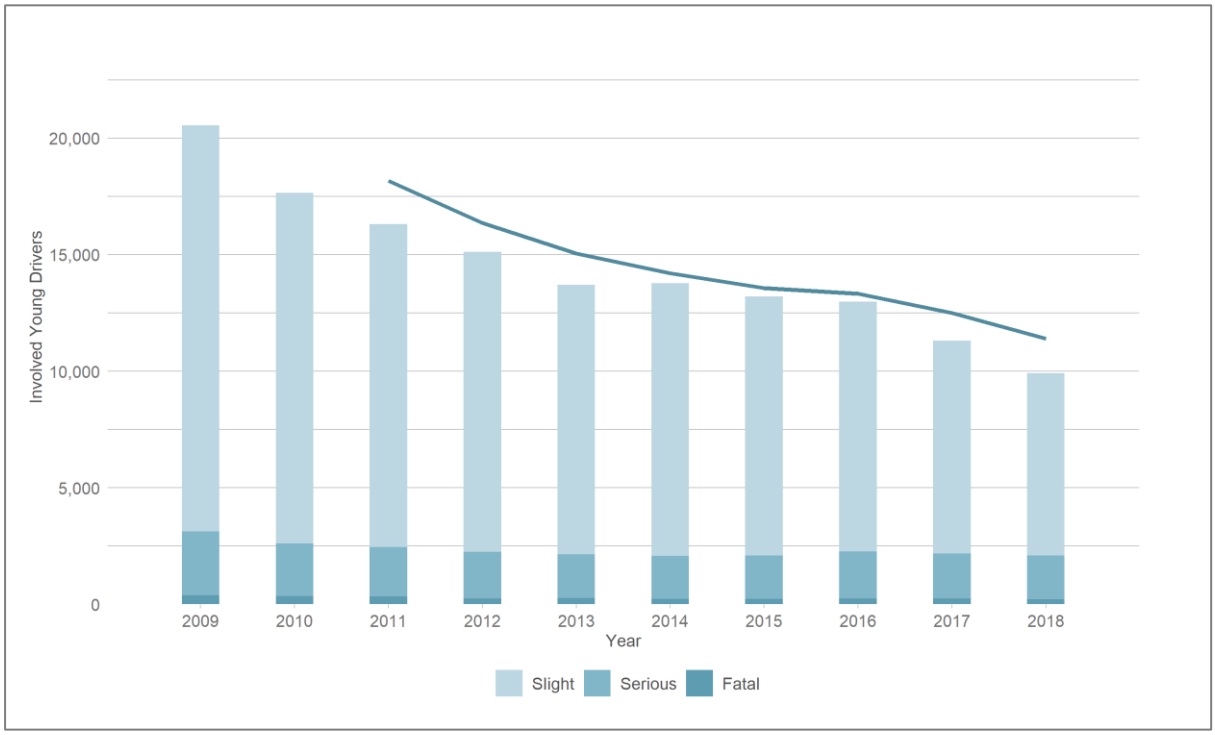
The number of young motorcyclists involved in reported injury crashes on all roads peaked in 2014 and has been falling since and this trend is reflected on rural roads. The following graph indicates the numbers specifically on rural roads, the solid line representing the three-year rolling average.



In 2018, 58 young motorcyclists were involved in collisions in which someone was killed, of which 26 were on rural roads. A further 1,431 young motorcyclists were involved in collisions in which the most severely injured person was seriously injured, of which 409 were on rural roads.

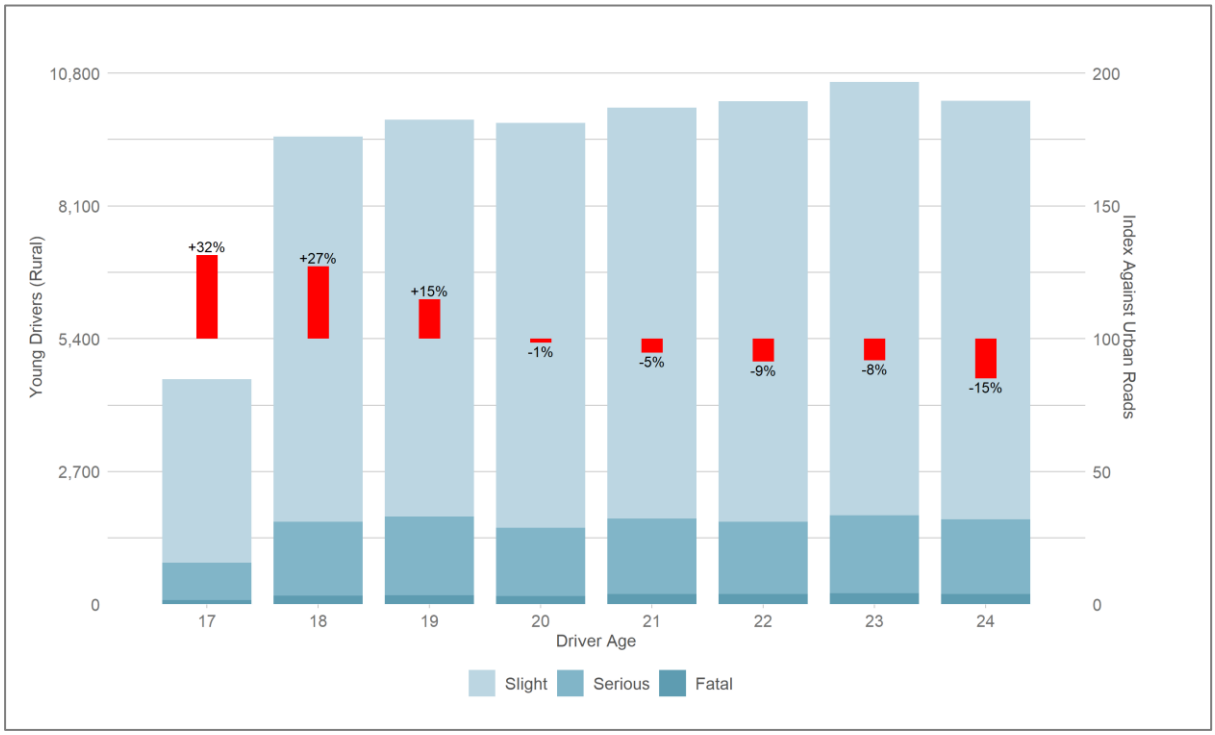
Young drivers involved in crashes on rural roads

The number of young drivers involved in reported injury crashes on all roads has been falling over the last decade and this trend is also reflected on rural roads. The following graph indicates the numbers specifically on rural roads, the solid line representing the three-year rolling average.

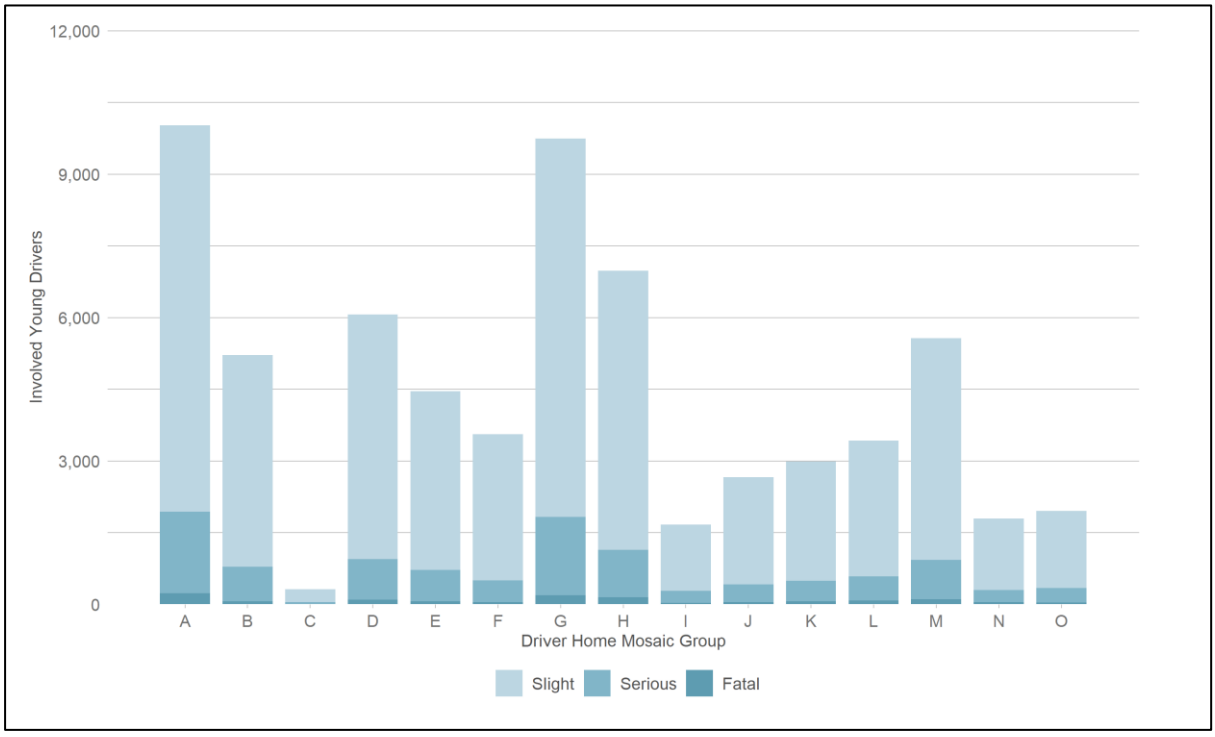


In 2018, 314 young drivers were involved in collisions in which someone was killed, of which 217 were on rural roads. A further 3,933 young drivers were involved in collisions in which the most severely injured person was seriously injured, of which 1,874 were on rural roads. Young drivers accounted for 16% of drivers who were killed or seriously injured on rural roads; **young drivers are over-represented in rural road crashes relative to all roads by around 9%.** That is, young drivers had 9% more crashes on rural roads than would have been the case were the distribution of crashes by age band the same on all roads.

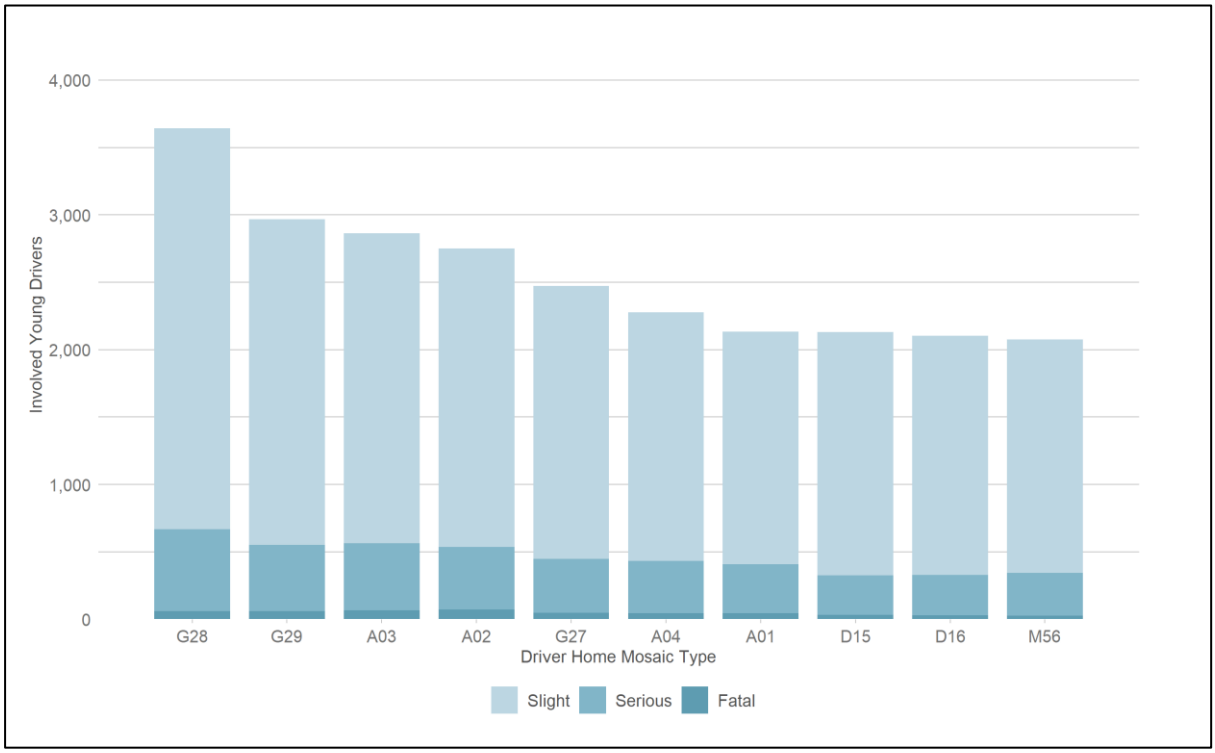
The following graph shows that the degree to which young drivers are over-represented in crashes on rural roads relative to urban roads is highest at 17 and falls with age and/or experience.



The most common Mosaic groups which young drivers involved in crashes on rural roads are from are groups A and G as the following graph shows.

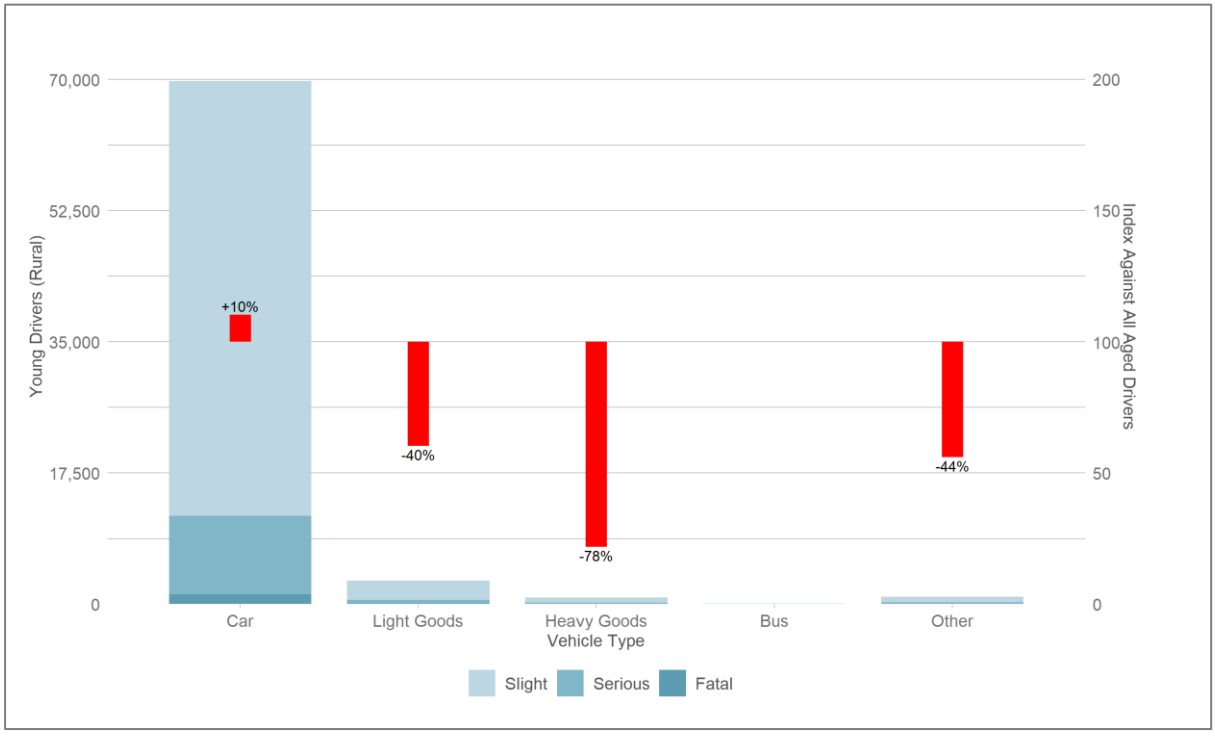


The frequency of the ten most common sub-groups are displayed in the graph below.



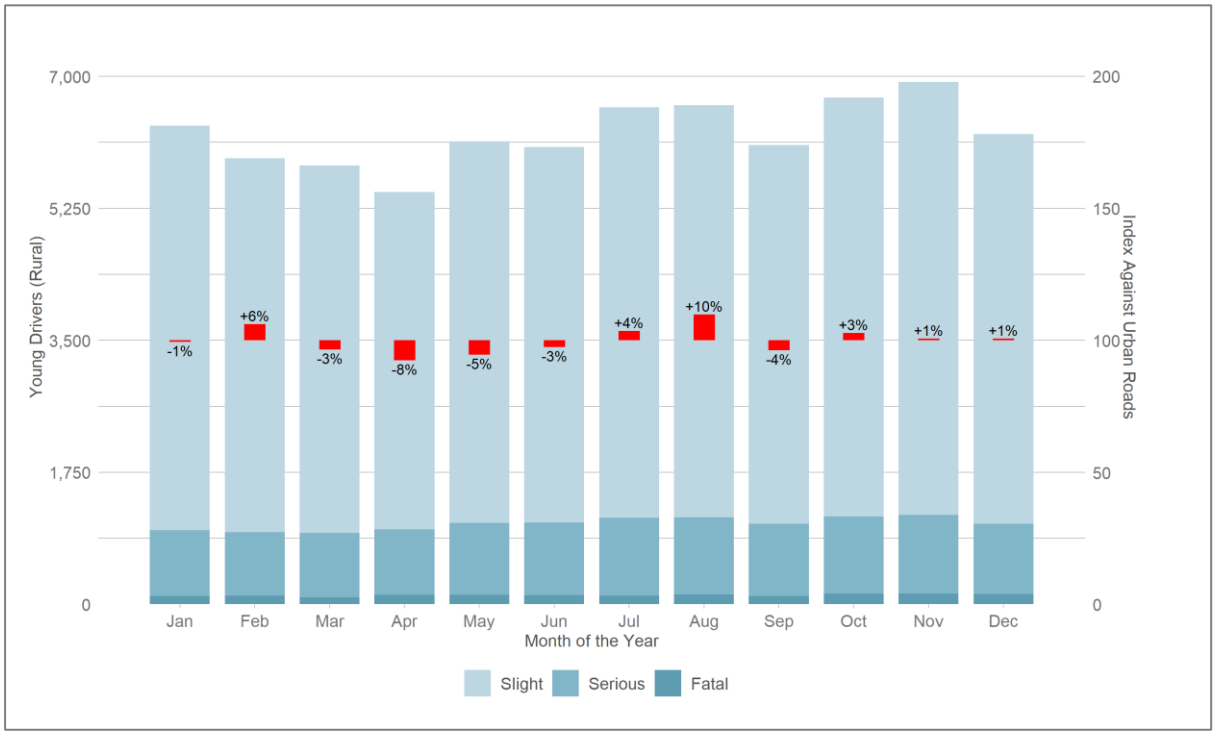
Young driver rural road crashes vehicle types

As would be expected, the vast majority of young drivers involved in crashes on rural roads are car drivers; however, as the following graph shows, the proportion of car crashes on rural roads which involve young drivers is higher than is the case for other vehicle types.



Young driver rural road crashes by month

July, August, October and November appear to be the most concerning months for crashes involving young drivers on rural roads, as the following graph shows. There are more crashes per day of this type in these months than in other months.

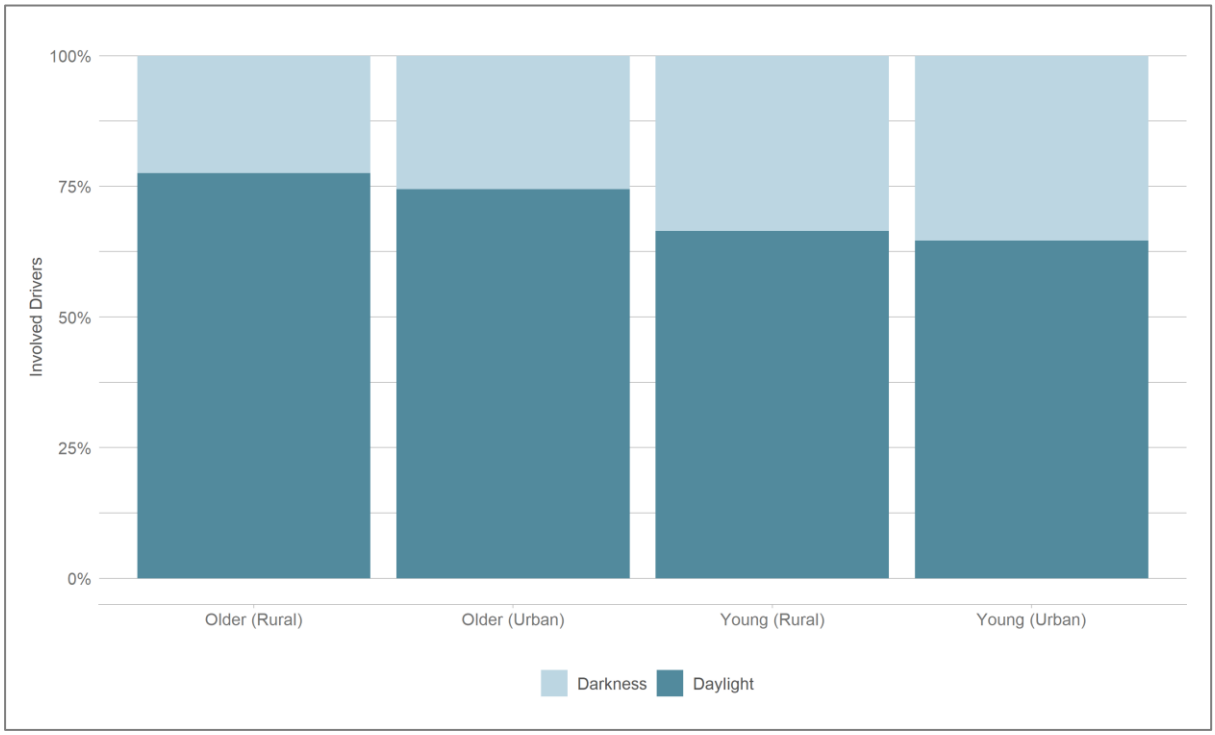


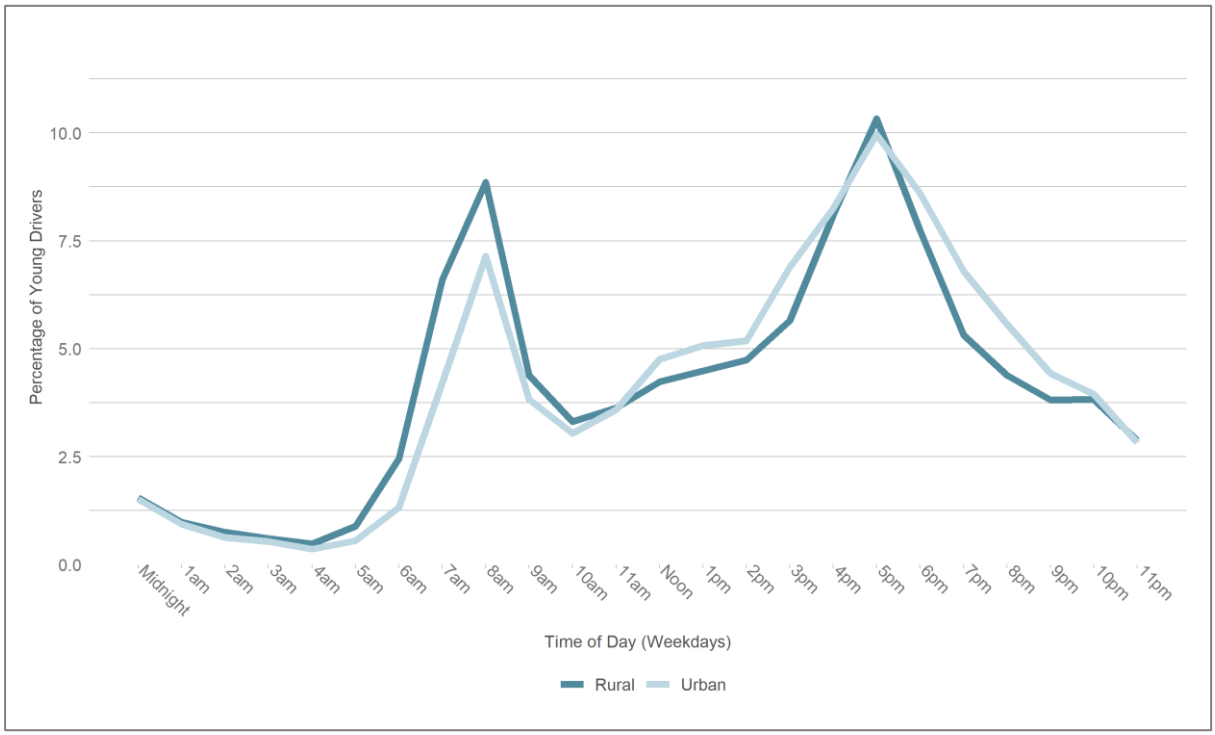
As well as these four months being those in which there are most crashes on rural roads involving young drivers, proportionally more crashes involving young drivers occur on rural roads in these months too. While February and December also appear to be over-represented relative to urban roads, the lower numbers of rural crashes in these months suggest that this is primarily due to lower numbers of crashes involving young drivers on urban roads in these months.

Young driver rural road crashes by time of day

Young drivers are involved in proportionally more reported injury crashes in darkness relative to older drivers, both in urban and rural areas, though the majority are in daylight in both cases, as the following graph shows.

The next two graphs then depict the time of day when crashes involving young drivers occur, the first indicating times on weekdays and the second at the weekend.

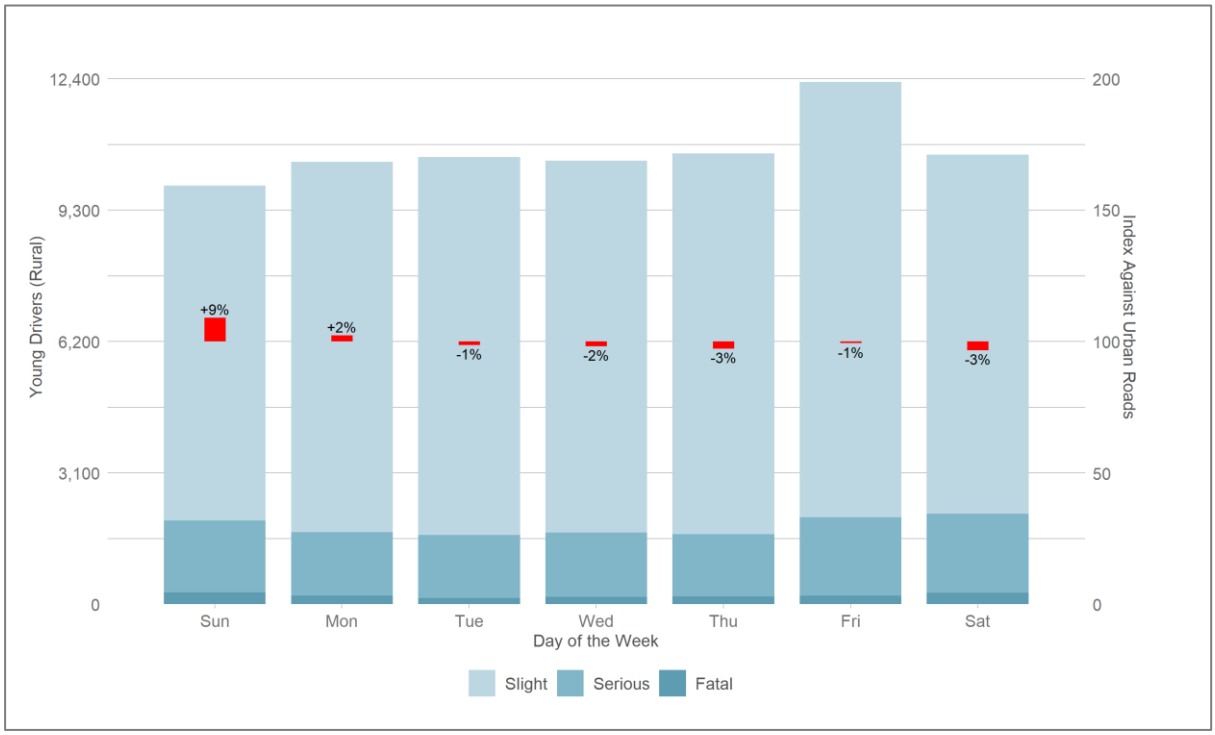

100%
75%
50%
25%
0%
Involved Drivers
Older (Rural)
Older (Urban)
Young (Rural)
Young (Urban)
Darkness
Daylight


10.0
7.5
5.0
2.5
0.0
Percentage of Young Drivers
Midnight
1am
2am
3am
4am
5am
6am
7am
8am
9am
10am
11am
Noon
1pm
2pm
3pm
4pm
5pm
6pm
7pm
8pm
9pm
10pm
11pm
Time of Day (Weekdays)
Rural
Urban

The most common times of day for young drivers to be involved in reported injury crashes are broadly the same on rural roads as on urban roads: on weekdays, for example, both the rural and urban distributions have peaks between 6am and 10am and between 4pm and 8pm, probably reflecting the times of day when the roads are busiest. However, there is some variation: **young drivers appear to be proportionally more likely to be involved in reported injury crashes on rural roads in the morning** and proportionally more likely to be involved in reported injury crashes on urban roads in the evening.

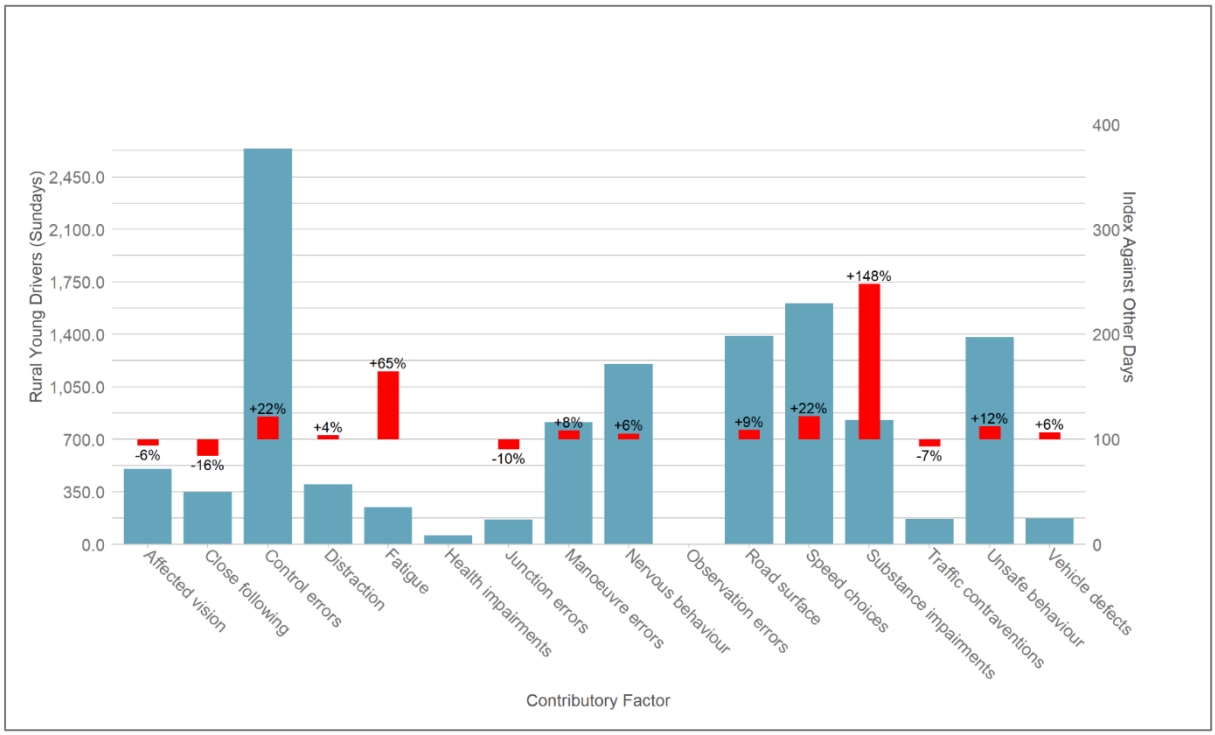
Young driver rural road crashes by day of week

Fridays account for more young driver crashes on rural roads than any other day, though the proportion of reported injury crashes involving young drivers on rural roads is slightly lower than average on Fridays, as the following graph shows. While Sundays account for the fewest young driver crashes on rural roads, this is when the proportion of reported injury crashes involving young drivers on rural roads is highest: **the proportion of crashes involving young drivers which are on Sundays is 9% higher on rural roads than it is on urban roads.** That is, there are 9% more crashes involving young drivers on rural roads on Sundays than would be the case if the proportion of crashes involving young drivers on Sundays been the same as it is on urban roads. **The proportion of crashes on rural roads which are on Sundays is some 24% higher for young drivers than it is for other drivers.**



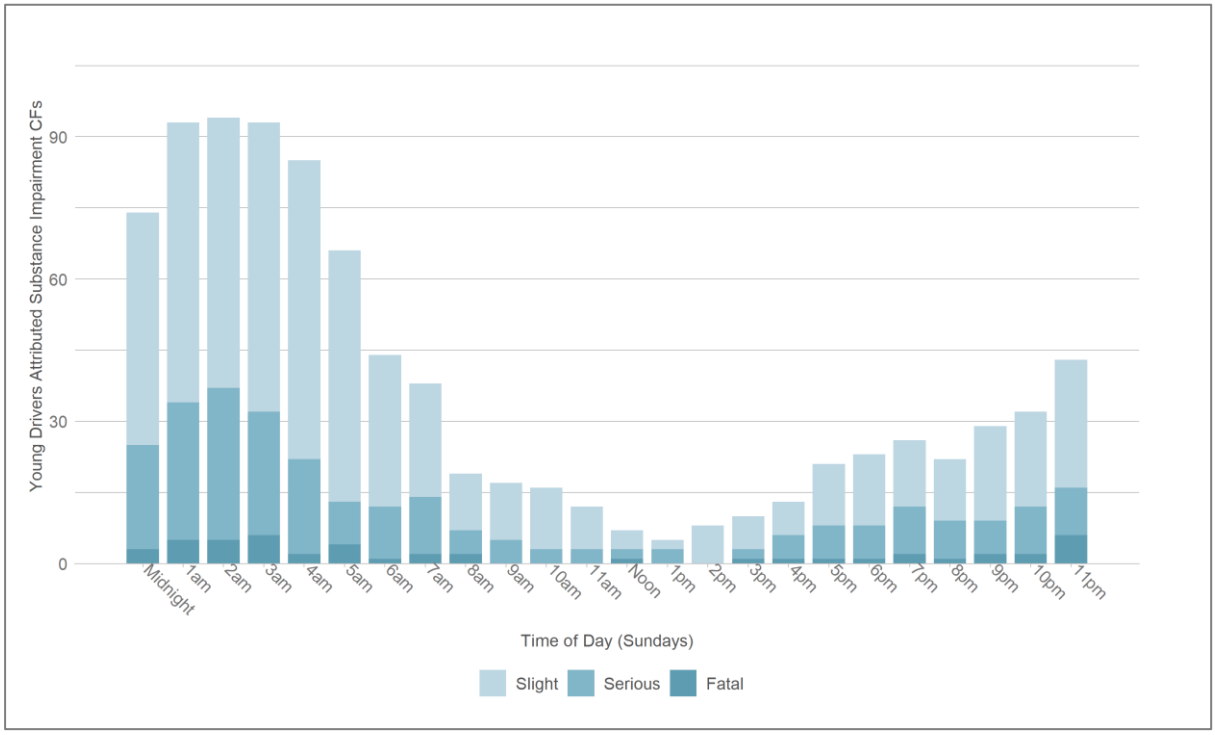
Contributory factors in young driver rural road crashes on a Sunday

The graph below displays the frequency with which different contributory factors are reported by the police for crashes involving young drivers on rural roads which occurred on a Sunday.



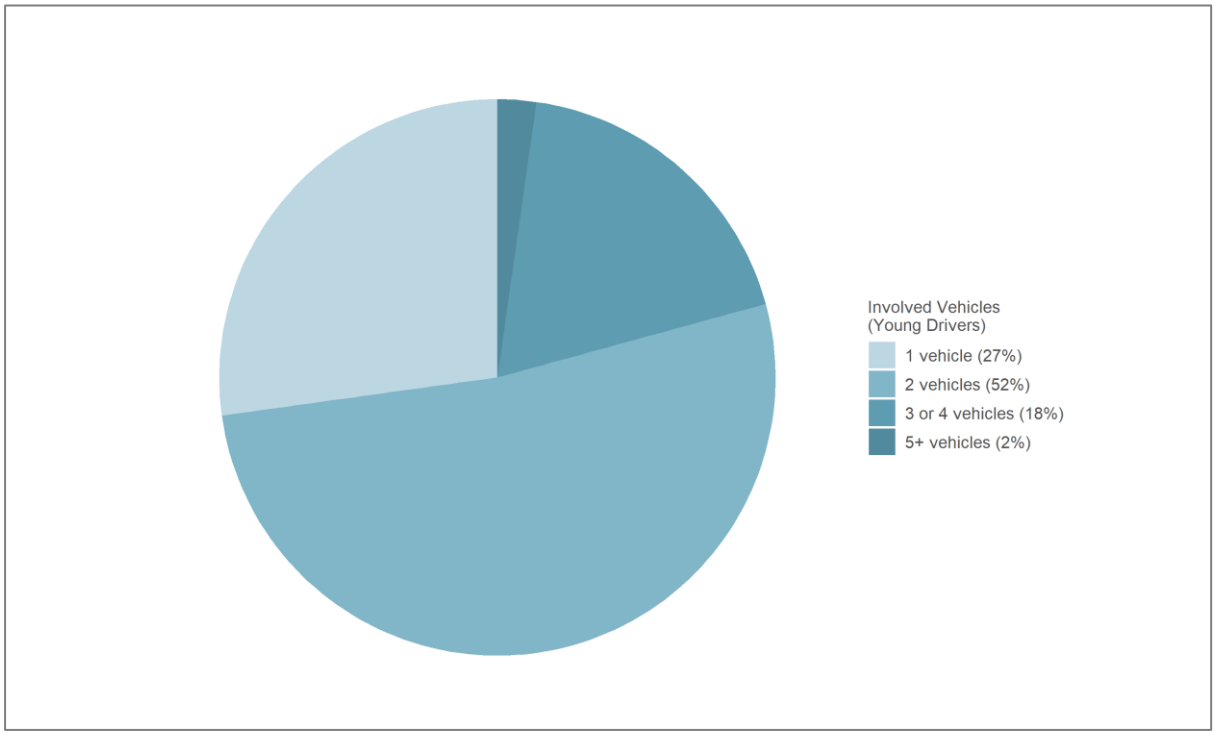
While control errors and speed choices are the most common contributory factor types associated with young driver crashes on rural roads on Sundays, substance impairments and fatigue are attributed to young drivers even more disproportionately on Sundays relative to other days: **substance impairment is attributed to a young driver in 9% of young driver rural road crashes on Sundays but just 4% on other days; fatigue is attributed to a young driver in 3% of young driver rural road crashes on Sundays compared with 2% on other days.** (By way of further comparison, in urban areas, fatigue is attributed to a young driver in less than 1% of young driver crashes.)

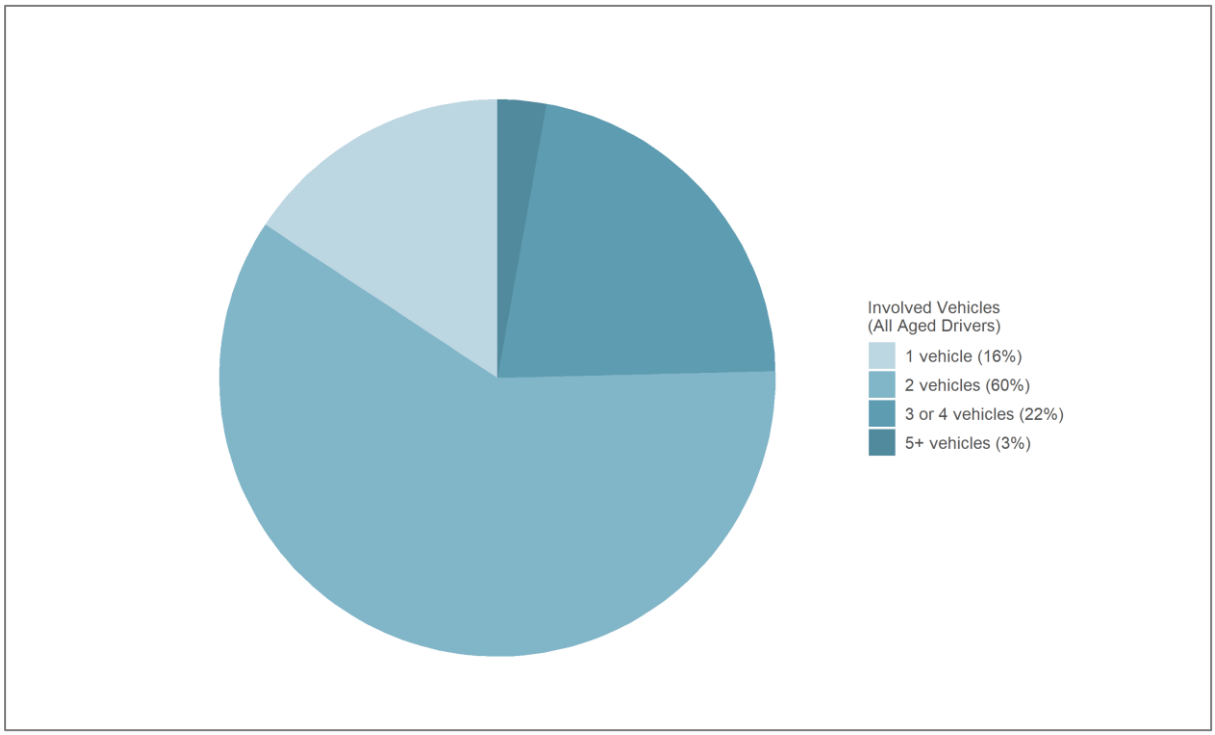
Substance impairment is most commonly attributed to young drivers in crashes between midnight and 8am as shown below; the pattern with fatigue appears to be similar but is not as clear given the relatively small numbers involved.



Young driver rural road crash types

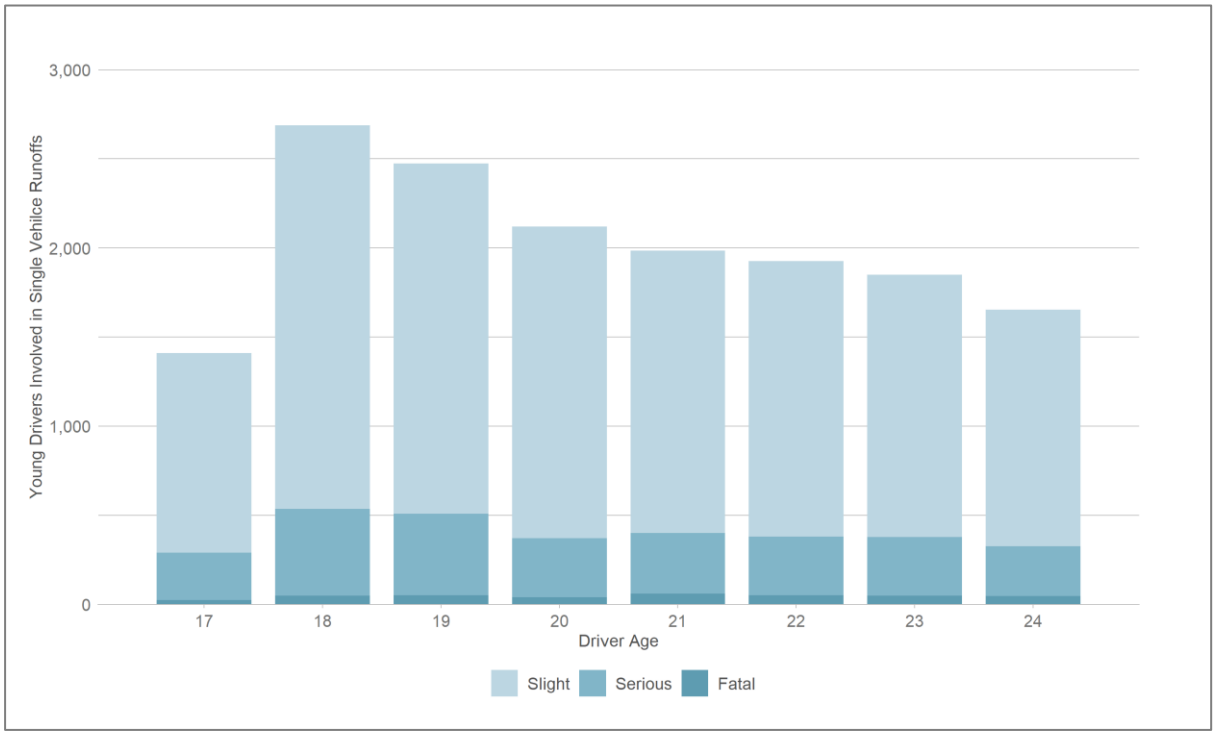
Relative to crashes involving other drivers on rural roads, crashes involving young drivers on rural roads are more likely to be away from a junction. As the pie charts below show, **crashes involving young drivers on rural roads are much more likely to involve a single vehicle than is the case for other drivers**.





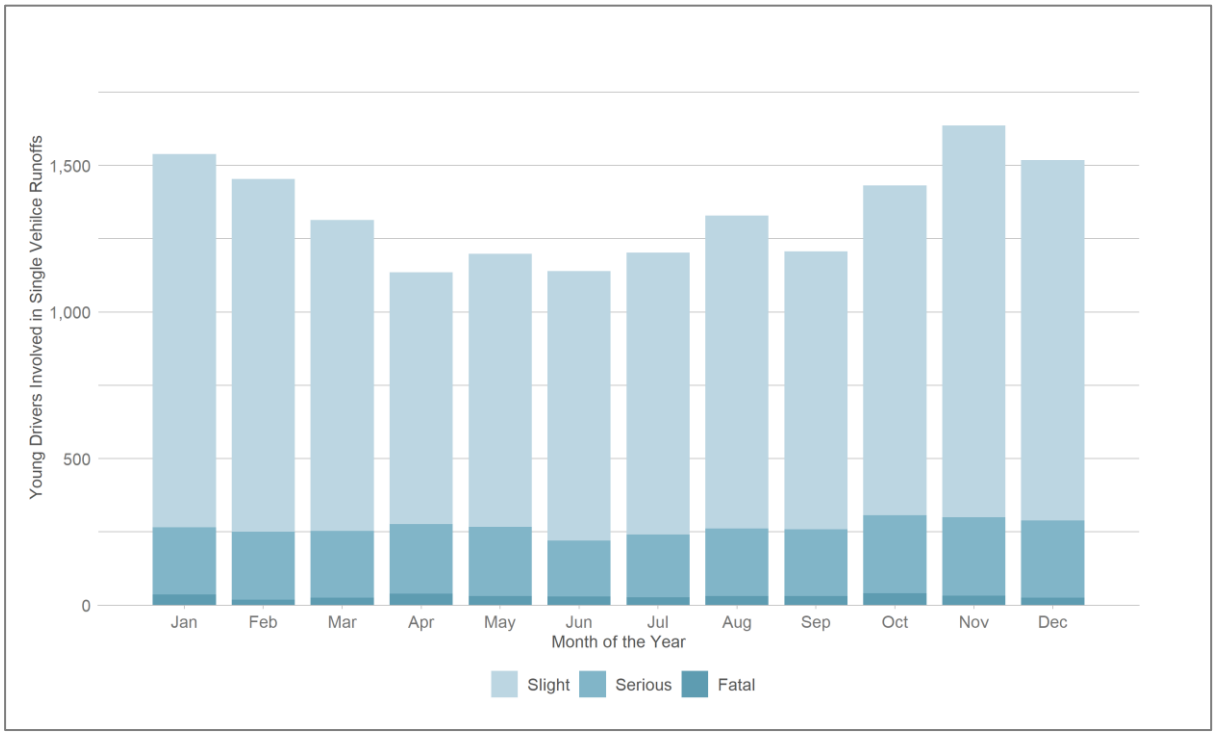
Single vehicle young driver rural road crashes

Single vehicle young driver rural road crashes are most common at 18 and fall reasonably rapidly with age/experience as the graph below shows.



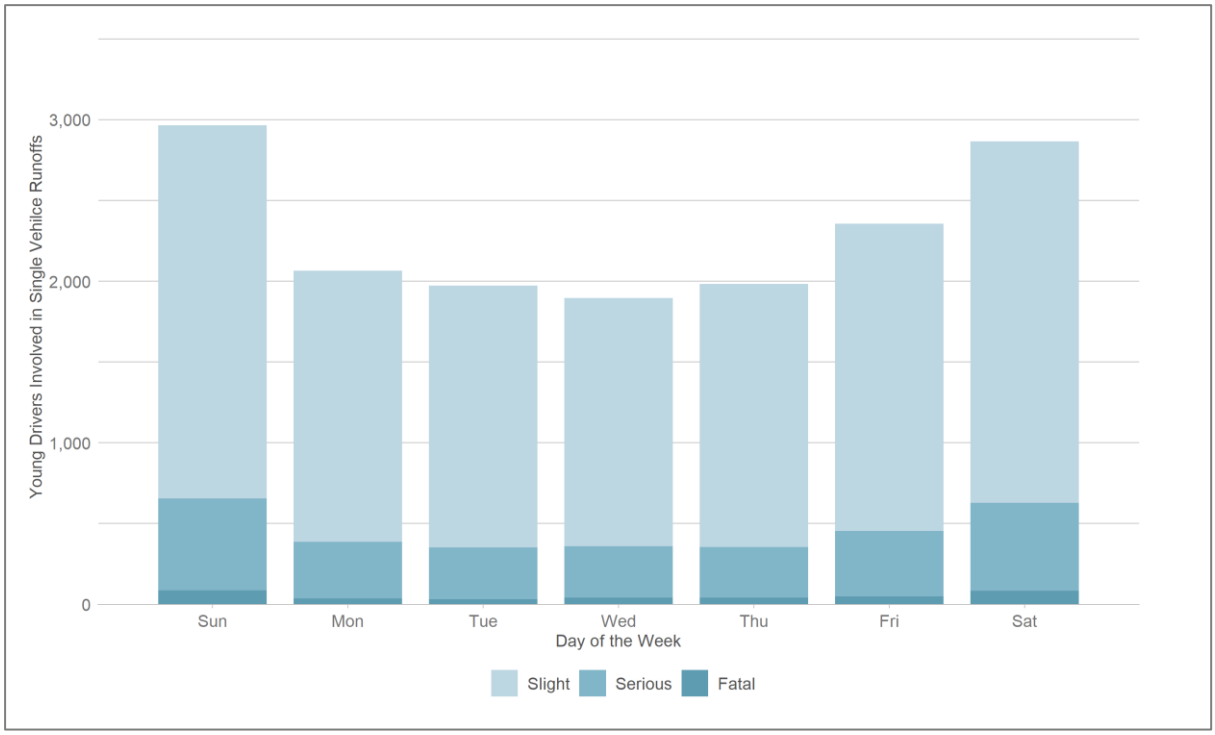
Single vehicle young driver rural road crashes by month

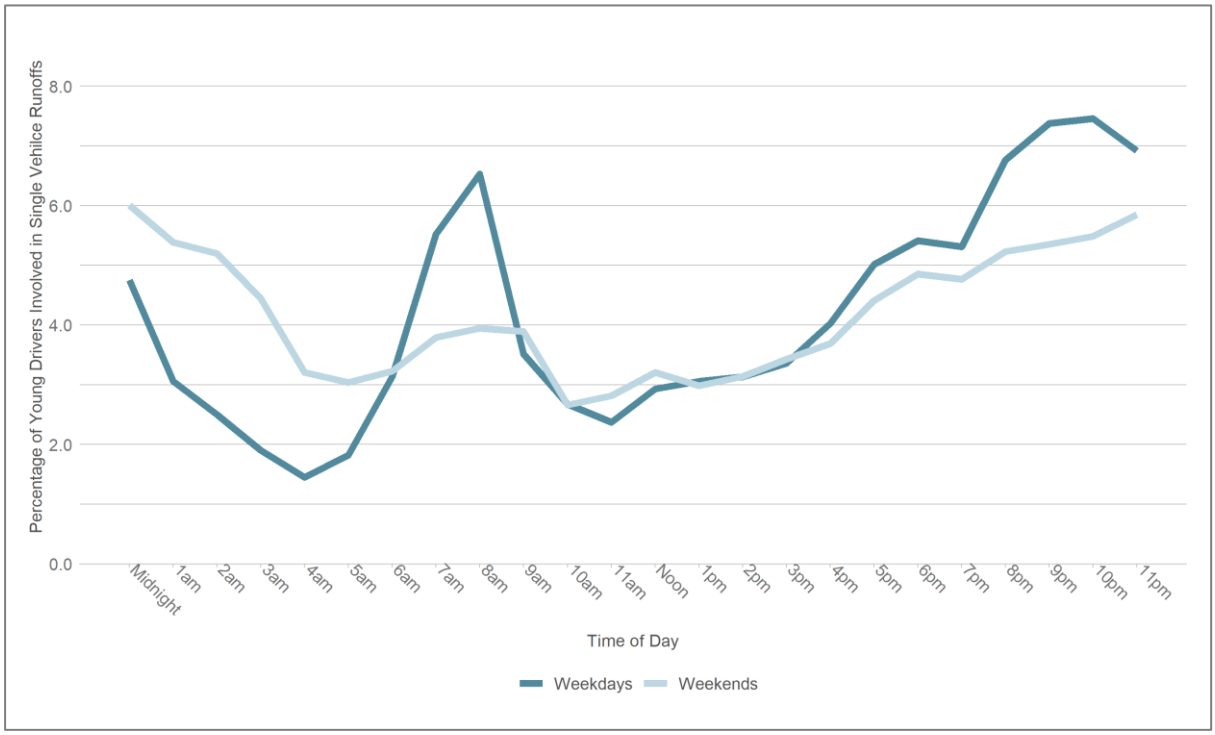
Although the general distribution across the year of single vehicle young driver rural road crashes is similar to that of all young driver rural road crashes such crashes are most common in November, December and January, as the following graph shows**.**



Single vehicle young driver rural road crashes by day of week and time of day

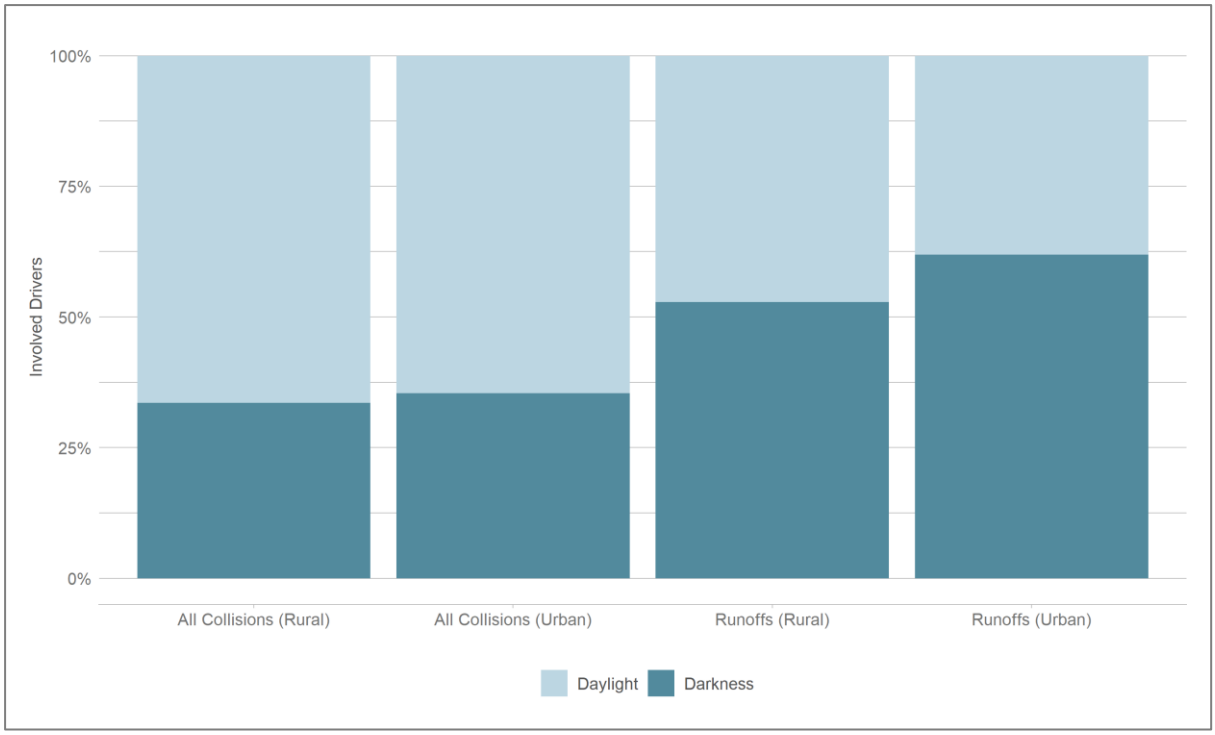
Single vehicle crashes involving young drivers on rural roads are most common at the weekends, and in the evenings and early hours, as the following graphs show. There are almost 50% more single vehicle crashes involving young drivers on rural roads on both Saturday and Sunday than on the average weekday.





These ‘time of day’ distributions are broadly consistent with the similar styles of graph presented for all crashes involving young drivers earlier in this report, which had peaks in the morning and in the early evening. However, the proportion of single vehicle crashes involving young drivers on rural roads later in the evening is noticeably larger and more concerning: **on weekdays, over a quarter of single vehicle crashes involving young drivers on rural roads occur between 9pm and 1am.**

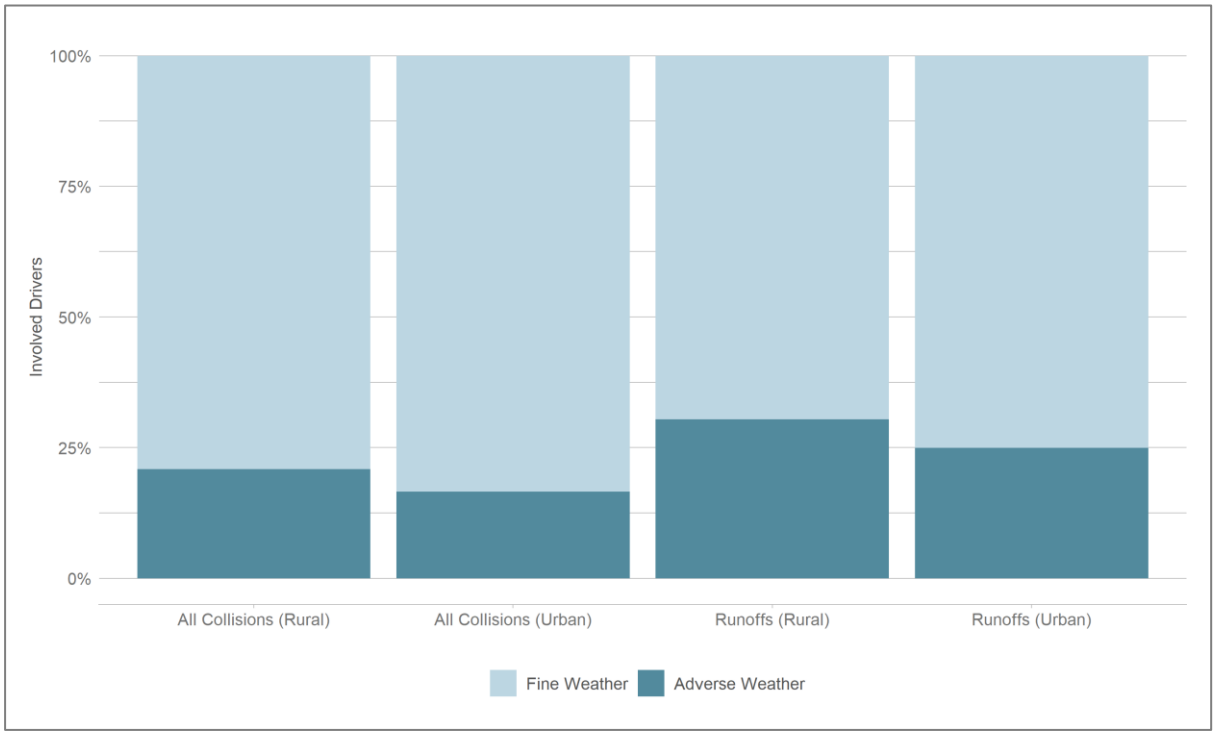
More than half of single vehicle young driver road crashes occur in the dark on both urban and rural roads, compared with around a third of all young driver crashes on both road types, as the following graph shows**.**



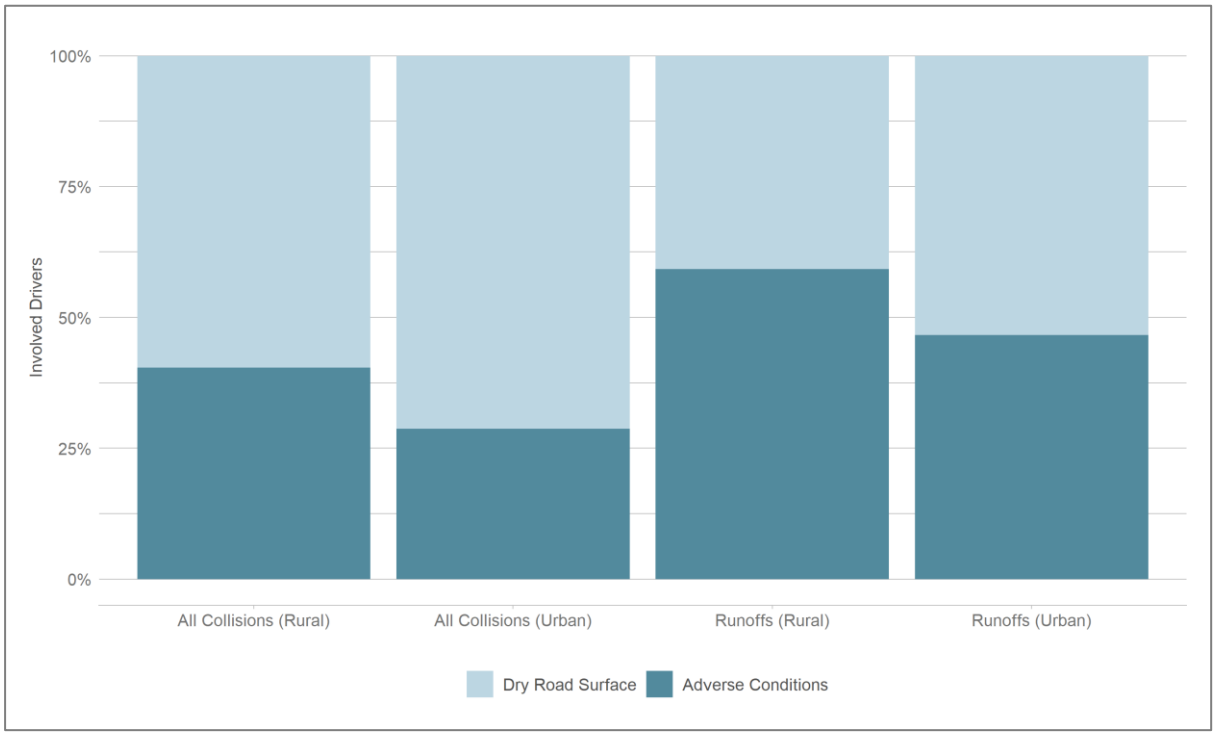
More than a third of crashes involving young drivers on rural roads in darkness are single vehicle run-offs; crashes involving young drivers on rural roads are more than twice as likely to be single vehicle run-offs when it is dark than during daylight.

Single vehicle young driver rural road crashes by weather and surface conditions

Almost a third of crashes involving young drivers on rural roads in adverse weather conditions are single vehicle run-offs; crashes involving young drivers on rural roads are more than 50% more likely to be single vehicle run-offs in adverse weather conditions than when the weather is fine. Almost a third of single vehicle young driver rural road crashes occur in adverse weather conditions, compared with a quarter of single vehicle young driver urban road crashes and with a fifth of all young driver rural road crashes, as the following graph shows**.**

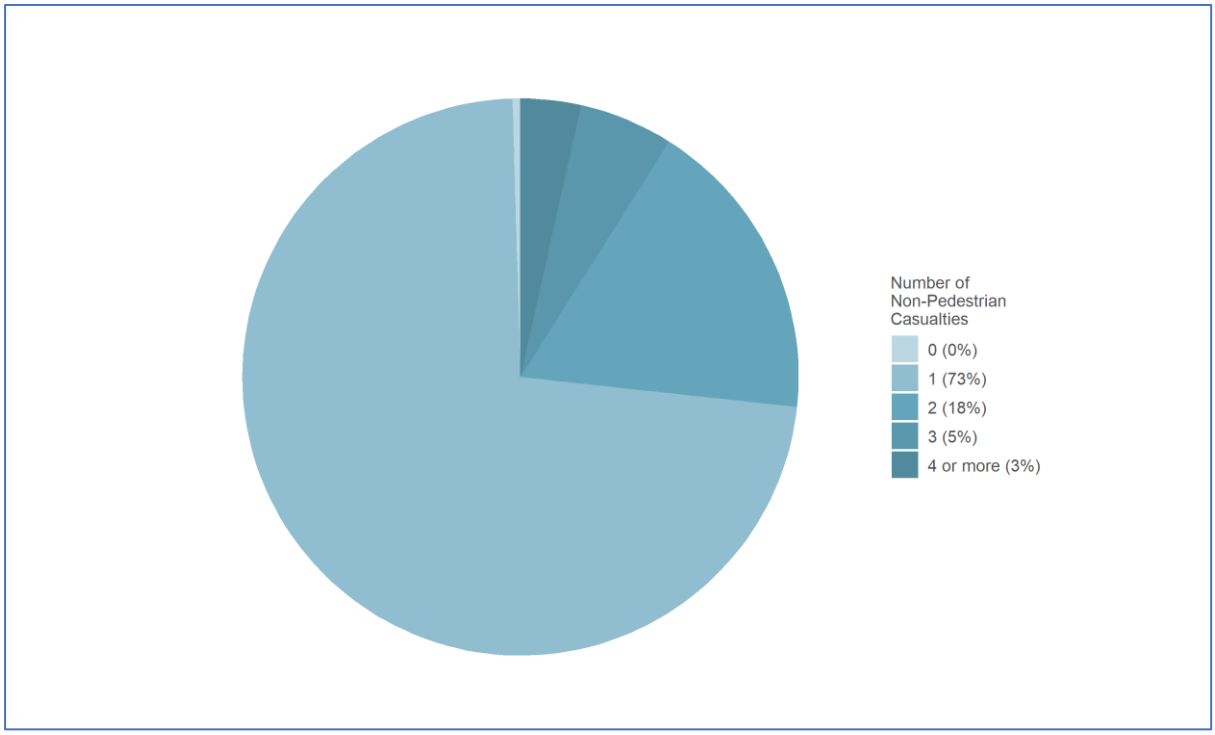


Almost a third of crashes involving young drivers on rural roads in adverse road surface conditions are single vehicle run-offs; crashes involving young drivers on rural roads are more than twice as likely to be single vehicle run-offs in adverse road surface conditions than in dry road surface conditions. More than half of single vehicle young driver rural road crashes occur in adverse surface conditions, compared with less than half of single vehicle young driver urban road crashes and with less than half of all young driver rural road crashes, as the following graph shows.



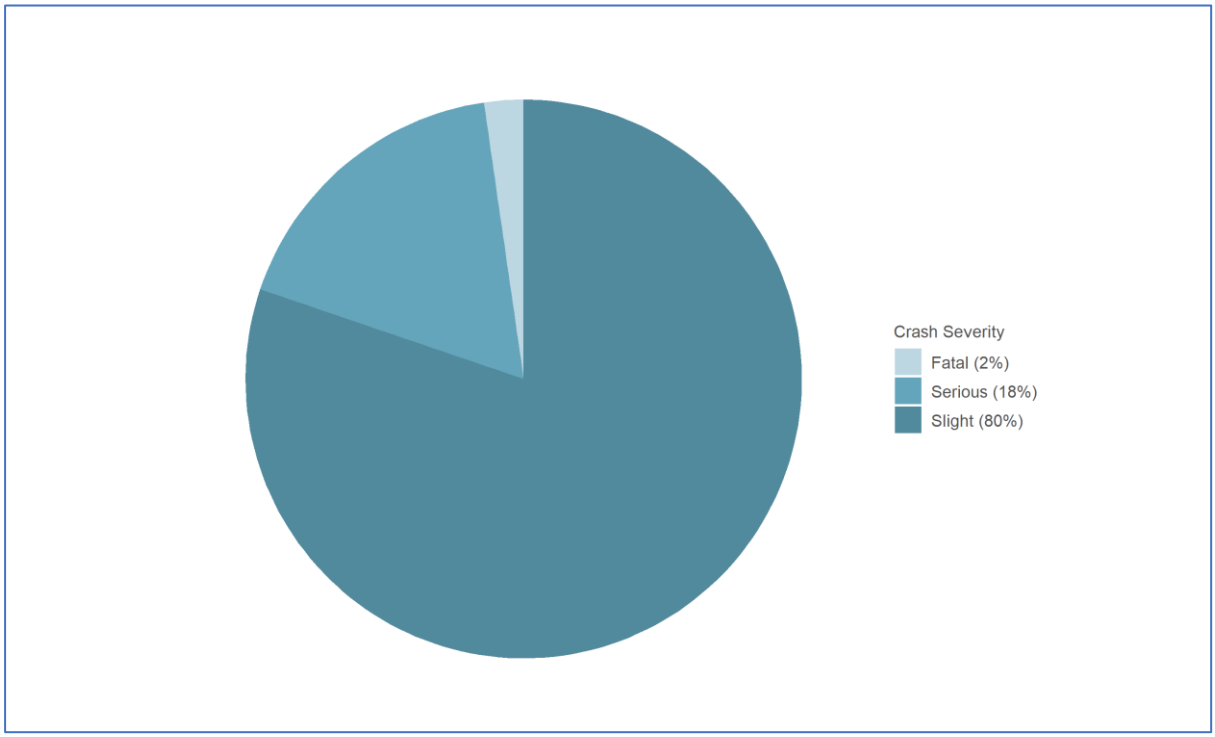
Single vehicle young driver rural road crashes by number of non-pedestrian casualties

Whilst the majority of single vehicle crashes involving young drivers on rural roads result in a single non-pedestrian casualty, more than a quarter result in more than one non-pedestrian casualty, as the following graph shows. (In many single non-pedestrian casualty cases, the casualty is likely to be the young driver themselves though, in some such cases, a passenger may be the casualty with the young driver being uninjured.)



Single vehicle young driver rural road crash severities

The most severely injured person in the majority of reported injury crashes involving a single vehicle and a young driver on a rural road is slightly injured, as the following graph shows.



20% of single vehicle young driver rural road crashes result in a death or serious injury compared with 17% of all young driver rural road crashes.

Conclusions

This report has explored the national picture for young drivers involved in collisions on rural roads and has found that young drivers are over-represented in crashes on rural roads, particularly:

- In July, August, October and November
- In the morning
- On Sundays, when there is a specific concern about substance impairment
- For single vehicle crashes, especially:
    - In November, December and January
    - At the weekend
    - In the dark
    - In the evenings and early hours – the period between 9pm and 1am in particular
    - In adverse weather conditions
    - In adverse road surface conditions

This interactive web map allows users to see the proportions of crashes involving young drivers and the density of crashes involving young drivers on each EuroRAP route on the rural 'A' road network.

Annex A – Map bandings and inclusion criteria

The inclusion criteria and bandings for the routes presented on the two maps are as follows:

	Percentage of all crashes involving young drivers Reported injury crashes involving young drivers as a percentage of all injury crashes 2013-2018	**Collision density** Reported injury crashes involving young drivers per km road length 2013-2018
Low	0%-21.5%	0-0.644
Low-medium	21.5%-27.4%	0.644-1.288
Medium	27.4%-33.4%	1.288-1.932
Medium-high	33.4%-39.0%	1.932-2.576
High	39%+	2.576+
Inclusion criteria	**More than 8 reported injury crashes 2013-2018**	**5km minimum length**

Annex B – Mosaic groupings referred to in this report[1]

G: Rural Reality – Householders living in inexpensive homes in village communities

G28: Local Focus - Rural families in affordable village homes who are reliant on the local economy for jobs

G29: Satellite Settlers – Mature households living in developments around larger villages with good transport links

G27: Outlying Seniors – Pensioners living in inexpensive housing in out of the way locations

A: Country Living – Well-off owners in rural locations enjoying the benefits of country life

A03: Wealthy Landowners – Prosperous owners of country houses including affluent families, successful farmers and second-home owners

A02: Scattered Homesteads – Older households appreciating rural calm in stand-alone houses within agricultural landscapes

A04: Village Retirement – Retirees enjoying pleasant village locations with amenities to service their social and practical needs

A01: Rural Vogue – Country-loving families pursuing a rural idyll in comfortable village homes, many commuting some distance to work

D: Domestic Success – Thriving families who are busy bringing up children and following careers

D15: Modern Parents – Busy couples in modern detached homes balancing the demands of school-age children and careers

D16: Mid-career Convention – Professional families with children in traditional mid-range suburbs where neighbours are often older

M: Family Basics – Families with limited resources who have to budget to make ends meet

M56: Solid Economy – Stable families with children, renting higher value homes from social landlords

[1] Taken from http://mast.roadsafetyanalysis.org/wiki/index.php?title=Mosaic_Public_Sector where more information about each group is available