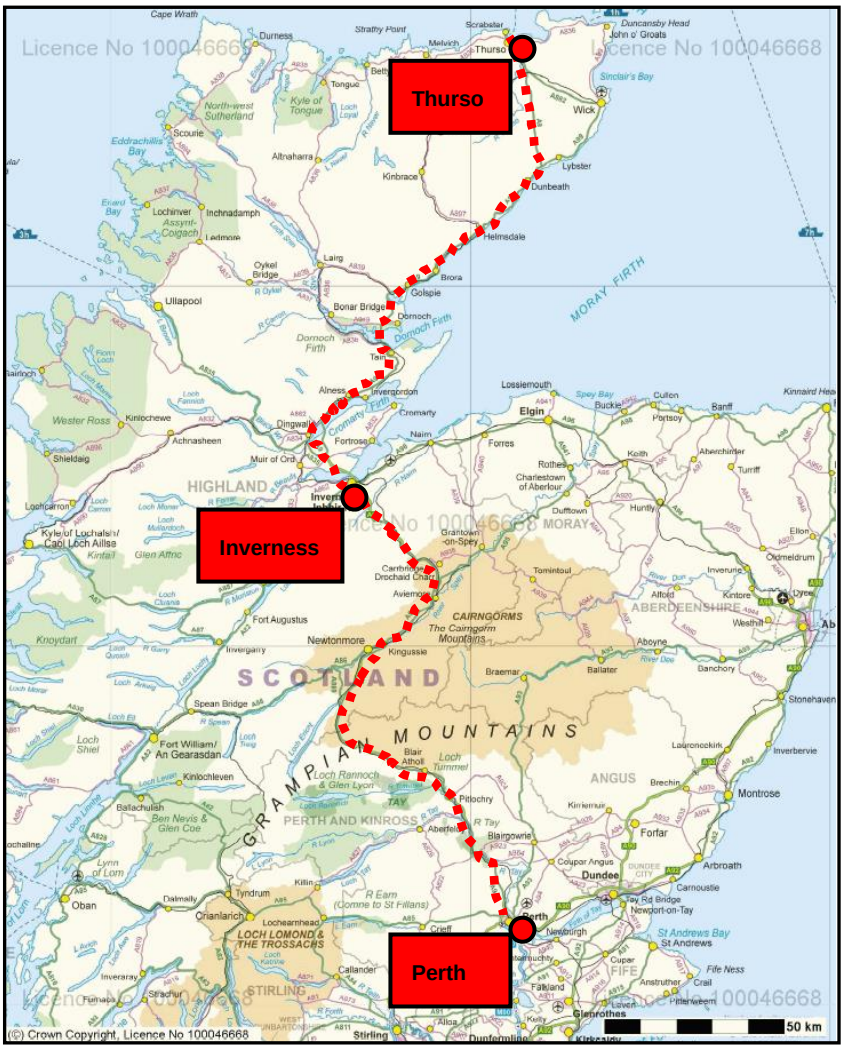
ScotlandTranServ
A Balfour Beatty Mouchel Joint Venture

A9 Perth to Thurso Route Review

Accident Analysis



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1 Background and Report Objective

1.1 Background of Problem

As part of the work of the A9 Safety Group, Transport Scotland instructed Scotland TranServ to carry out analysis of injury accidents, between 1st January 2007 to 31st December 2011 for the A9 between Perth and Scrabster, Thurso to define key issues and themes.

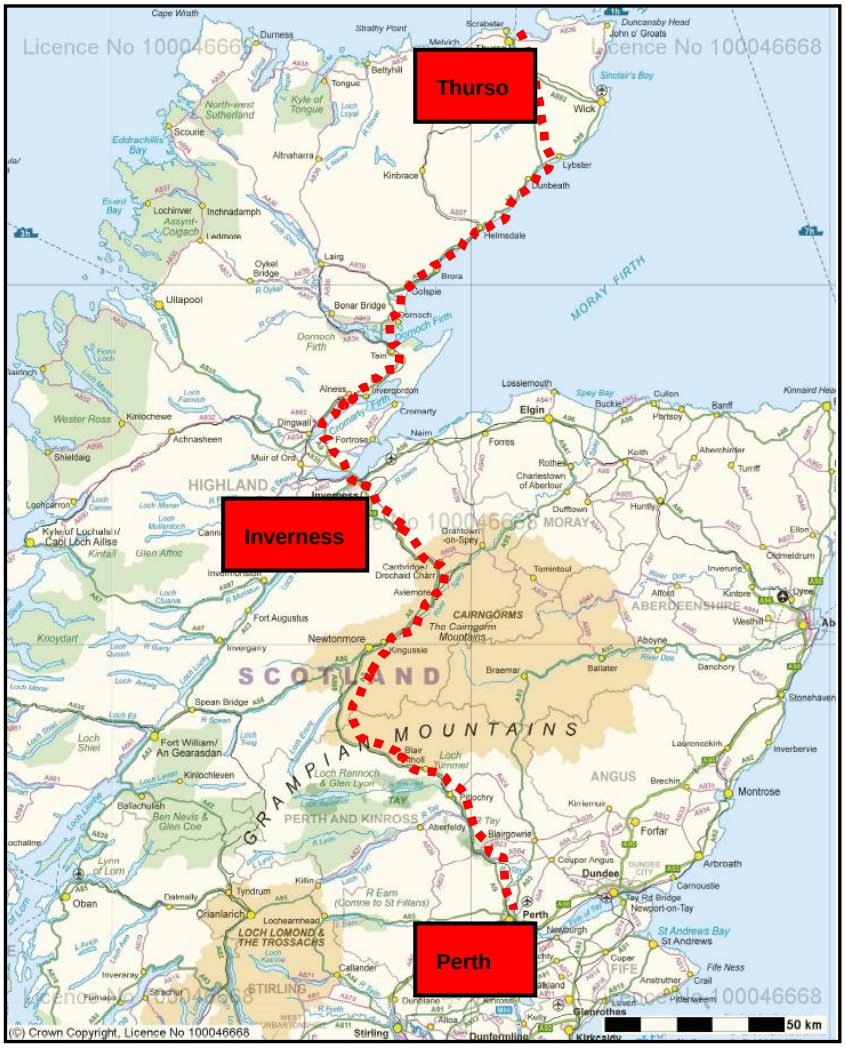


Figure 1: Extents to be examined as part of this proposed study

1.2 Report Objective and Review Process

The objective of the report is to appraise the 355 km section of A9 trunk road between, Inveralmond roundabout Perth to Scrabster harbour Thurso and identify common themes, categorising any section of road which raises concerns with regard to accident trends, rates and possible contributing factors.

The route has been assessed across varying extents to identify the general accident / safety themes affecting the wider route and the particular safety themes affecting different parts and carriageway types on the route.

As such, the accident analysis has been undertaken across each of the following five route extents:

A9 Full Route (Perth to Scrabster) – 355km of single, dual and WS2+1 carriageway types

A9 South (Perth to Tore) – 186 km of single, dual and WS2+1 carriageway types

A9 South Single Carriageway Only (Perth to Tore) – fifteen sections totalling 121 km

A9 South Dual Carriageway Only (Perth to Tore) – nine sections totalling 56 km

A9 North (Tore to Scrabster) – 168 km of single carriageway

The accident statistics for each of the sections outlined above have been compared against the equivalent accident statistics for the Operating Company North West Unit (referred to as 'NW unit average' in this report). This benchmarking has been used to assist in identifying key accident trends and themes on the route.

Analysis of the accident rates and killed or seriously injured rates has also been undertaken for discreet sections of common route provision across the route. These rates have been benchmarked against the national average figures for the Scottish Trunk Road to identify any sections worth further investigation.

Similarly, and to ensure that any localised accident issues are identified, cluster analysis has been undertaken to identify locations with concentrations of accidents.

2 Traffic volumes

Annual Average Daily Traffic (AADT) flows for 2011 across 44 sites on the A9 between Perth and Scrabster have been collated. There are considerable differences in the Annual Average Daily Traffic (AADT) flows and there are significant increases in traffic volumes on the A9 through the summer months. The A9 South of Tore experiences an average 40% increase for traffic in the summer when compared to the winter, Figure 2 below, while the A9 North increases by 33%, Figure 3 below.

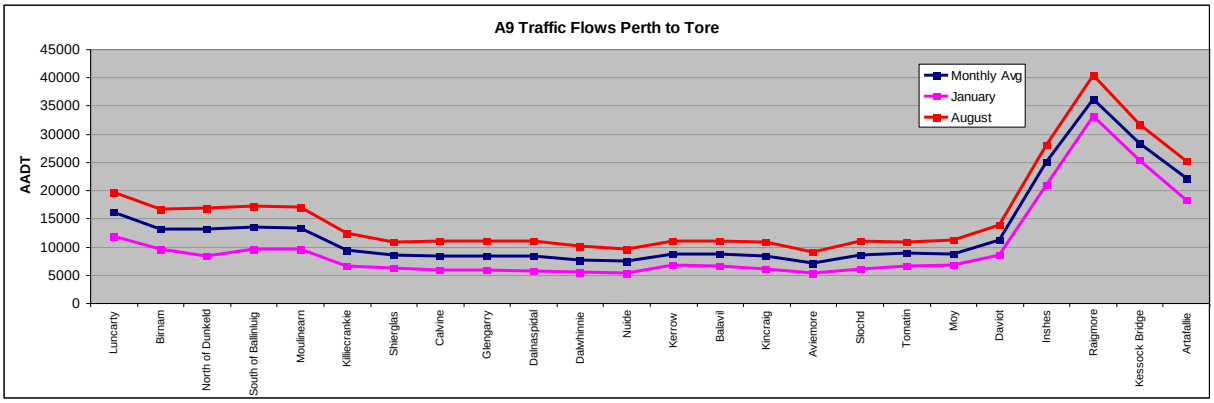


Figure 2: A9 Perth to Tore AADT with seasonal variation flows.

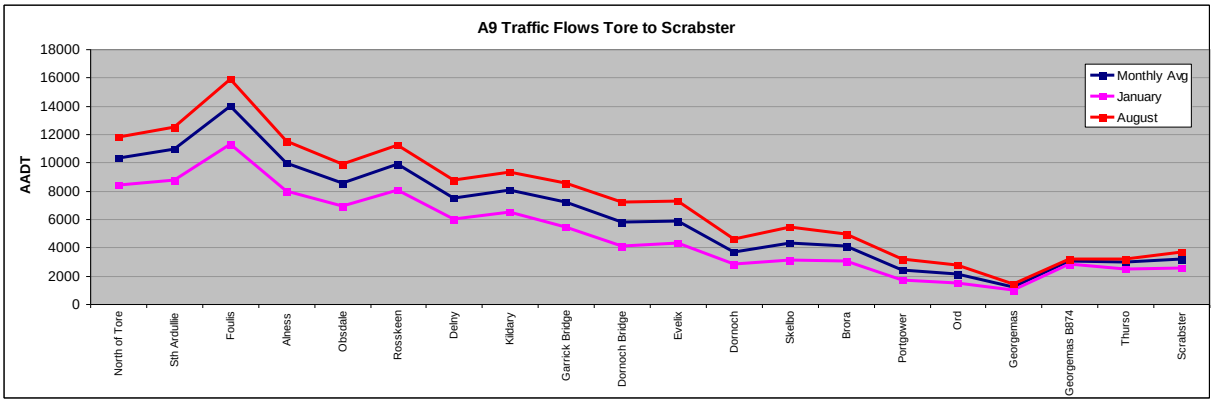


Figure 3: A9 Tore to Scrabster AADT with seasonal variation flows.

3 Findings of Accident Analysis

3.1 Accident Findings

An assessment of injury accidents between 1 January 2007 and 31 December 2011 using available STATS19 data was completed to provide statistical analysis on accident trends and rates.

During this period a total of 560 injury accidents were recorded on the A9 trunk road between Inveralmond roundabout in Perth and Scrabster harbour, near Thurso.

Of the 560 injury accidents it was found that 74% of all fatal accidents on the A9 were on the 186km section between Inveralmond roundabout at Perth to Tore roundabout, 6 miles north of Inverness. Serious and slight accidents are more evenly spread across the full route, north and south of Tore roundabout. Figure 4 below shows the differences of all injury accident severities for the sections north and south of Tore roundabout, near Inverness.

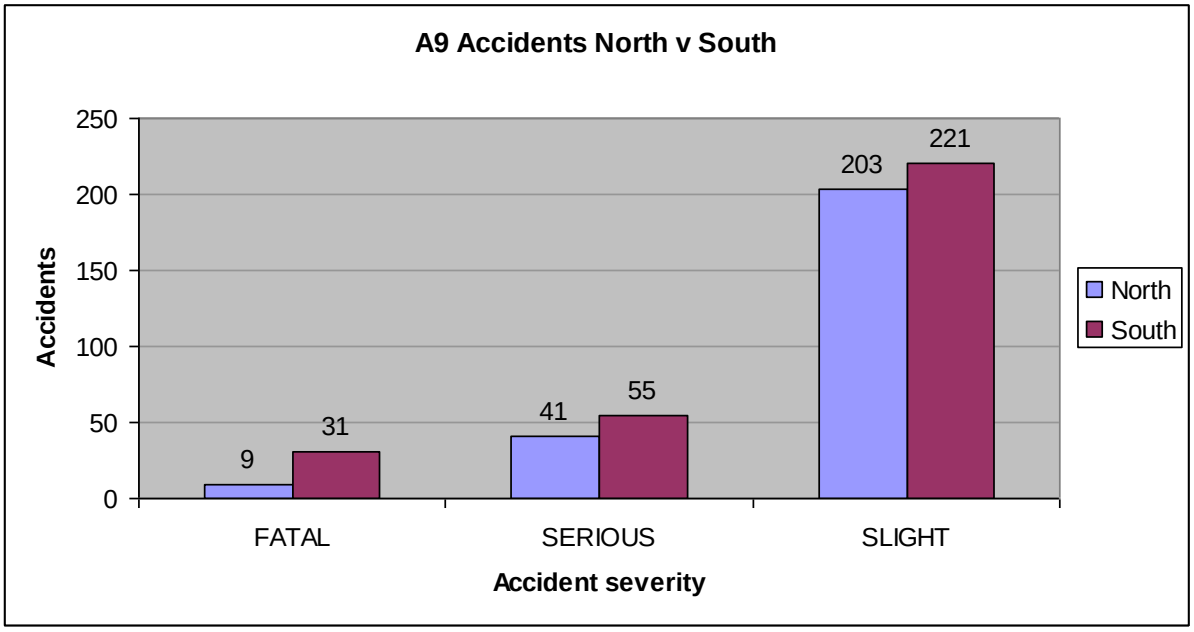


Figure 4: Injury accidents on the A9 between 1 January 2007 and 31 December 2011 north and south of Tore roundabout.

Even though over the five year period the yearly accident severity totals do fluctuate, between 2009 and 2011 there is a downward trend in slight and serious accident numbers.

Figures 5 and 6 illustrate this observation with two separate tables, representing accident severity within the sections south and north of Tore roundabout.

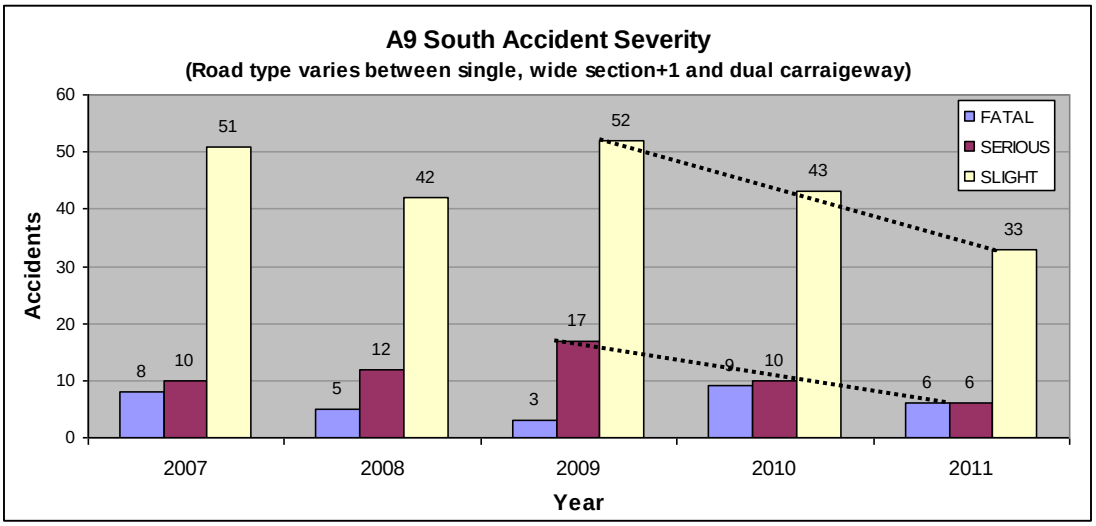


Figure 5: South accident severity totals per year.

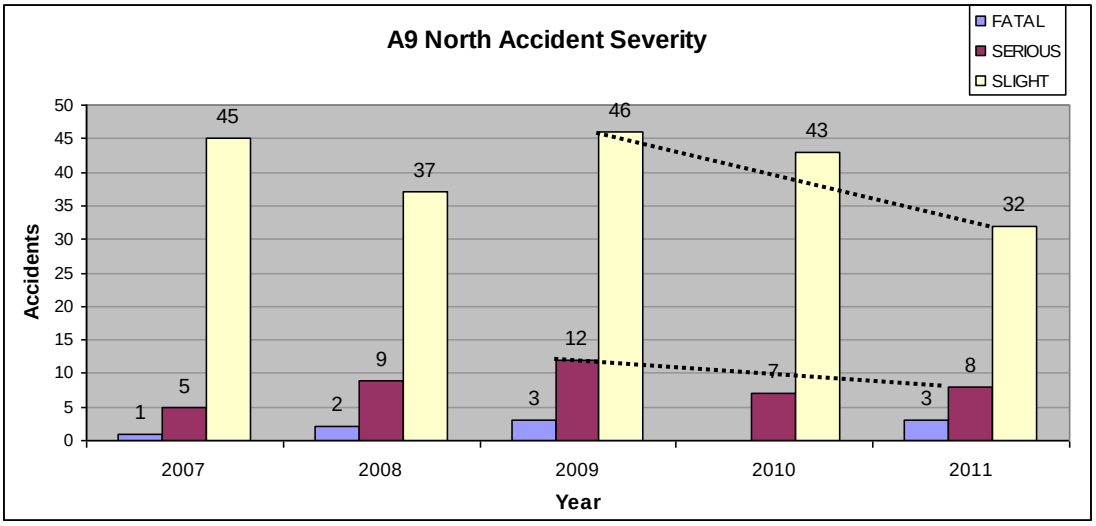


Figure 6: North accident severity totals per year.

Figure 7 below shows the number of accidents by severity on single carriageway sections, south of the Tore roundabout. They reflect the previous observations made about the A9, as the totals of slight and serious injury accidents show a downward trend from 2009 to 2011.

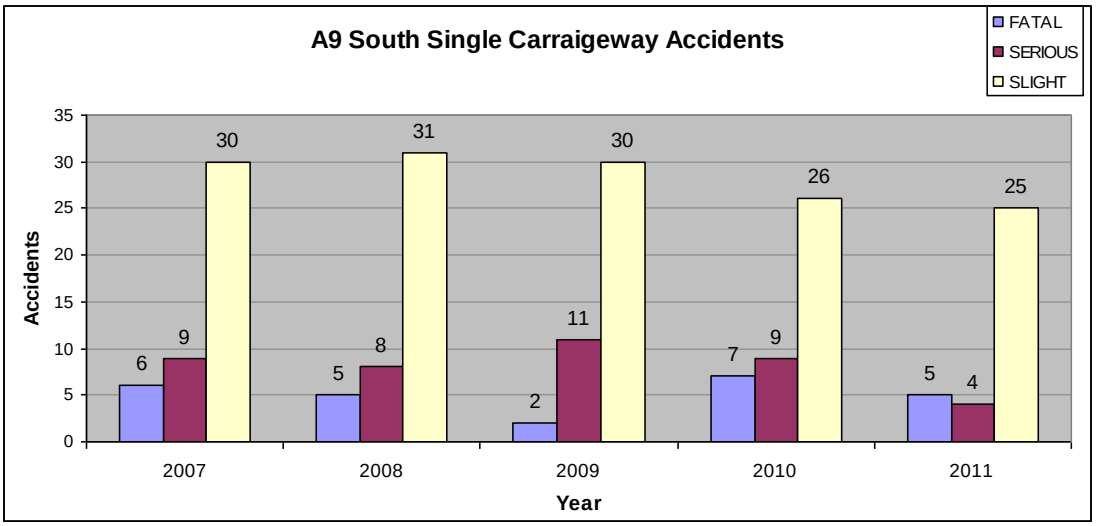


Figure 7: South single carriageway accidents per year.

Figure 8 below, shows the accident severity numbers on the dual carriageway sections, which also indicates a reduction in serious and slight injuries between 2009 and 2011.

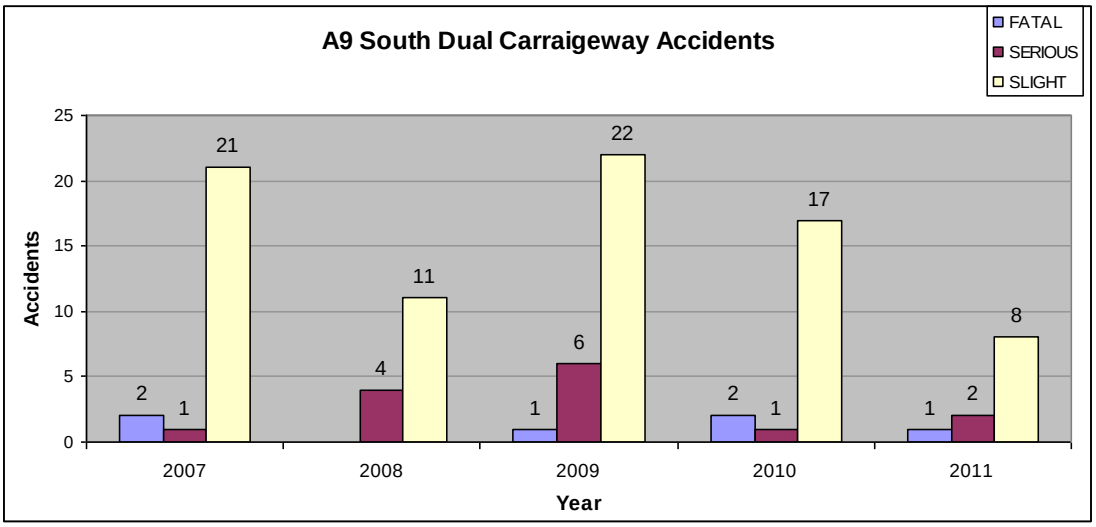


Figure 8: South dual carriageway accidents per year.

3.1.1 Accidents by month

The monthly accident numbers, in Figures 9-12 below, show two main peak periods for the A9 south of Tore; the winter months of November to January and most pronounced during the summer holiday months of June, July and August. When broken down, monthly accident numbers show a difference between A9 North and A9 South. The A9 north of Tore has a steady rate through most of the year with a dip in April and May and a pronounced peak in July. The A9 South accident numbers fluctuate throughout the year with dips in February, April, September and October, with a pronounced peak rising from June to August. The dual carriageway sections of the A9 South have no fatal accidents through the months of December to April, but the A9 south of Tore single carriageway sections have fatal accidents in all months. The A9 North section has no fatal accidents in January, April, May, July and October.

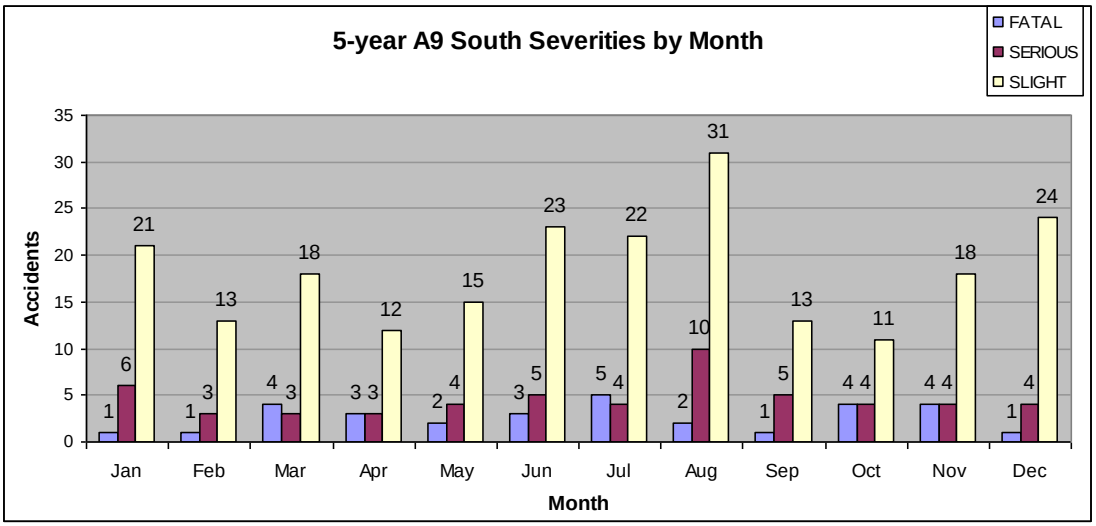


Figure 9: A9 South of Tore, accidents severities by month.

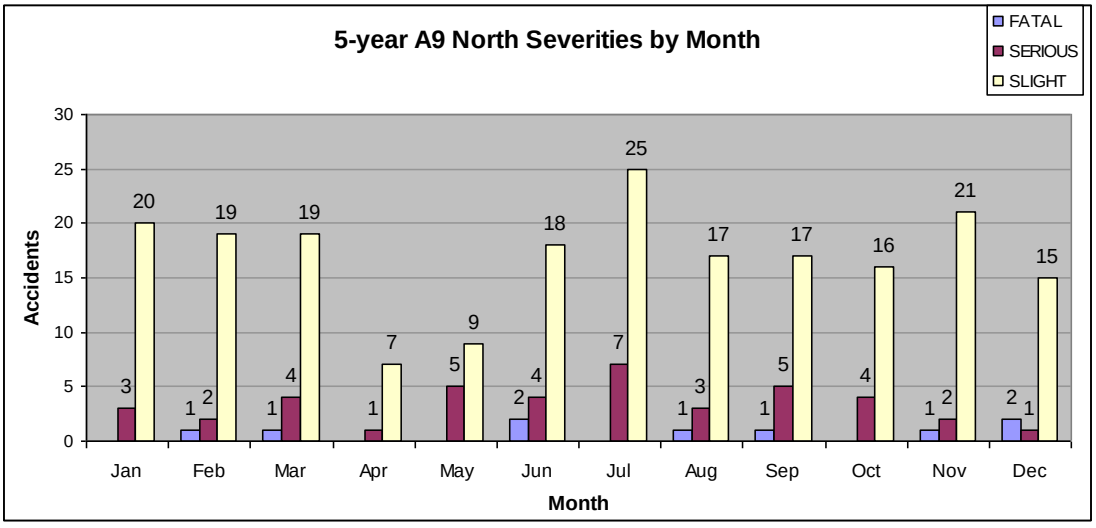


Figure 10: A9 North of Tore, accidents severities by month.

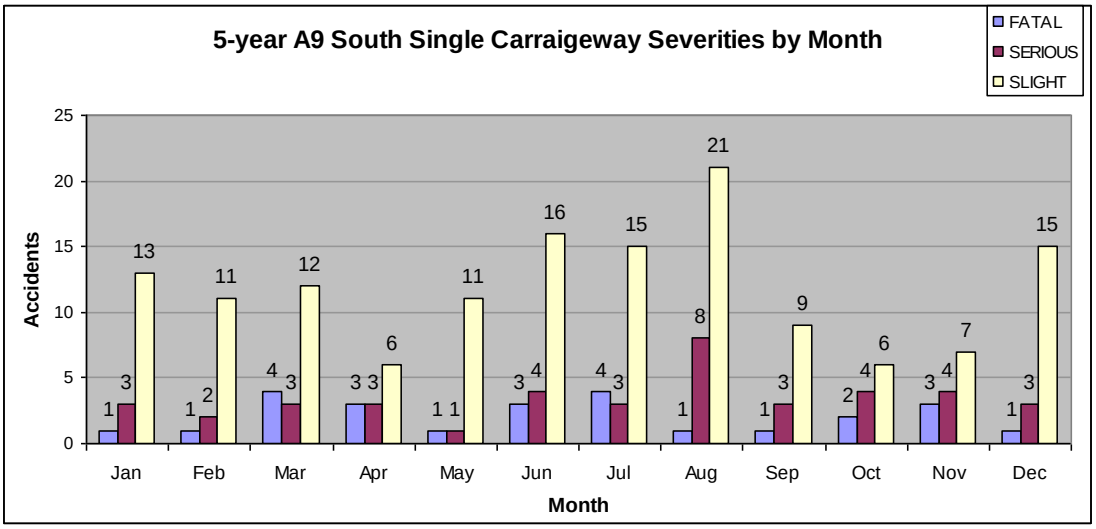


Figure 11: A9 South single carriageway accidents severities by month.

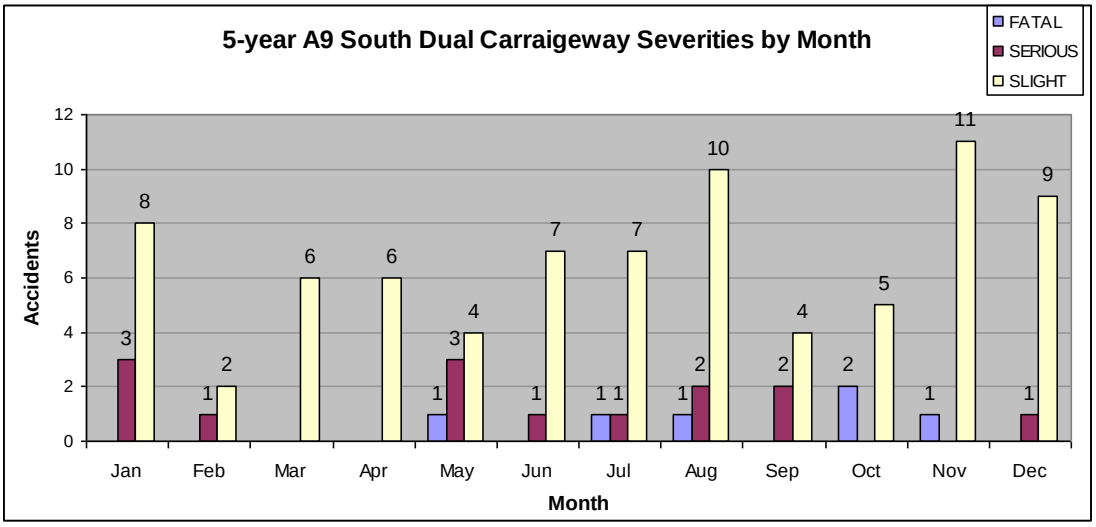


Figure 12: A9 South dual carriageway accidents severities by month.

3.1.2 Vehicle type

The four main types of vehicle involved in accidents on the A9, excluding cars, are goods vehicle 7.5 tonnes and over, motorcycles over 500cc, good vehicles between 3.5 – 7.5 tonnes and other motor vehicles, see Figure 13 below. Cars are omitted for presentation purposes – the inclusion of cars affects the graph scale and makes it difficult to see how the involvement of other vehicle types compare to each other and to Unit figures

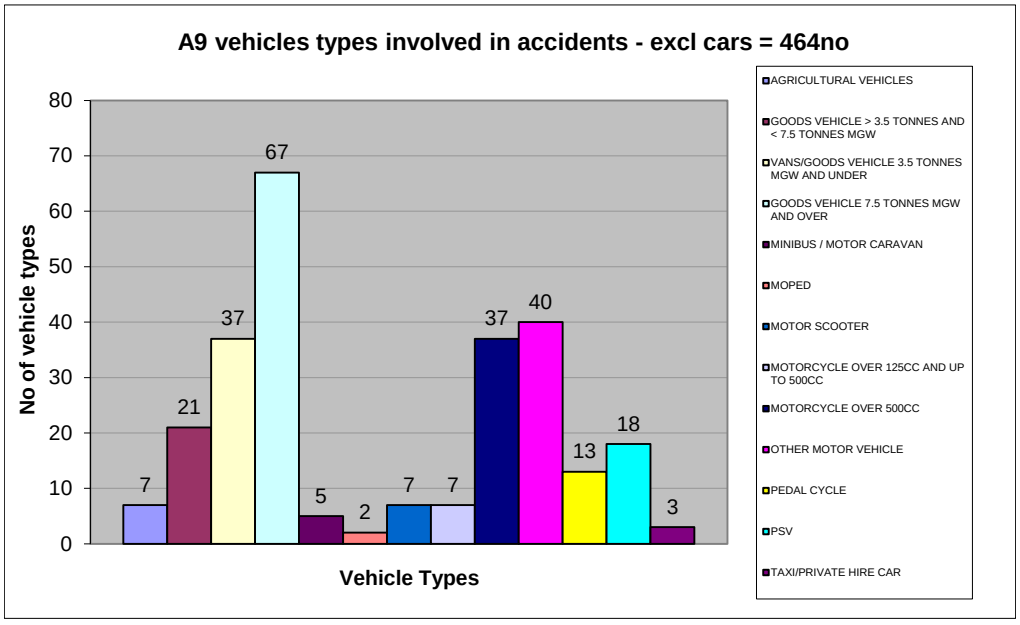


Figure 13: A9 all vehicle types

In the A9 South section, the main type of vehicles, other than cars, involved in accidents are good vehicles 7.5 tonnes and over, see Figure 14 below.

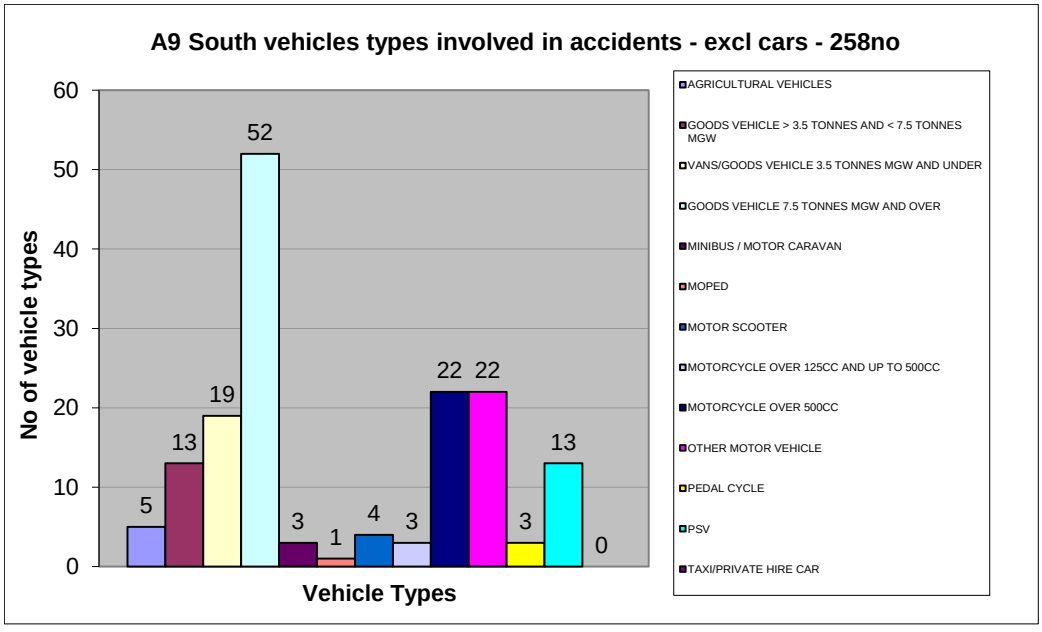


Figure 14: South of Tore all vehicle types

On the A9 south single carriageway, Figure 15 below, there is a particularly high proportion of good vehicles 7.5 tonnes and over and a level spread of other types of vehicles.

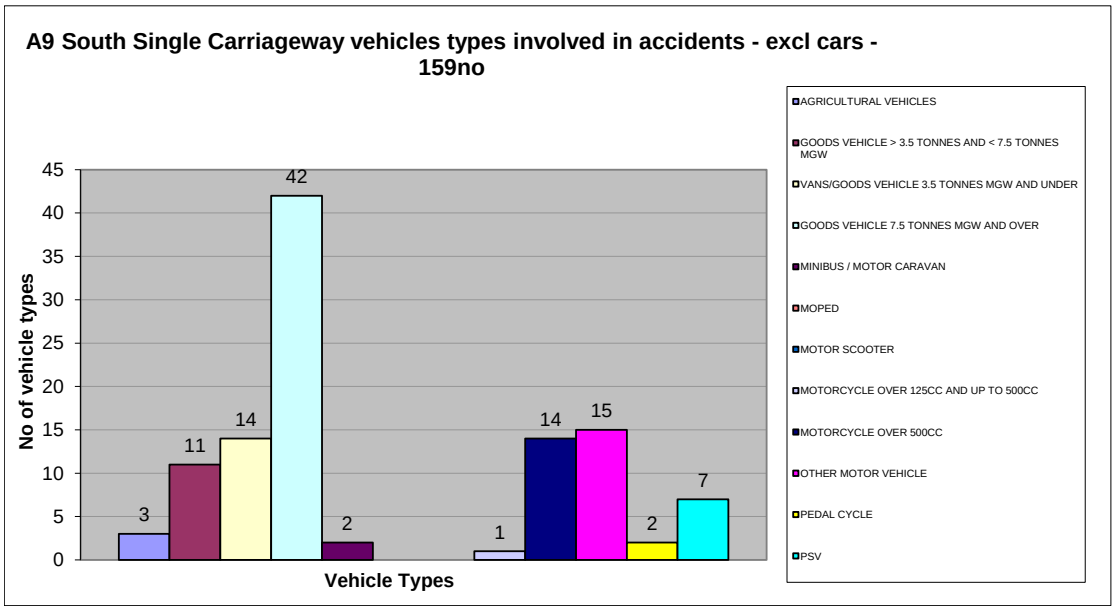


Figure 15: South Single Carriageway all vehicle types

On the A9 south dual carriageway, Figure 16 below, the highest proportion of vehicle type is goods vehicles 7.5 tonnes and over and a level spread of other types of vehicles.

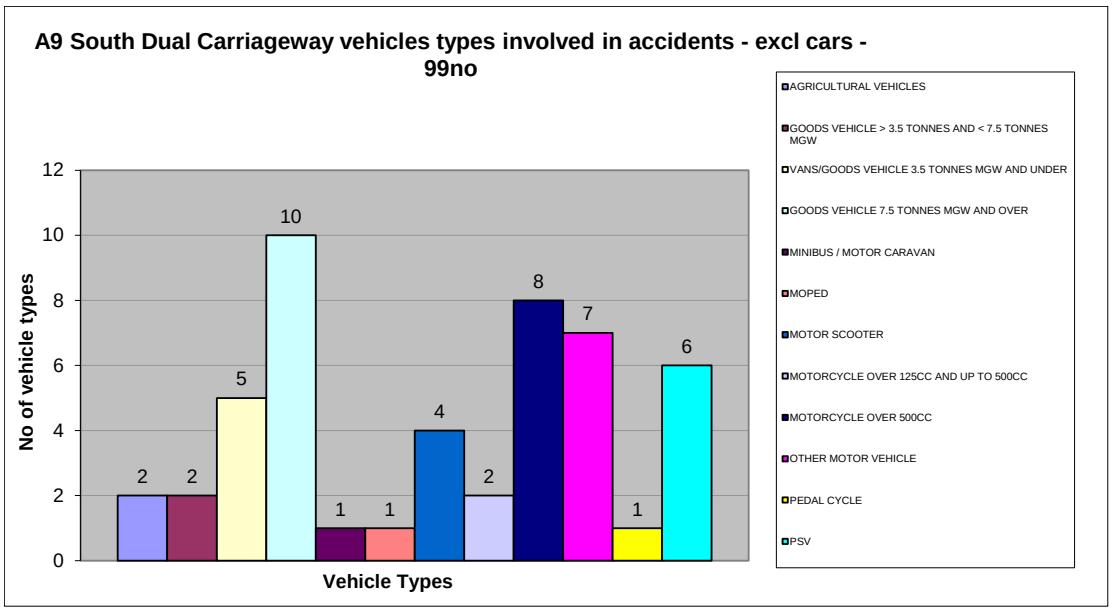


Figure 16: South Dual Carriageway all vehicle types

In the A9 North section, Figure 17 below illustrates that there has been a more even spread of accidents involving the four main vehicle types. Other than cars the main types of vehicle involved in accidents are goods vehicles 7.5 tonnes over, motorcycles over 500cc, goods vehicles between 3.5 and 7.5 tonnes and other vehicles.

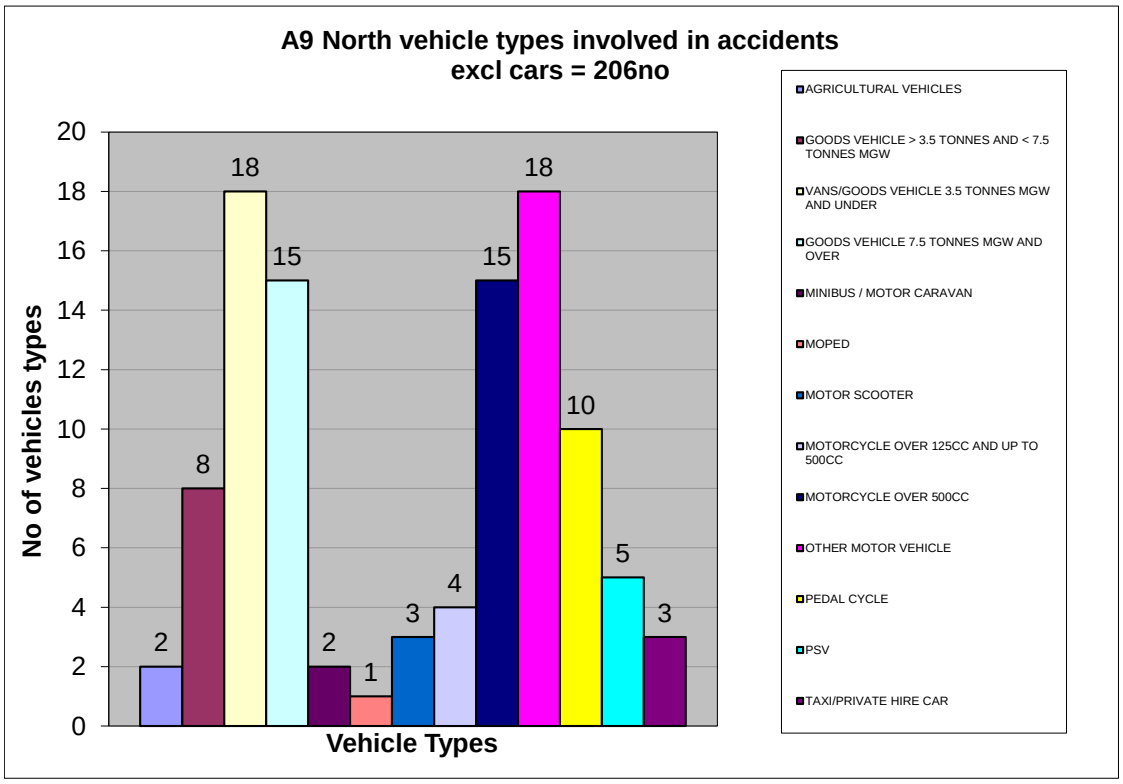


Figure 17: North of Tore all vehicle types

Figure 18 overleaf and Table 1 on page 16 show the vehicle types for all vehicles involved in accidents against the NW unit average.

Considering the full route of the A9, the following vehicle types have been involved in more accidents (proportionate to the route total) when compared to the NW Unit average: agricultural vehicles; goods vehicle between 3.5 and 7.5 tonnes mgw (maximum gross weight); goods vehicle 7.5 tonnes mgw and over; moped; scooter; other motor vehicle; PSV (public service vehicle).

Considering the A9 south, the following vehicle types have been involved in more accidents (proportionate to the A9 south total) when compared to the NW Unit average: agricultural vehicles; goods vehicle between 3.5 and 7.5 tonnes mgw; goods vehicle 7.5 tonnes mgw and over; moped; scooter; other motor vehicle; PSV.

Considering the A9 south single carriageway, the following vehicle types have been involved in more accidents (proportionate to the A9 south single carriageway total) when compared to the NW Unit average: agricultural vehicles; goods vehicle

between 3.5 and 7.5 tonnes mgw; goods vehicle 7.5 tonnes mgw and over; other motor vehicle; PSV.

Considering the A9 south dual carriageway, the following vehicle types have been involved in more accidents (proportionate to the A9 south dual carriageway total) when compared to the NW Unit average: agricultural vehicles; moped, scooter; PSV; car.

Considering the A9 north, the following vehicle types have been involved in more accidents (proportionate to the A9 north total) when compared to the NW Unit average: goods vehicle between 3.5 and 7.5 tonnes mgw; goods vehicle 3.5 tonnes mgw and under; moped; scooter; other motor vehicle; pedal cycle; taxi/private hire car and car.

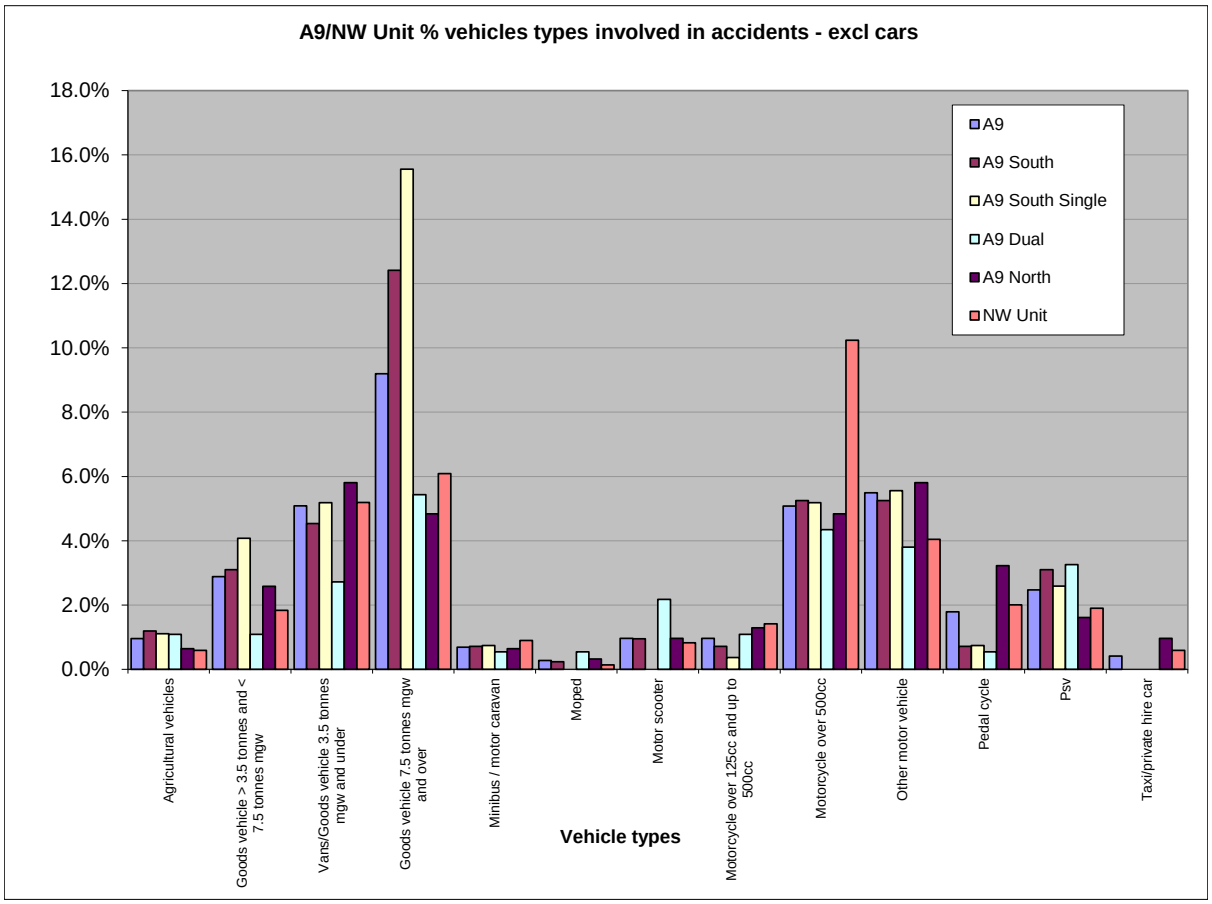


Figure 18: Vehicle types percentages for A9 against NW unit average

Vehicle Type	A9 Full Route	A9 South	A9 South Single	A9 Dual	A9 North	NW Unit
Agricultural vehicles	1.0%	1.2%	1.1%	1.1%	0.6%	0.6%
Goods vehicle between 3.5 and 7.5 tonnes mgw	2.9%	3.1%	4.1%	1.1%	2.6%	1.8%
Goods vehicle 3.5 tonnes mgw and under	5.1%	4.5%	5.2%	2.7%	5.8%	5.2%
Goods vehicle 7.5 tonnes mgw and over	9.2%	12.4%	15.6%	5.4%	4.8%	6.1%
Minibus / motor caravan	0.7%	0.7%	0.7%	0.5%	0.6%	0.9%
Moped	0.3%	0.2%	0.0%	0.5%	0.3%	0.1%
Motor scooter	1.0%	1.0%	0.0%	2.2%	1.0%	0.8%
Motorcycle over 125cc and up to 500cc	1.0%	0.7%	0.4%	1.1%	1.3%	1.4%
Motorcycle over 500cc	5.1%	5.3%	5.2%	4.3%	4.8%	10.2%
Other motor vehicle	5.5%	5.3%	5.6%	3.8%	5.8%	4.0%
Pedal cycle	1.8%	0.7%	0.7%	0.5%	3.2%	2.0%
PSV	2.5%	3.1%	2.6%	3.3%	1.6%	1.9%
Taxi/private hire car	0.4%	0.0%	0.0%	0.0%	1.0%	0.6%
Car (four wheeled)	63.7%	61.7%	58.9%	66.9%	66.5%	64.1%

Table 1: Table of vehicle types percentages for A9 against NW unit average (greater than NW Unit highlighted)

HGV's (>7.5T) are involved in nearly a quarter of all accidents on single carriageways on the A9 (Perth to Inverness) yet only make up typically 7% of the traffic.

HGV's (>7.5T) are 2.5 times more likely to be involved in an injury accident on single carriageways of the A9 (Perth to Inverness) than they are on other North West Unit roads.

HGV's (>7.5T) are nearly 3 times more likely to be involved in an injury accident on single carriageways of the A9 (Perth to Inverness) than they are on other Scottish trunk road single carriageways.

At present, the average speed of HGV's (>7.5T) over the length of the single carriageways of the A9 is above 50mph and persistently higher than other Scottish trunk road single carriageways.

3.1.3 Vehicle Manoeuvres

Analysis of the manoeuvre type, for all vehicles involved in accidents on the A9, shown in Figure 19 below, highlights the predominate manoeuvre as going ahead other, with secondary manoeuvres of going ahead on the left, right hand bend, overtaking moving vehicle on its offside and turning right.

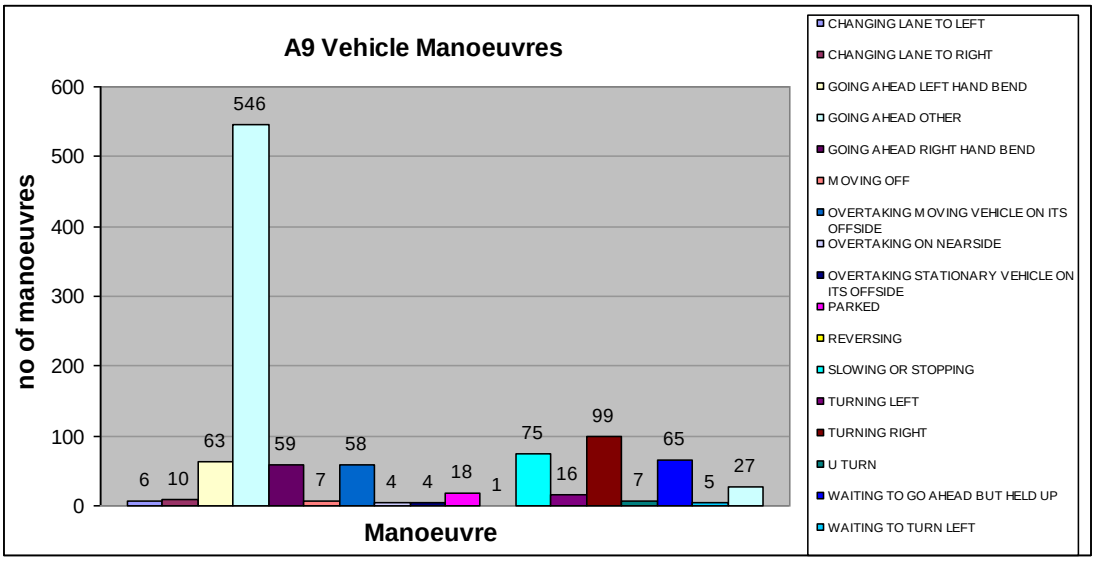


Figure 19: Vehicle manoeuvres types on entire A9

The most common vehicle manoeuvre involved in accidents for the A9 South is going ahead other. When further segregated by carriageway type the dominant manoeuvres in accidents for single carriageways, Figure 20 below, are going ahead other, overtaking moving vehicle on its offside and turning right.

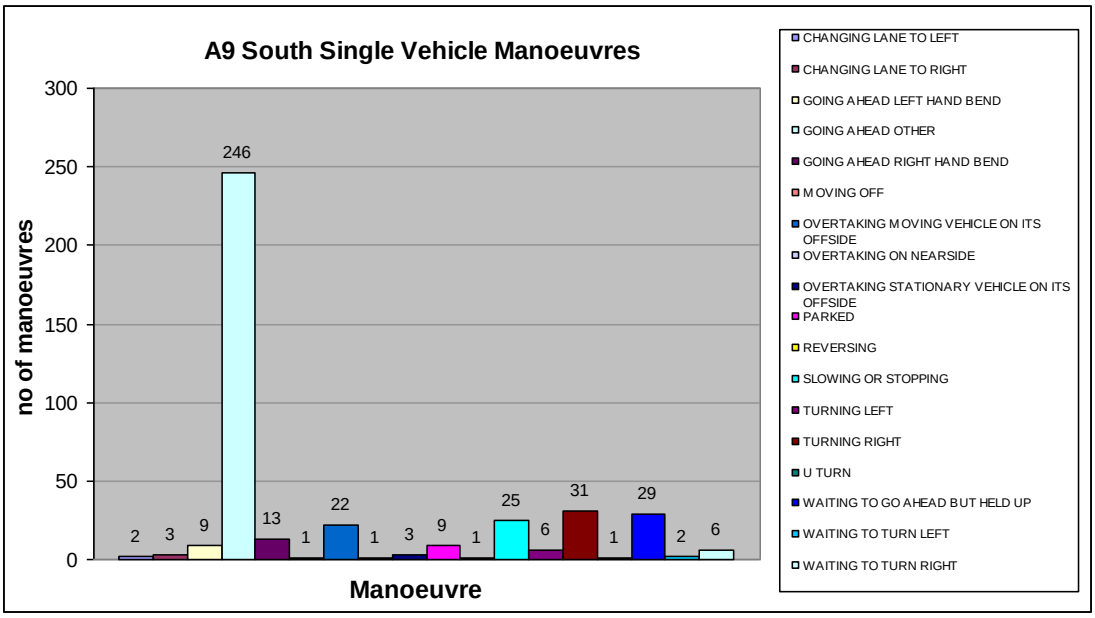


Figure 20: Vehicle manoeuvre types for A9 South single carriageway

On the A9 south dual carriageways sections, Figure 21 below, the primary vehicle manoeuvres involved in accidents are going ahead other, overtaking moving vehicle on its offside and waiting to go ahead but held up.

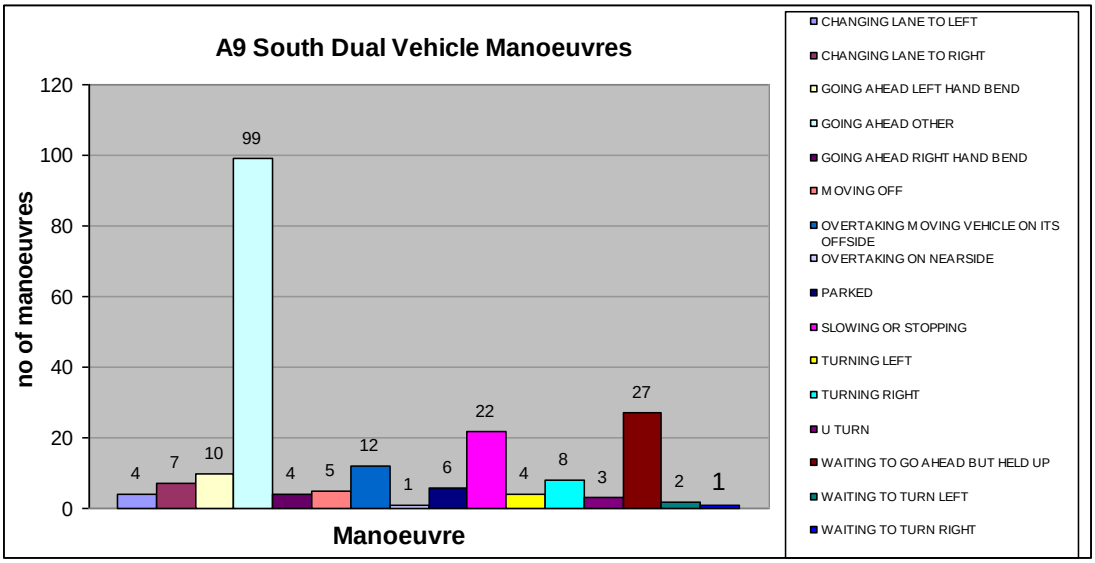


Figure 21: Vehicle manoeuvre types for A9 South dual carriageway

Figure 22 below shows the manoeuvre types for all vehicles involved in an accident along the A9 North single carriageway. The dominate manoeuvre is going ahead other, with other notable manoeuvres of going ahead on right and left bends and turning right.

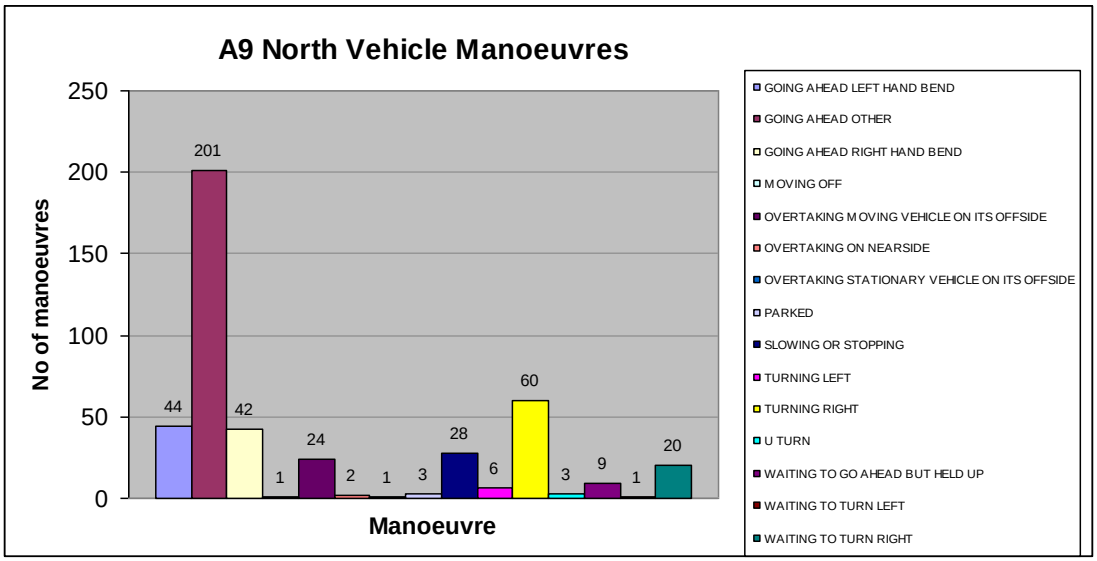


Figure 22: Vehicle manoeuvre types for A9 north

Figure 23 and Table 2 overleaf show the manoeuvre types for all vehicle involved in accidents on the A9 against the NW unit average.

The vehicle manoeuvres involved proportionately more in accidents on the A9 when compared to the NW Unit average are: changing lane to left; changing lane to right; going ahead other; overtaking moving vehicle on its offside; parked; slowing or stopping; turning left; turning right; U turn; waiting to go ahead but held up; waiting to turn left; waiting to turn right.

The vehicle manoeuvres involved proportionately more in accidents on the A9 south when compared to the NW Unit average are; changing lane to left; changing lane to right; going ahead other; moving off; overtaking moving vehicle on its offside; overtaking stationary vehicle on its offside; parked; reversing; slowing or stopping; turning left; turning right; U turn; waiting to go ahead but held up; waiting to turn left.

The vehicle manoeuvres involved proportionately more in accidents on the A9 south single carriageway when compared to the NW Unit average are: changing lane to left; changing lane to right; going ahead other; overtaking moving vehicle on its offside; overtaking stationary vehicle on its offside; parked; reversing; slowing or stopping; turning left; turning right; waiting to go ahead but held up; waiting to turn left.

The vehicle manoeuvres involved proportionately more in accidents on the A9 south dual carriageway when compared to the NW Unit average are: changing lane to left; changing lane to right; going ahead other; moving off; overtaking moving vehicle on its offside; parked; slowing or stopping; turning left; U turn; waiting to go ahead but held up; waiting to turn left.

The vehicle manoeuvres involved proportionately more in accidents on the A9 north when compared to the NW Unit average are: going ahead other; overtaking moving vehicle on its offside; slowing or stopping; turning left; turning right; U turn; waiting to turn right.

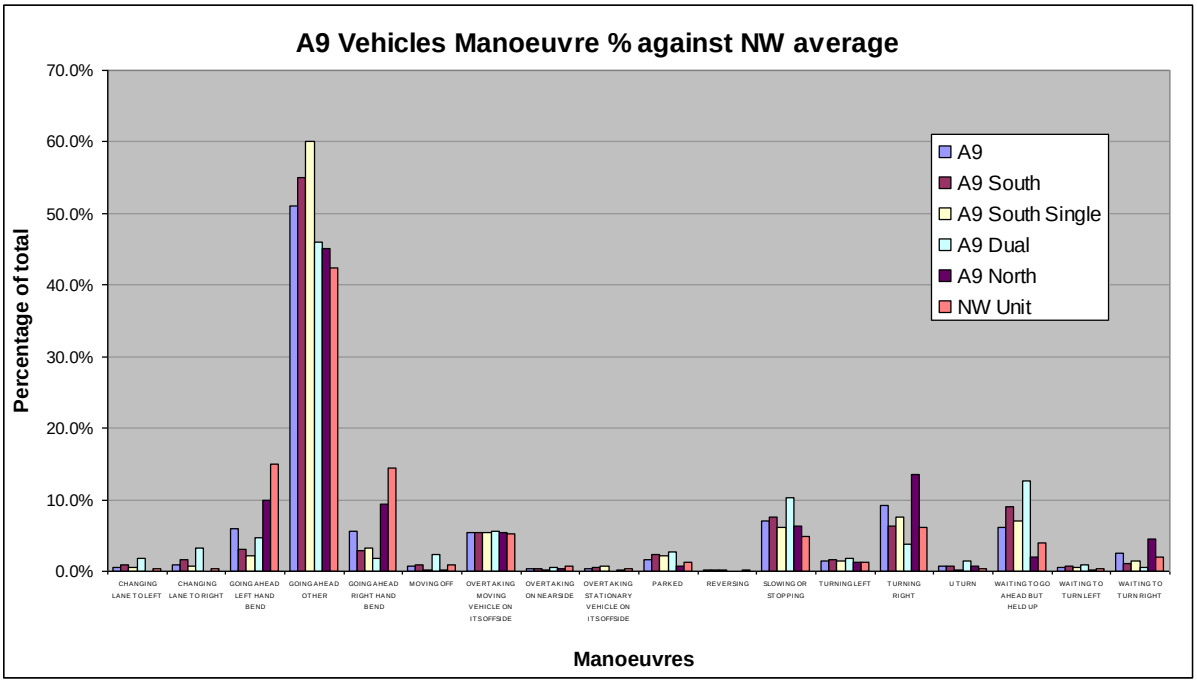


Figure 23: A9 Graph of manoeuvre types for A9 against NW unit average

Manoeuvre	A9 Full Route	A9 South	A9 South Single	A9 Dual	A9 North	NW Unit
Changing lane to left	0.6%	1.0%	0.5%	1.9%	0.0%	0.4%
Changing lane to right	0.9%	1.6%	0.7%	3.3%	0.0%	0.4%
Going ahead left hand bend	5.9%	3.0%	2.2%	4.7%	9.9%	14.9%
Going ahead other	51.0%	55.1%	60.0%	46.0%	45.2%	42.4%
Going ahead right hand bend	5.5%	2.9%	3.2%	1.9%	9.4%	14.4%
Moving off	0.7%	1.0%	0.2%	2.3%	0.2%	0.9%
Overtaking moving vehicle on its offside	5.4%	5.4%	5.4%	5.6%	5.4%	5.2%
Overtaking on nearside	0.4%	0.3%	0.2%	0.5%	0.4%	0.7%
Overtaking stationary vehicle on its offside	0.4%	0.5%	0.7%	0%	0.2%	0.4%
Parked	1.7%	2.4%	2.2%	2.8%	0.7%	1.3%
Reversing	0.1%	0.2%	0.2%	0%	0.0%	0.1%
Slowing or stopping	7.0%	7.5%	6.1%	10.2%	6.3%	4.9%
Turning left	1.5%	1.6%	1.5%	1.9%	1.3%	1.2%
Turning right	9.3%	6.2%	7.6%	3.7%	13.5%	6.1%
U turn	0.7%	0.6%	0.2%	1.4%	0.7%	0.4%
Waiting to go ahead but held up	6.1%	8.9%	7.1%	12.6%	2.0%	3.9%
Waiting to turn left	0.5%	0.6%	0.5%	0.9%	0.2%	0.3%
Waiting to turn right	2.5%	1.1%	1.5%	0.5%	4.5%	2.0%

Table 2: Table showing all vehicles involved in accidents on the A9 against NW unit averages (greater than NW Unit highlighted)

3.1.4 Contributory factors

A review of the most common contributory factors of accidents (greater than 9no), see Figure 24, highlights that the six main factors involved in accidents on the A9 are: loss of control; slippery road; failing to look properly; failing to judge others person's speed or path; careless/reckless/in a hurry; poor turn or manoeuvre.

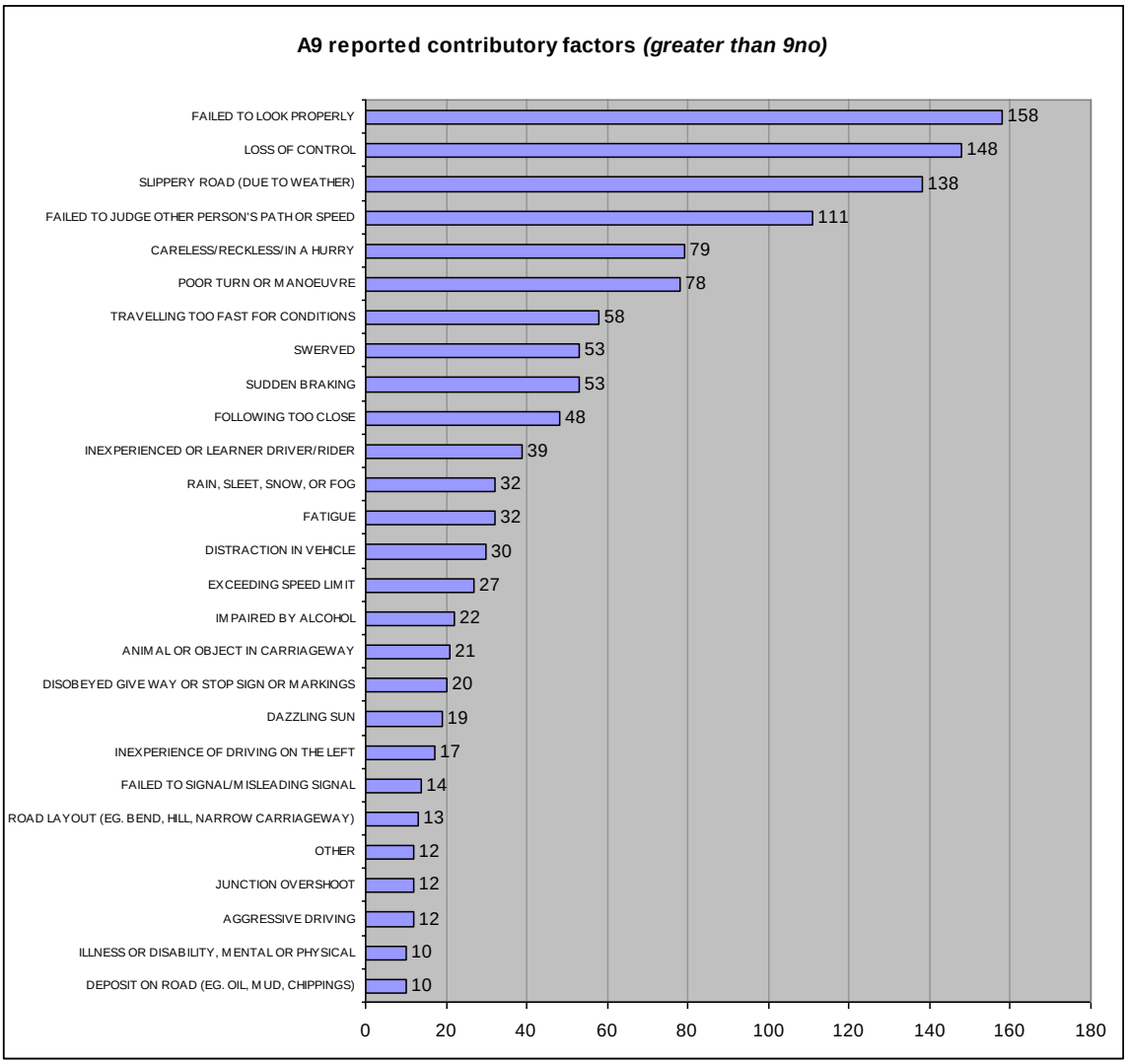


Figure 24: A9 Contributory Factors *(greater than 9no)*

Figure 25 below shows the contributory factors (recorded on at least 10 occasions) in accidents on the A9 north of Tore roundabout. The most common factors are: failed to look properly; loss of control; slippery road (due to weather); careless/reckless/in a hurry.

The common contributory factors in accidents, other than the main factors above, are inexperience or learner driver and travelling too fast for the conditions.

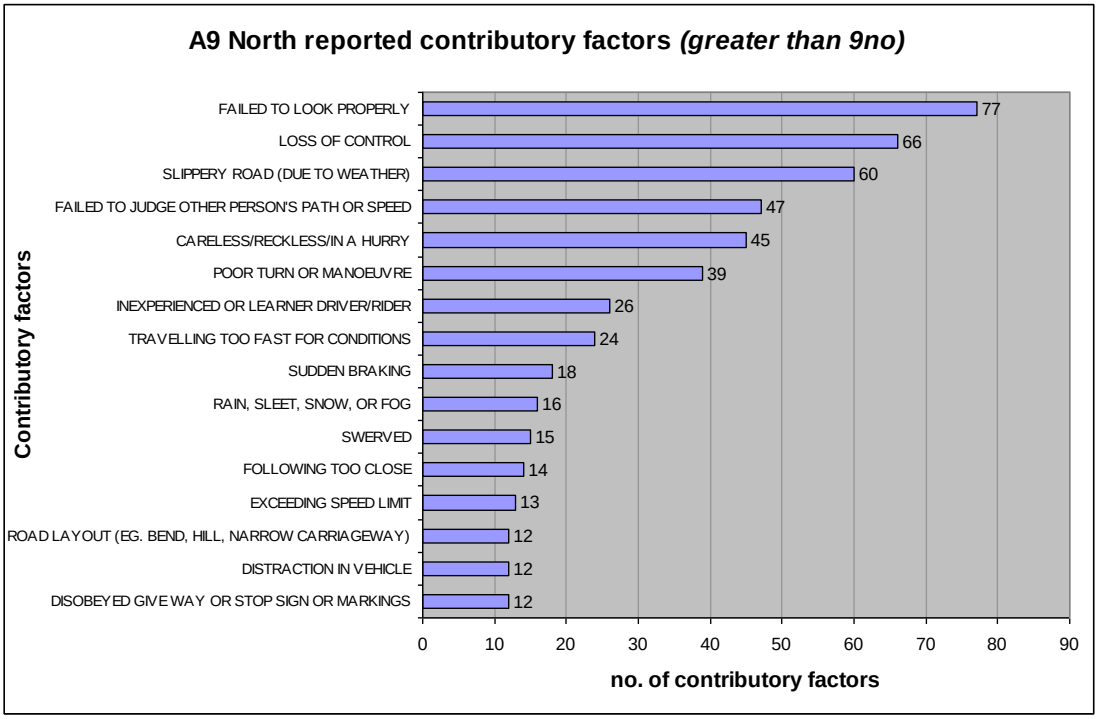


Figure 25: Graph of A9 North contributory factors *(greater than 9no)*

Figure 26 overleaf shows the most common contributory factors (recorded on at least 10 occasions) in accidents on the A9 south of Tore roundabout. The most common factors are: loss of control; failed to look properly; slippery road (due to weather); failed to judge others persons path or speed.

The additional factors in the A9 South section highlight that swerving and travelling too fast for the conditions feature in many accidents.

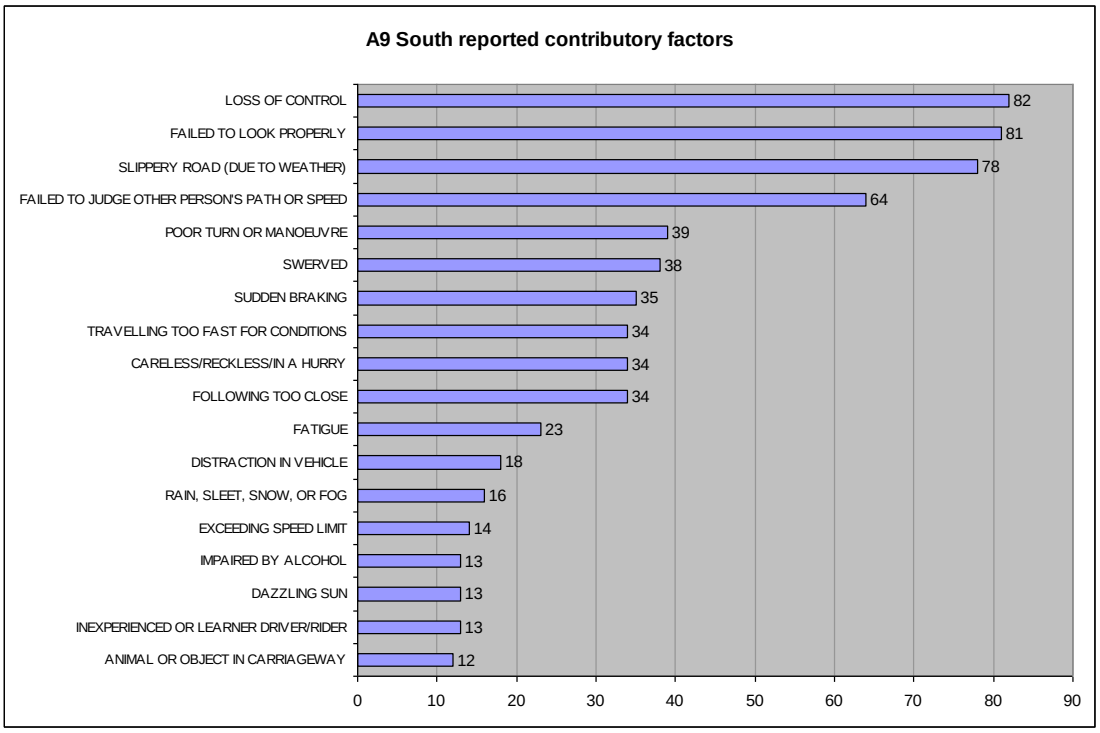


Figure 26: Graph of A9 South contributory factors *(greater than 9no)*

There are significant differences in the number of contributory factors (greater than 9no) between the single and dual carriageway sections for the A9 south of Tore. Figure 27 and Figure 28 overleaf show that there are 15 contributory factors highlighted for single carriageway sections but only 9 contributory factors for dual carriageways.

The most common contributory factors in accidents on the single carriageway sections on the A9 are: slippery road (due to weather); failed to look properly; loss of control; failed to judge other person's path or speed.

The most common factors for the dual carriageway sections A9 south are: loss of control; failed to look properly; failed to judge other persons path or speed; slippery road (due to weather).

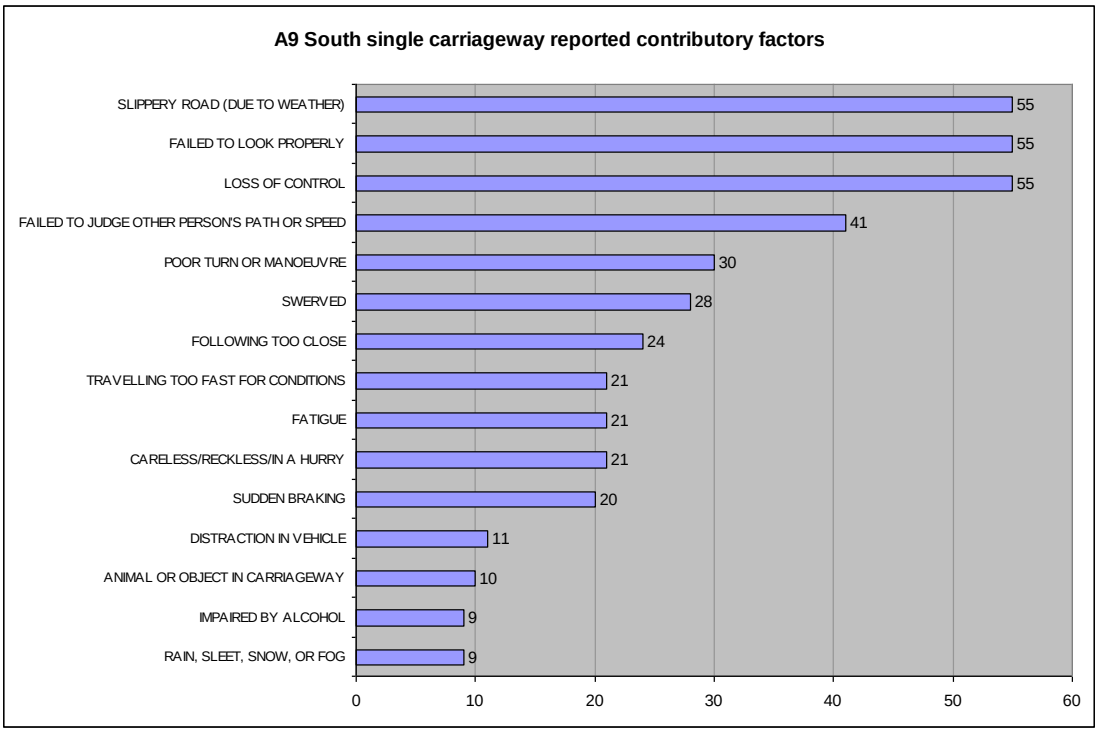


Figure 27: Graph of A9 South single carriageway contributory factors *(greater than 9no)*

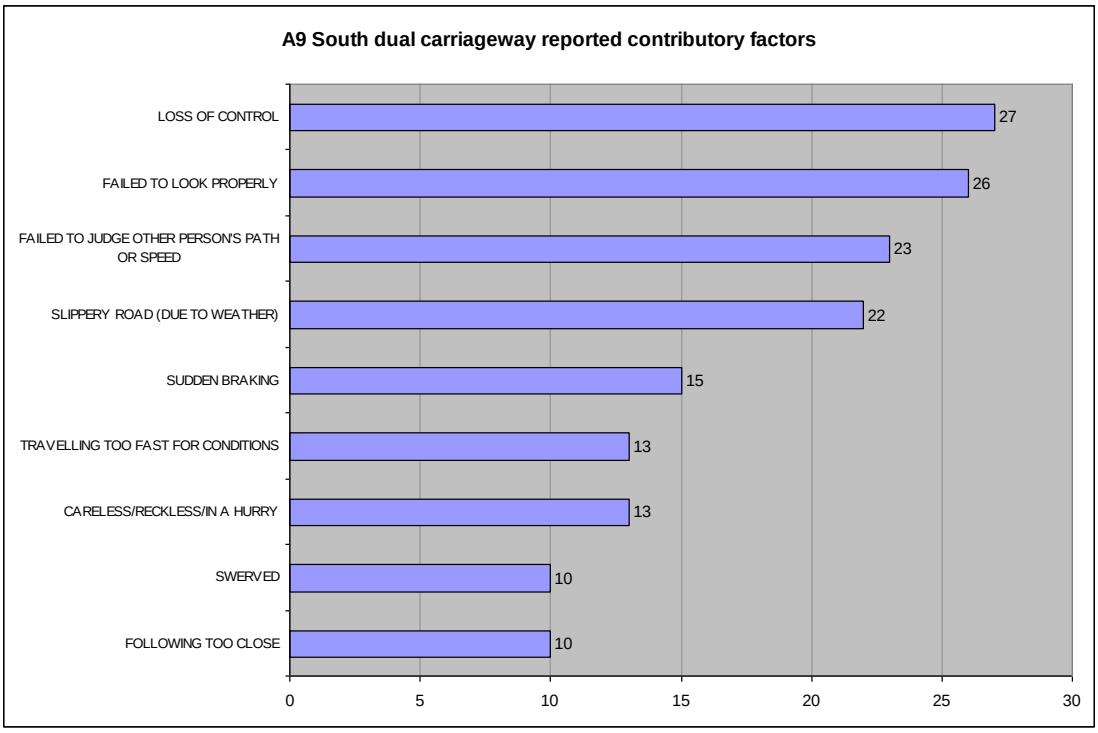


Figure 28: Graph of A9 South dual carriageway contributory factors *(greater than 9no)*

Figure 29 below shows the contributory factors for all vehicles involved in accidents on the A9 between 2007 and 2011. On the A9 north the highlighted contributory factors, which are more common in accidents than across the other four route sections (full route, A9 south, A9 south single carriageway and A9 south dual carriageway) are: failed to look properly; careless/reckless/in a hurry; poor turn or manoeuvre; inexperienced or learner driver; road layout; junction overshoot.

On the A9 south single carriageway the contributory factors which are more common in accidents than across the other route sections are: 'swerved; following too close; fatigue; animal or object in carriageway.

On the A9 south dual carriageway the contributory factors which are more common in accidents than across the other route sections are: failed to judge other persons path or speed; 'sudden braking; dazzling sun'

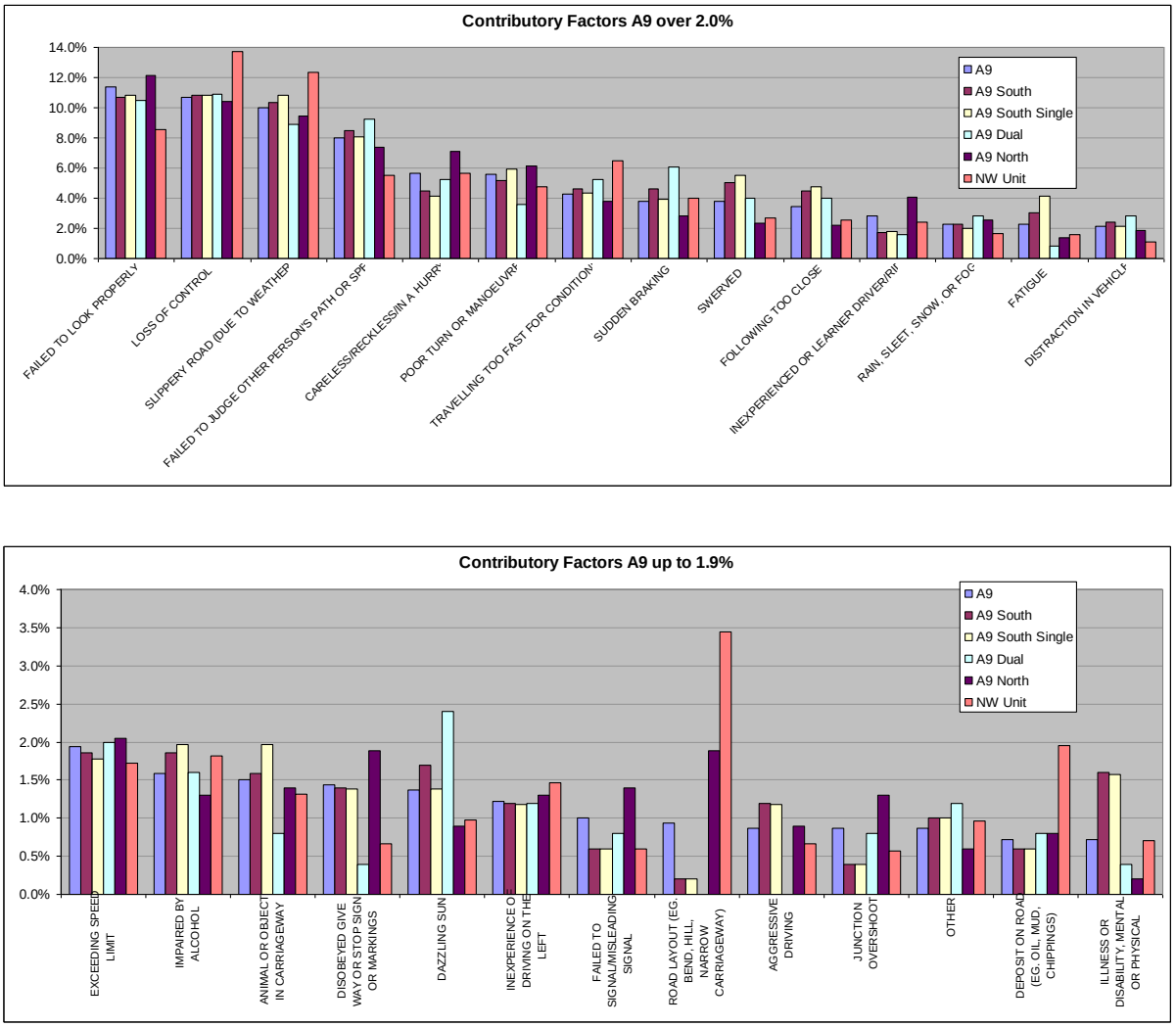


Figure 29: Graphs of all reported contributory factors on the A9 against NW unit averages

Table 3 overleaf shows a comparison of the contributory factors for all vehicles involved in an accident (as a percentage of the total accident across each respective section) against the equivalent NW unit average values.

The contributory factors involved proportionately more in accidents on the A9 when compared to the NW Unit average are; failed to look properly, failed to judge other person's path or speed, poor turn or manoeuvre, swerved, following too close, inexperienced or learner driver/rider, rain/sleet/snow/fog, fatigue, distraction in vehicle, exceeding speed limit, animal or object in carriageway, disobey give way or stop sign or markings, dazzling sun; failed to signal/misleading signal; aggressive driving; junction overshoot.

The contributory factors involved proportionately more in accidents on the A9 south when compared to the NW Unit average are; failed to look properly; failed to judge other person's path or speed; Poor turn or manoeuvre; sudden braking; swerved; following too close; rain/sleet/snow/fog; fatigue; distraction in vehicle; exceeding speed limit; impaired by alcohol; animal or object in carriageway; disobey give way or stop sign or markings; dazzling sun; aggressive driving; illness or disability/mental or physical.

The contributory factors involved proportionately more in accidents on the A9 south single carriageways when compared to the NW Unit average are: failed to look properly; failed to judge other person's path or speed; poor turn or manoeuvre; swerved; following too close; rain/sleet/snow/fog; fatigue; distraction in vehicle; exceeding speed limit; impaired by alcohol; animal or object in carriageway; disobey give way or stop sign or markings; dazzling sun; aggressive driving; illness or disability/mental or physical.

The contributory factors involved proportionately more in accidents on the A9 south dual carriageway sections when compared to the NW Unit average are: failed to look properly; failed to judge other person's path or speed; sudden braking; swerved; following too close; rain/sleet/snow/fog; distraction in vehicle; exceeding speed limit; dazzling sun; failed to signal/misleading signal; junction overshoot; other.

The contributory factors involved proportionately more in accidents on the A9 north when compared to the NW Unit average are: failed to look properly; failed to judge other person's path or speed; careless/reckless/in a hurry; poor turn or manoeuvre; inexperienced or learner driver/rider; rain/sleet/snow/fog, distraction in vehicle, exceeding speed limit, animal or object in carriageway, disobey give way or stop sign

or markings, failed to signal/misleading signal, aggressive driving and junction overshoot.

Contributory Factor	A9 Full Route	A9 South	A9 South Single	A9 Dual	A9 North	NW Unit
Failed to look properly	11.4%	10.7%	10.8%	10.5%	12.1%	8.6%
Loss of control	10.7%	10.8%	10.8%	10.9%	10.4%	13.7%
Slippery road (due to weather)	10.0%	10.3%	10.8%	8.9%	9.4%	12.3%
Failed to judge other person's path or speed	8.0%	8.5%	8.1%	9.3%	7.4%	5.5%
Careless/reckless/in a hurry	5.7%	4.5%	4.1%	5.2%	7.1%	5.7%
Poor turn or manoeuvre	5.6%	5.2%	5.9%	3.6%	6.1%	4.8%
Travelling too fast for conditions	4.2%	4.6%	4.3%	5.2%	3.8%	6.5%
Sudden braking	3.8%	4.6%	3.9%	6.0%	2.8%	4.0%
Swerved	3.8%	5.0%	5.5%	4.0%	2.4%	2.7%
Following too close	3.5%	4.5%	4.7%	4.0%	2.2%	2.6%
Inexperienced or learner driver/rider	2.8%	1.7%	1.8%	1.6%	4.1%	2.4%
Rain, sleet, snow, or fog	2.3%	2.2%	2.0%	2.8%	2.5%	1.7%
Fatigue	2.3%	3.0%	4.1%	0.8%	1.4%	1.6%
Distraction in vehicle	2.2%	2.4%	2.2%	2.8%	1.9%	1.1%
Exceeding speed limit	1.9%	1.9%	1.8%	2.0%	2.0%	1.7%
Impaired by alcohol	1.6%	1.9%	2.0%	1.6%	1.3%	1.8%
Animal or object in carriageway	1.5%	1.6%	2.0%	0.8%	1.4%	1.3%
Disobeyed give way or stop sign or markings	1.4%	1.4%	1.4%	0.4%	1.9%	0.7%
Dazzling sun	1.4%	1.7%	1.4%	2.4%	0.9%	1.0%
Inexperience of driving on the left	1.2%	1.2%	1.2%	1.2%	1.3%	1.5%
Failed to signal/misleading signal	1.0%	0.6%	0.6%	0.8%	1.4%	0.6%
Road layout (eg. Bend, hill, narrow carriageway)	0.9%	0.2%	0.2%	0.0%	1.9%	3.4%
Aggressive driving	0.9%	1.2%	1.2%	0.0%	0.9%	0.7%
Junction overshoot	0.9%	0.4%	0.4%	0.8%	1.3%	0.6%
Other	0.9%	1.0%	1.0%	1.2%	0.6%	1.0%
Deposit on road (eg. Oil, mud, chippings)	0.7%	0.6%	0.6%	0.8%	0.8%	1.9%
Illness or disability, mental or physical	0.7%	1.6%	1.6%	0.4%	0.2%	0.7%

Table 3: Table showing all reported contributory factors on the A9 against NW unit averages (greater than NW Unit highlighted)

3.1.5 Driver age

Distribution of the age of drivers of Vehicle 001 involved in accidents differs between A9 North and A9 South sections, see Figure 30 below. For both sections, the majority of drivers fall into the broad 30 to 59 year-old category, with 51% for the A9 North section and 58% for the A9 South section. The 17 to 24 year-old categories are involved in 18% of accidents in the A9 North section, but only 11% of the A9 South section accidents. The difference between the two sections highlights a bias towards younger drivers in the A9 North section and older drivers in the A9 South section.

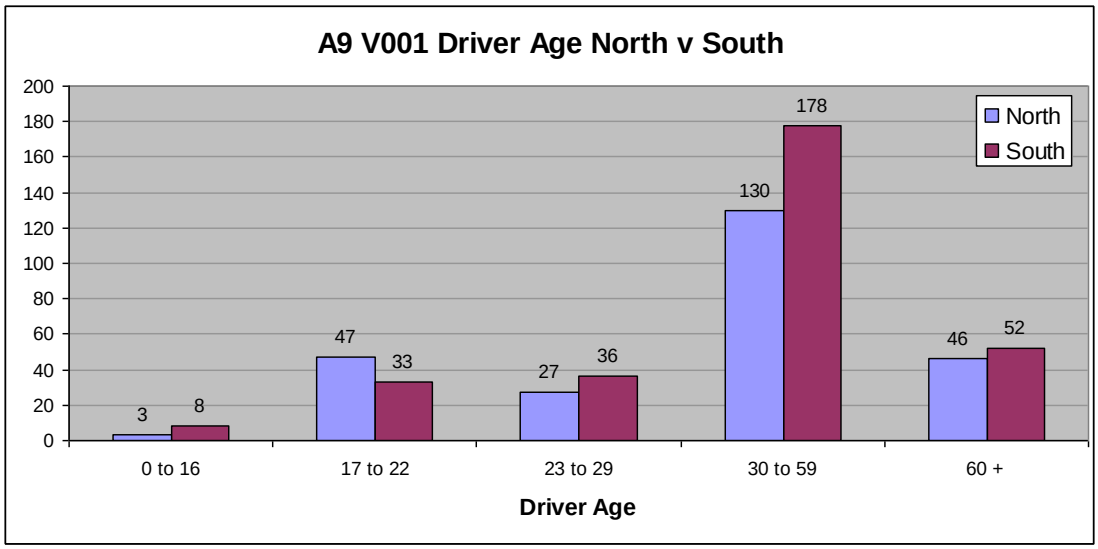


Figure 30: Age of Vehicle 001 drivers between A9 North and South.

3.1.6 Driver Postcode

Figure 31 below shows the distance from driver's home to accident location and indicates the increasing risk the further the distance travelled. Drivers from over 50 km away make up 21.3% of accident of the A9; the national average from *Reported Road Causalities Scotland 2011* for over 50 km from home is only 5.9%. Foreign drivers form a minority category compared to local and long distance national drivers.

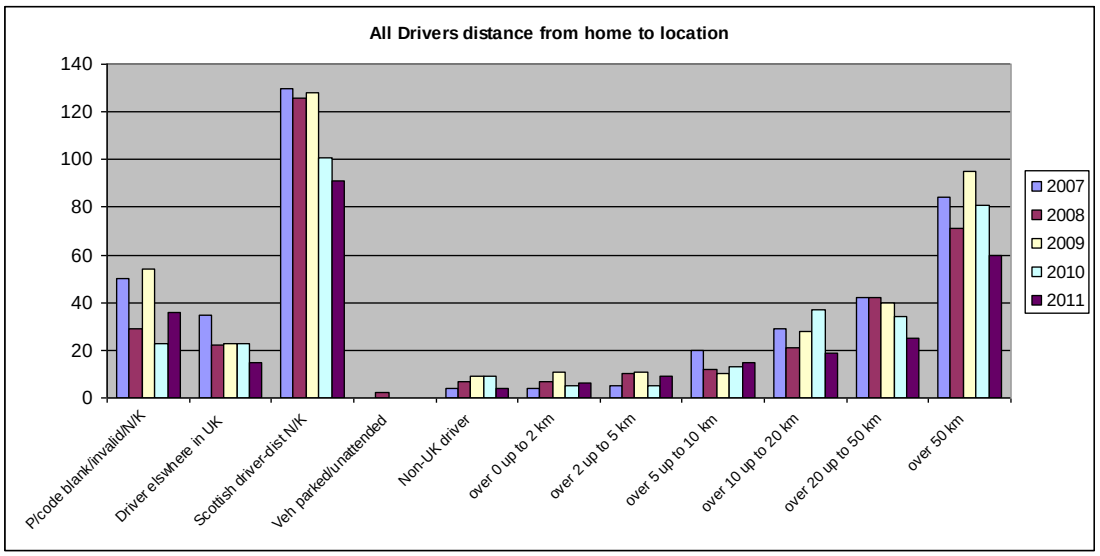


Figure 31: Distance from home location to accident location.

3.1.7 Single / Multiple vehicle accidents

Figure 32 below shows the proportion of single and multiple vehicle accidents against the NW Unit average. There are a higher proportion of multiple vehicle accidents on all sections of the A9 when compared with the NW Unit.

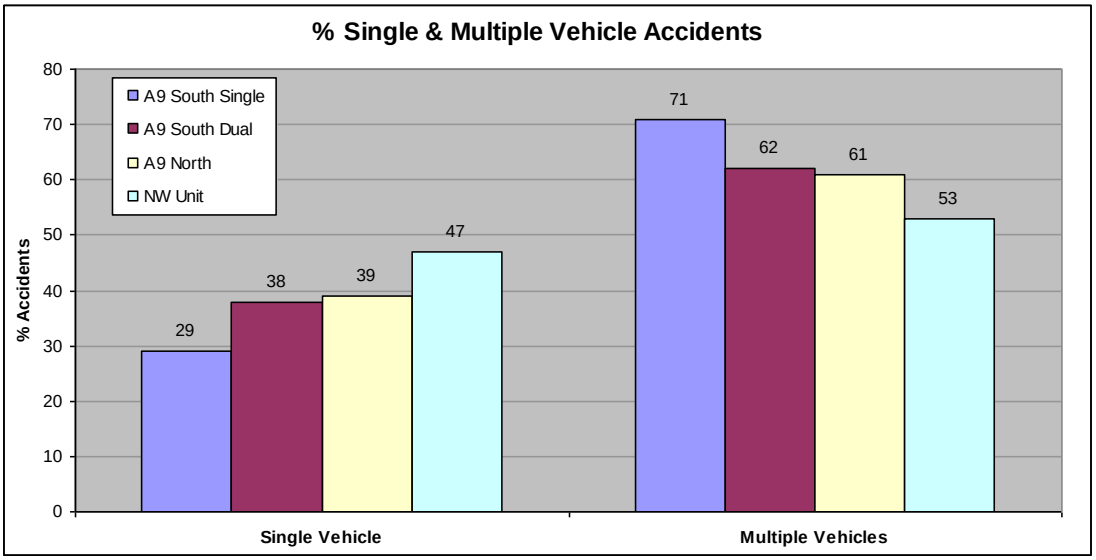


Figure 32: % Single & Multiple Vehicle Accidents.

3.1.7 Junction Accidents

Figure 33 below shows the proportion of accidents at a junction against the NW Unit average. There are a higher proportion of junction accidents on all sections of the A9 when compared with the NW Unit. This is particularly pronounced on the A9 north, with 43% of accidents occurring at a junction.

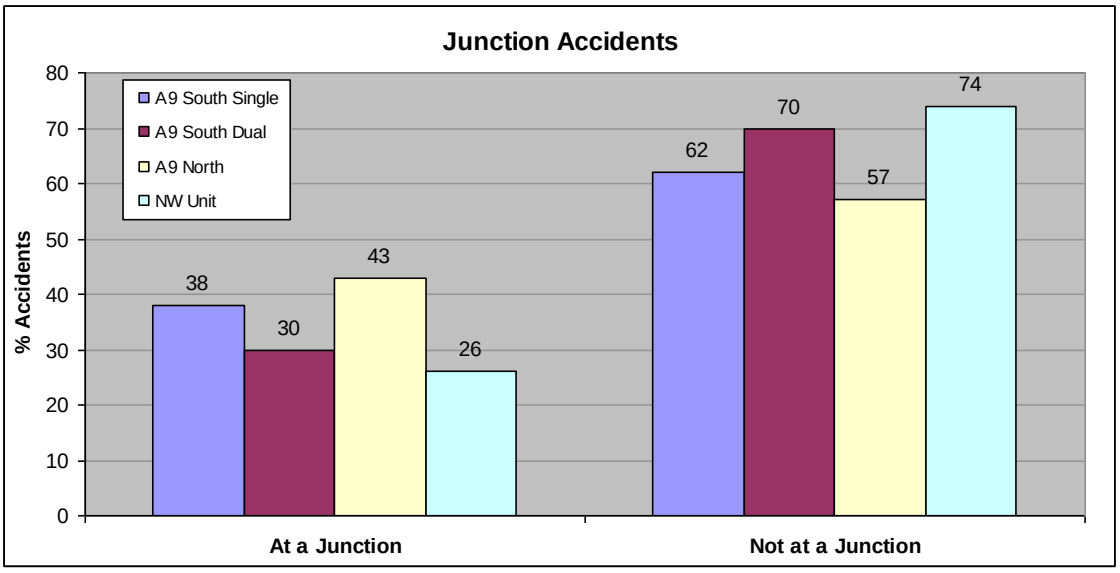


Figure 33: Junction Accidents.

4 Comparison of road type against National Accident and Killed or Seriously Injured (KSI) Rates

Comparison of Accident Rates

To reflect the significance of 560 injury accidents, a more detailed assessment against the Scottish national accident rate* was carried out to identify if there were particular sections of road types, either single, WS2+1 or dual carriageway, which are above the national accident rate. See Table 4 on page 34.

(*Scottish national accident rate for dual and single carriageway from the SERIS accident rate calculator per 100 million-vehicle kilometre (100mvk) is 7.7 and 18.7 respectively, for the five-year period between 2007 and 2011)

A9 South

Single Carriageways

Table 4 shows that accident rates on 13 of the 15 single carriageway sections, between Inveralmond roundabout Perth to Tore roundabout Inverness, are below the Scottish national average.

The section of single road at Bankfoot, section number three, does highlight a higher than average accident rate. However, this site has been subject to an extensive junction and road improvement to address right turn conflicts. Since its completion in 2009 there have been no reportable accidents.

The single lane dual road at Faskally, section number nine, has been highlighted as having an elevated accident rate. Road improvements were carried out on this section in 2010 to eliminate overtaking manoeuvres on this very short two lane section of dual carriageway. There haven't been any reportable accidents since the improvements where completed.

Dual Carriageways

Table 4 shows that nine of the ten dual carriageway sections between the A9 Perth and Tore are also below the national rate of 8.81 accidents per 100 mvk. Only the dual carriageway section from Meall Mor to Kessock Bridge was found to be being marginally higher than the national rate.

The dual carriageway section from Meall Mor to Kessock Bridge has an accident rate 0.15 above the national average. This section includes Raigmore interchange which was re-surfaced and re-lined in 2012, and the approaches to Longman roundabout which was signalised in February 2013. Both improvement schemes are likely to have a positive impact on accident numbers.

WS2+1 Carriageways

Wide Single + 1 (WS2+1) carriageway sections feature on the A9 between Perth and Tore, but there are no national statistics to compare against and have been included within the analysis of the single carriageway sections. Some of the accidents on the WS2+1 sections occurred before implementation of the additional lane, but within the 2007 to 2011 analysis period.

A9 North

The section North of Tore roundabout is entirely single carriageway and has an accident rate of 24.27 accidents per million vehicle kilometres (mvk), which is 29% higher than the national average.

Section Number	Section	Length km	AADT veh/day	Road Type Single, WS2 + 1 or Dual Carriageway	5 Year Accidents Number	5 year Accident Rate*
1	Inveralmond Roundabout to Luncarty	3.83	20046	Dual	9	6.42
2	Luncarty to Bankfoot	4.50	15968	Single	14	10.68
3	**Bankfoot**	1.45	16093	**Single**	4	9.39
4	Bankfoot to Kingswood	2.73	13024	Single	3	4.62
5	Kingswood to Birnam	2.88	12979	Dual	1	1.47
6	Birnam to Ballinluig	15.46	13125	Single	37	9.99
7	Ballinluig to Pitlochry Slips	6.19	12945	Dual	11	7.52
8	Pitlochry Slips to Faskally	3.68	9607	Single	7	10.85
9	**Faskally**	0.39	5522	**Single**	2	50.89
10	Faskally to Faskally House	1.40	7692	Single	3	15.26
11	Faskally House to Killiecrankie	2.67	9426	Dual	2	4.35
12	Killiecrankie to Dalnacardoch	21.02	8758	Single	20	5.95
13	Dalnacardoch to Dalnaspidal	9.80	8770	Dual	10	6.38
14	Dalnaspidal to Crubenmore	20.11	8170	Single	32	10.67
15	Crubenmore to Glentruim	4.30	9046	Dual	5	7.04
16	Glentruim to Nuide 2+1	3.50	7882	Single	5	9.93
17	Nuide 2+1	1.66	6749	WS2+1	1	4.89
18	Nuide 2+1 to Kincraig 2+1	8.75	8055	Single	11	8.55
19	Kincraig 2+1	1.10	8880	WS2+1	2	11.22
20	Kincraig 2+1 to Carrbridge 2+1	22.37	8004	Single	33	9.90
21	Carrbridge 2+1	1.01	7282	WS2+1	1	7.45
22	Carrbridge 2+1 to Slochd	8.84	7340	Single	5	4.22
23	Slochd to Tomatin	5.34	8438	Dual	6	7.30
24	Tomatin to Moy 2+1	3.47	8791	Single	7	12.57
25	Moy 2+1	2.12	8988	WS2+1	3	8.63
26	Moy 2+1 to Meall Mor	3.34	7734	Single	5	10.61
27	**Meall Mor to Kessock Bridge**	16.05	14859	**Dual**	39	8.96
28	Kessock Bridge to Tore Roundabout	9.47	24478	Dual	29	6.38
29	**Tore to Scrabster**	168.34	3340	**Single**	253	24.27

Table 4: Accident Rate per million-vehicle kilometre on road sections/types A9 Perth and Thurso.

Highlights road section/type with an accident ratio above the national average.*

Comparison of Killed or Seriously Injured (KSI) Rates

A KSI rate is a measure of the proportion of all accidents that involve at least one serious or one fatal casualty. The national average KSI rate for the trunk road network (2007 to 2011) is 0.24. As with the comparison of accident rates undertaken, the KSI rate for each discreet section of the A9 has been compared against this national average KSI rate. This comparison is highlighted in Table 5 on page 37.

Table 5 shows that there are eleven sections of single carriageway and one section of dual carriageway above the national average of 0.24. More detailed analysis has subsequently been undertaken to better understand the key accident themes at each of these locations on the route (see Table 6 on page 38). A summary of this analysis is provided below:

Section 2 - Luncarty to Bankfoot (single carriageway): 78% going ahead manoeuvre, 50% in darkness and 50% on a wet/damp road.

Section 4 – Bankfoot to Kingswood (single carriageway): All accidents in fine weather and on a dry road.

Section 6 – Birnam to Ballinluig (single carriageway): 27% HGV as V001, 46% at a junction, 83% in daylight and on a dry road.

Section 7 – Ballinluig to Pitlochry slips (dual carriageway): 27% HGV as V001, 45% at a junction.

Section 8 – Pitlochry slips to Faskally (single carriageway): 85% going ahead manoeuvre, 57% on wet/damp road.

Section 10 – Faskally to Faskally House (single carriageway): all 3 accidents were killed or seriously injured, involving a car going ahead in daylight.

Section 12 – Killiecrankie to Dalnacardoch (single carriageway): 95% going ahead manoeuvre, 75% in daylight, 85% in fine weather and 60% on a dry road.

Section 14 – Dalnaspital to Crubenmore (single carriageway): 68% going ahead manoeuvre, 18% in snow.

Section 18 – Nuide 2+1 to Kincraig 2+1 (single carriageway): 27% HGV as V001, 36% while snowing.

Section 20 – Kincraig 2+1 to Carrbridge 2+1 (single carriageway): 48% at a junction, 78% in daylight and fine weather.

Section 22 – Carrbridge 2+1 to Slochd (single carriageway): All going ahead manoeuvre, 80% in daylight.

Section 24 – Tomatin to Moy 2+1 (single carriageway): 28% HGV as V001, 85% going ahead manoeuvre, 57% in fine weather on a dry road.

Section Number	Section	Length Km	AADT	Carriageway type	5-yr Acc	KSI's	Section KSI Ratio
1	Inveralmond Roundabout to Luncarty	3.83	20046	Dual	9	1	0.11
	Luncarty to Bankfoot 2+1	4.5	15968	**Single**	14	7	0.50
3	Bankfoot	1.45	16093	Single	4	0	0.00
4	**Bankfoot to Kingswood**	2.73	13024	**Single**	3	1	0.33
5	Kingswood to Birnam	2.88	12979	Dual	1	0	0.00
6	**Birnam to Ballinluig**	15.46	13125	**Single**	37	11	0.30
7	**Ballinluig to Pitlochry Slips**	6.19	12945	**Dual**	11	4	0.36
8	**Pitlochry Slips to Faskally**	3.68	9607	**Single**	7	4	0.57
9	Faskally	0.39	5522	Single	2	0	0.00
10	**Faskally to Faskally House**	1.4	7692	**Single**	3	3	1.00
11	Faskally House to Killiecrankie	2.67	9426	Dual	2	0	0.00
12	**Killiecrankie to Dalnacardoch**	21.02	8758	**Single**	20	10	0.50
13	Dalnacardoch to Dalnaspidal	9.8	8770	Dual	10	2	0.20
14	**Dalnaspidal to Crubenmore**	20.11	8170	**Single**	32	12	0.38
15	Crubenmore to Glentruim	4.3	9046	Dual	5	0	0.00
16	Glentruim to Nuide 2+1	3.5	7882	Single	5	1	0.20
17	Nuide 2+1	1.66	6749	WS2+1	1	0	0.00
18	**Nuide 2+1 to Kincraig 2+1**	8.75	8055	**Single**	11	5	0.45
19	Kincraig 2+1	1.1	8880	WS2+1	2	0	0.00
20	**Kincraig 2+1 to Carrbridge 2+1**	22.37	8004	**Single**	33	9	0.27
21	Carrbridge 2+1	1.01	7282	WS2+1	1	0	0.00
22	**Carrbridge 2+1 to Slochd**	8.84	7340	**Single**	5	2	0.40
23	Slochd to Tomatin	5.34	8438	Dual	6	0	0.00
24	**Tomatin to Moy 2+1**	3.47	8791	**Single**	7	3	0.43
25	Moy 2+1	2.12	8988	WS2+1	3	0	0.00
26	Moy 2+1 to Meall Mor	3.34	7734	Single	5	0	0.00
27	Meall Mor to Kessock Bridge	16.05	14859	Dual	39	6	0.15
28	Kessock Bridge to Tore Roundabout	9.47	24478	Dual	29	7	0.24
29	Tore to Scrabster	168.3	3340	Single	253	44	0.17
				Totals	**560**	**132**	**0.24**

Table 5: Accident severity ratio between A9 Perth and Thurso.

Highlights road section/type with an accident ratio above the national average.

	Section	Length Km	AADT	S/D	5-yr Acc	KSI's	KSI Ratio	Fatal	Serious	Slight	V001 Car	V001 HGV	V001 M/C	Junction	Not at Junction	V001 Going Ahead	V001 Turning right	V001 Turning Left	V001 Overtaking	Daylight	Darkness	Fine	Raining	Snowing	Road Dry	Road Wet/Damp	Road Snow	Road Frost
1	Inveralmond Roundabout to Luncarty	3.83	20046	Dual	9	1	0.11																					
2	Luncarty to Bankfoot	4.5	15368	Single	14	7	**0.50**	2	5	7	9	5	0	3	11	11	2	0	1	7	7	10	3	0	7	7	0	0
3	Bankfoot	1.45	16033	Single	4	0	0.00																					
4	Bankfoot to Kingswood	2.73	13024	Single	3	1	**0.33**	0	1	2	2	0	1	0	3	2	0	1	0	1	2	3	0	0	3	0	0	0
5	Kingswood to Birnam	2.88	12979	Dual	1	0	0.00																					
6	Birnam to Ballinluig	15.46	13125	Single	37	11	**0.30**	5	6	26	23	10	2	20	17	26	4	1	3	31	6	31	5	1	24	10	1	1
7	Ballinluig to Pitlochry Slips	6.13	12345	Dual	11	4	**0.36**	3	1	7	7	3	1	5	6	8	2	0	0	7	4	10	1	0	10	1	0	0
8	Pitlochry Slips to Faskally	3.68	9607	Single	7	4	**0.57**	2	2	3	5	1	1	2	5	6	0	0	1	5	2	2	3	1	1	4	1	1
9	Faskally	0.33	5522	Single	2	0	0.00																					
10	Faskally to Faskally House	1.4	7632	Single	3	3	**1.00**	2	1	0	3	0	0	1	2	3	0	0	0	3	0	2	1	0	2	1	0	0
11	Faskally House to Killiecrankie	2.67	9426	Dual	2	0	0.00																					
12	Killiecrankie to Dalnacardoch	21.02	8758	Single	20	10	**0.50**	2	8	10	13	5	1	4	16	19	1	0	0	15	5	17	1	2	12	7	1	0
13	Dalnacardoch to Dalnaspidal	9.8	8770	Dual	10	2	0.20																					
14	Dalnaspidal to Crubenmore	20.11	8170	Single	32	12	**0.38**	6	6	20	23	4	2	7	25	22	2	0	1	24	8	18	7	4	12	11	6	3
15	Crubenmore to Glentruim	4.3	9046	Dual	5	0	0.00																					
16	Glentruim to Nuide 2+1	3.5	7882	Single	5	1	0.20																					
17	Nuide 2+1	1.66	6743	WS2+1	1	0	0.00																					
18	Nuide 2+1 to Kincraig 2+1	8.75	8055	Single	11	5	**0.45**	3	2	6	6	3	2	3	8	8	0	1	1	8	3	5	2	4	5	3	3	0
19	Kincraig 2+1	1.1	8880	WS2+1	2	0	0.00																					
20	Kincraig 2+1 to Carrbridge 2+1	22.37	8004	Single	33	9	**0.27**	1	6	26	27	3	2	16	17	20	8	1	4	26	7	26	3	4	16	9	5	4
21	Carrbridge 2+1	1.01	7282	WS2+1	1	0	0.00																					
22	Carrbridge 2+1 to Slochd	8.84	7340	Single	5	2	**0.40**	1	1	3	3	1	0	1	4	5	0	0	0	4	1	3	1	0	2	2	0	1
23	Slochd to Tomatin	5.34	8438	Dual	6	0	0.00																					
24	Tomatin to Moy 2+1	3.47	8731	Single	7	3	**0.43**	0	3	4	5	2	0	2	5	6	1	0	0	5	2	4	0	2	4	1	1	1
25	Moy 2+1	2.12	8388	WS2+1	3	0	0.00																					
26	Moy 2+1 to Meall Mor	3.34	7734	Single	5	0	0.00																					
27	Meall Mor to Kessock Bridge	16.05	14859	Dual	39	6	0.15																					
28	Kessock Bridge to Tore Roundabout	9.47	24478	Dual	29	7	0.24																					
29	Tore to Scrabster	168.3	3340	Single	253	44	0.17																					
				Totals	**560**	**132**	**0.24**	**27**	**42**	**114**	**126**	**37**	**12**	**64**	**119**	**136**	**20**	**4**	**11**	**136**	**47**	**131**	**27**	**18**	**98**	**56**	**18**	**11**
								Fatal	Serious	Slight	V001 Car	V001 HGV	V001 M/C	Junction	Not at Junction	V001 Going Ahead	V001 Turning right	V001 Turning Left	V001 Overtaking	Daylight	Darkness	Fine	Raining	Snowing	Road Dry	Road Wet/Damp	Road Snow	Road Frost

Table 6: Accident Analysis by sections greater than National Average KSI ratio of 0.24 *(12 sections highlighted)*

5 Moving Cluster Site Analysis

Utilising Transport Scotland SERIS Moving Cursor Programme analysis of 2007 to 2011 injury accidents was completed. Using an enquiry radius of 250 metres and minimum cluster size of 5 accidents 25 cluster sites where identified, including 7 overlapping sites.

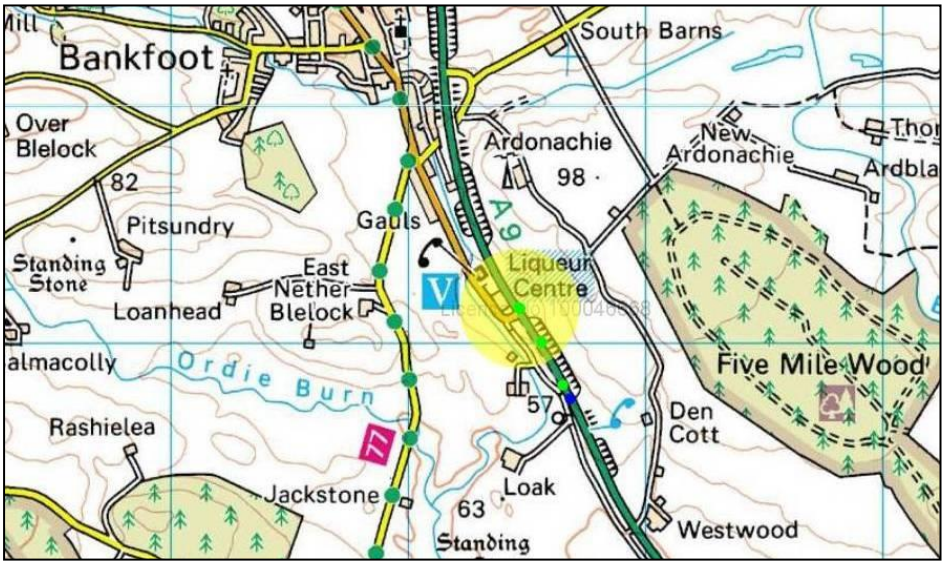
The same criterion was used to analyse 2010 to 2013 accident data, which produced a list of 18 cluster sites, see Figure 27 overleaf. Of the 18 sites identified;

- 6 sites have been re-alignment or re-surfacing or works are underway
- 10 sites have been subject to Moving Cursor investigations
- 1 site has been signalised
- 1 site has no treatable common factors in the accident characteristics

Location, accident details and action taken at each site are as shown from page 41;

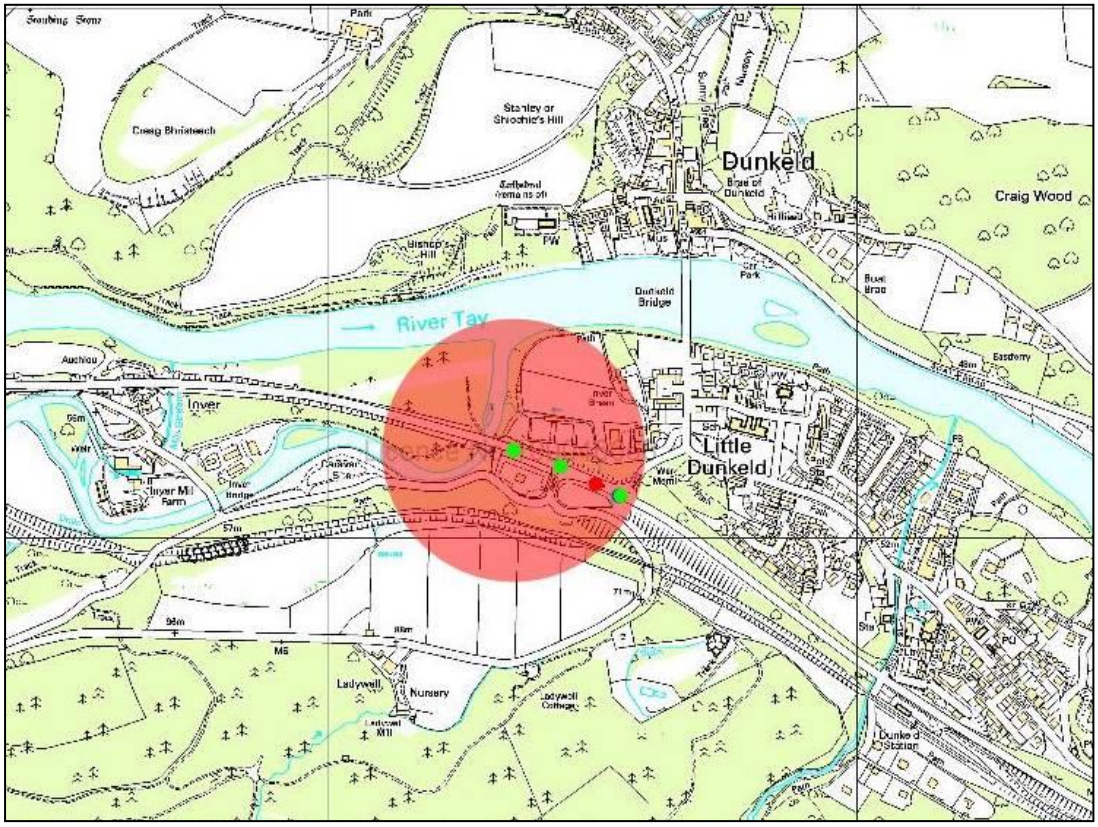
Figure 27: Location of 18 no cluster sites north and south of Inverness

CLUSTERS 1 & 24 BANKFOOT JUNCTION - New single lane dual & junction improvement scheme built August 2009.



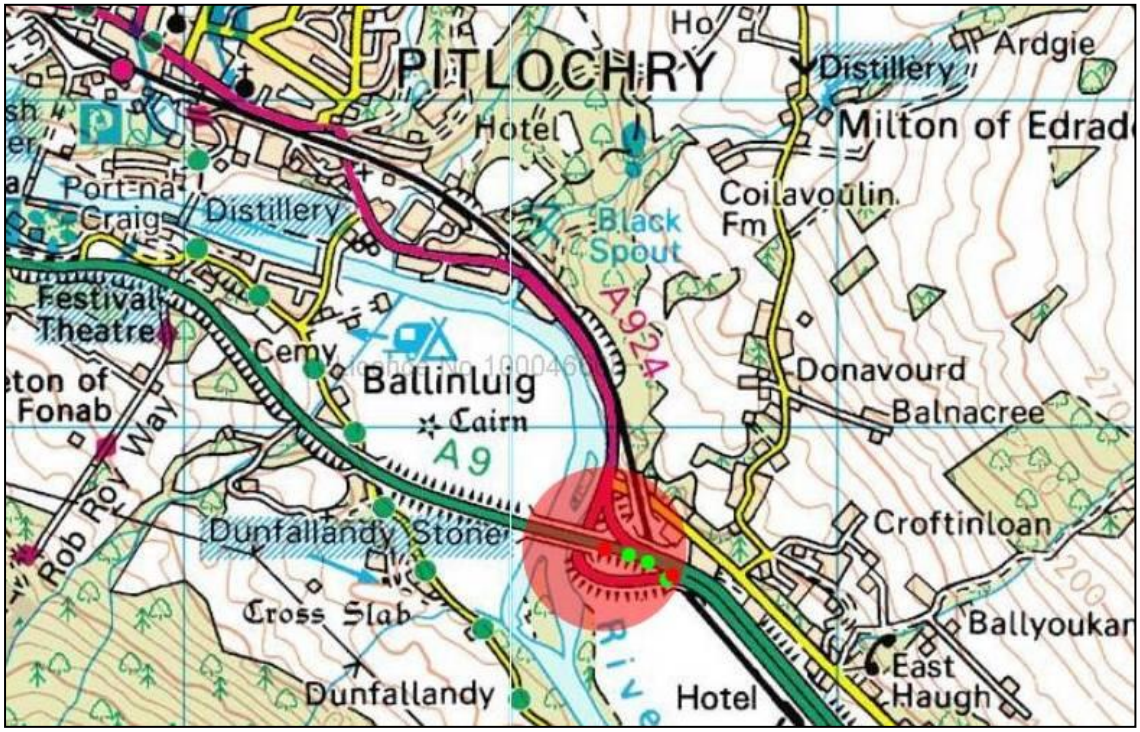
Junction Detail	Severity	Surface	Date and Time
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	27-Feb-2007 at 1510
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	11-Oct-2007 at 1000
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	11-Aug-2008 at 1400
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	21-Jun-2009 at 0900
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	26-Jun-2009 at 2130
NOT AT OR WITHIN 20 METRES OF JUNCTION	SERIOUS	DRY	15-Apr-2010 at 1610
NOT AT OR WITHIN 20 METRES OF JUNCTION	SERIOUS	DRY	24-Jun-2011 at 1810

CLUSTER 2 DUNKELD JUNCTION - resurfaced 2010 and solar studs installed.



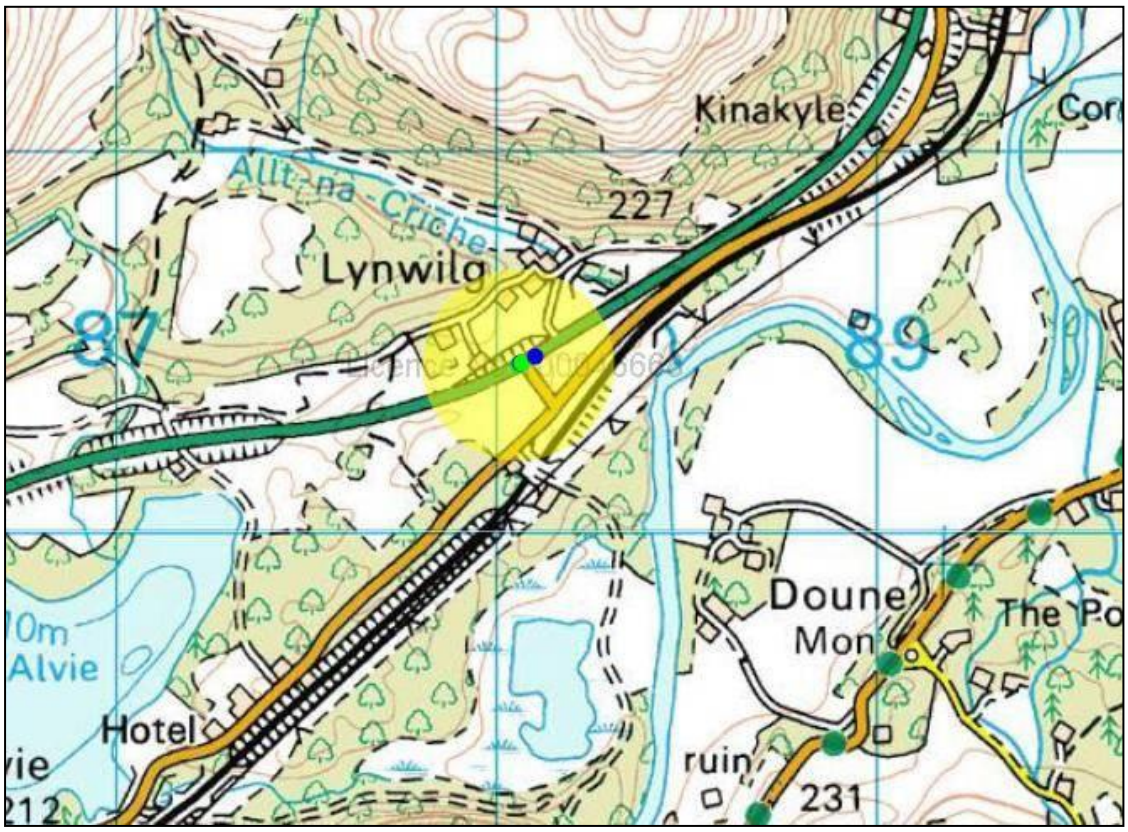
Junction Detail	Severity	Surface	Date and Time
SLIP ROAD	FATAL	DRY	1-Apr-2007 at 2215
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	3-Dec-2009 at 1625
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	4-Feb-2010 at 1640
"T" OR STAGGERED JUNCTION	SERIOUS	DRY	19-Jul-2011 at 1050
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	5-Dec-2011 at 0802

CLUSTER 25 PITLOCHRY SLIP ROAD - accident analysis shows no treatable common factor.



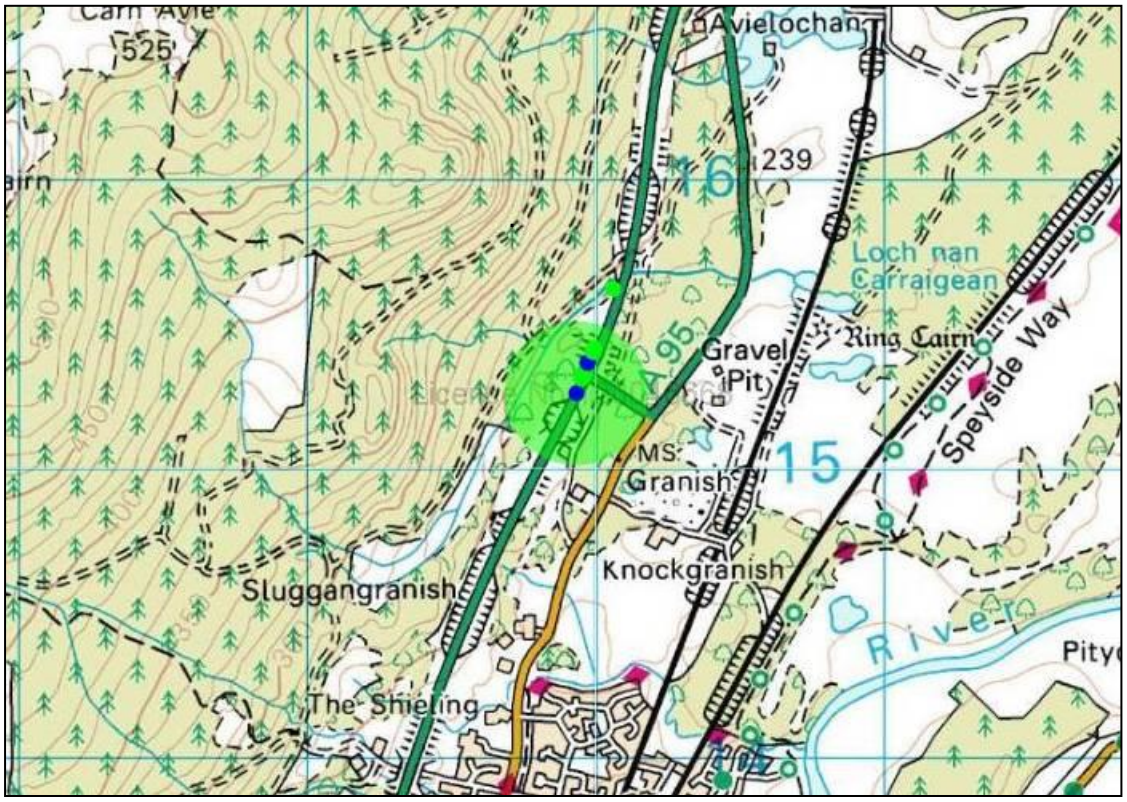
Junction Detail	Severity	Surface	Date and Time
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	4-Dec-2007 at 2005
NOT AT OR WITHIN 20 METRES OF JUNCTION	FATAL	DRY	3-Nov-2009 at 1740
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	6-Nov-2009 at 0600
NOT AT OR WITHIN 20 METRES OF JUNCTION	FATAL	WET / DAMP	31-Jul-2010 at 1800
SLIP ROAD	SLIGHT	WET / DAMP	19-Aug-2011 at 0250

CLUSTER 3 LYNWILG JUNCTION – Moving Cursor Programme investigation and works underway in February 2013.



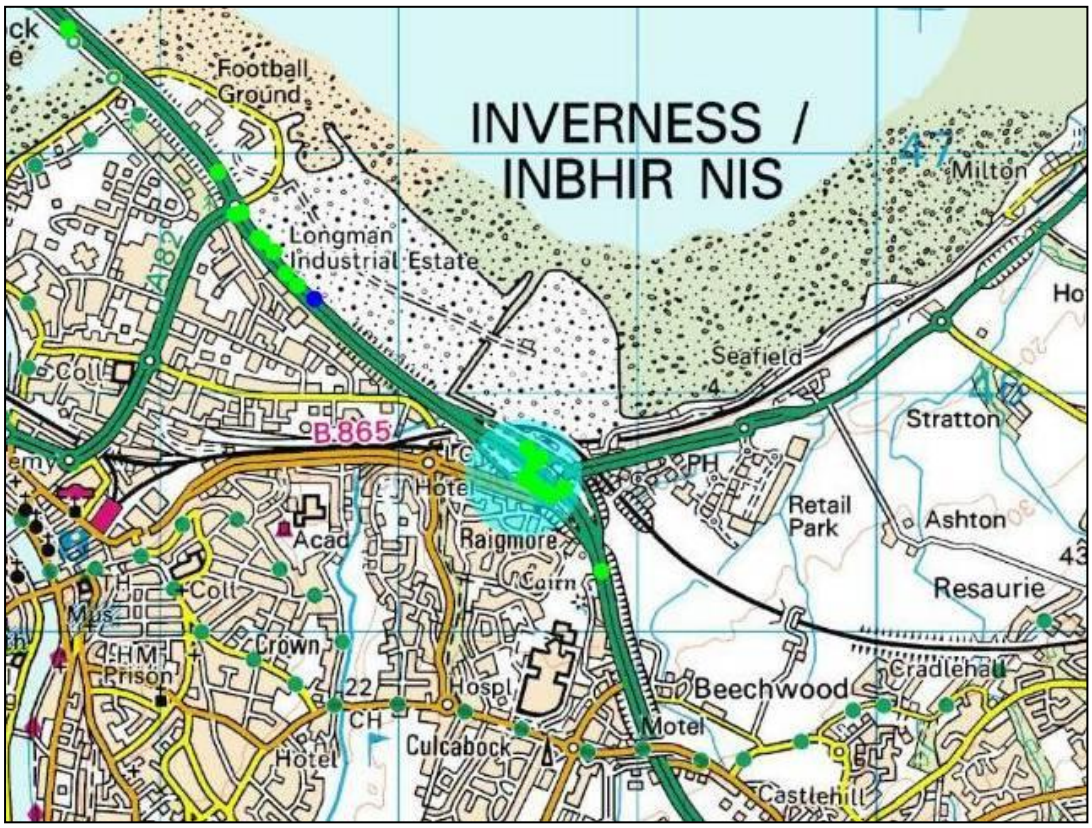
Junction Detail	Severity	Surface	Date and Time
"T" OR STAGGERED JUNCTION	SERIOUS	DRY	3-Sep-2008 at 1915
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	31-Jul-2009 at 1903
SLIP ROAD	SLIGHT	DRY	9-Aug-2009 at 1624
SLIP ROAD	SERIOUS	SNOW	29-Jan-2010 at 1401
SLIP ROAD	SLIGHT	WET / DAMP	30-May-2010 at 1030
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	10-Aug-2010 at 1606

Clusters 4 & 5 GRANISH A95 JUNCTION – proposed Moving Cursor Programme investigation update.



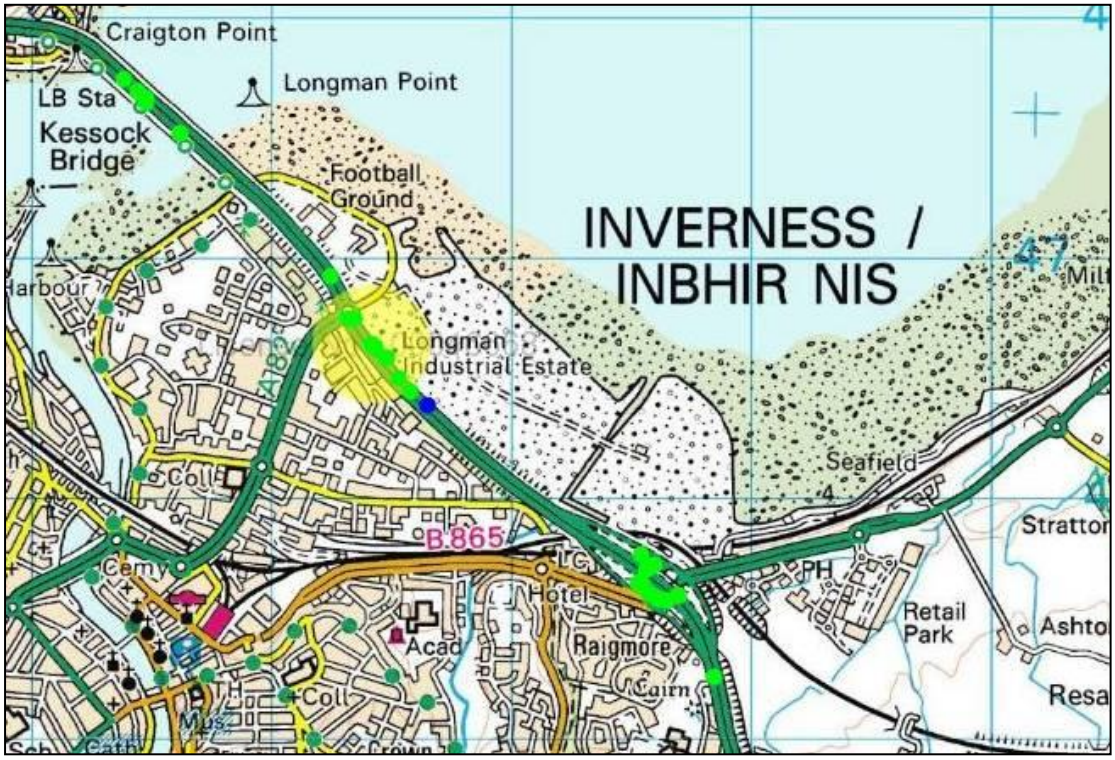
Junction Detail	Severity	Surface	Date and Time
"T" OR STAGGERED JUNCTION	SERIOUS	WET / DAMP	24-Jan-2007 at 1455
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	8-Apr-2007 at 0919
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	SNOW	19-Mar-2007 at 0923
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	18-Jun-2007 at 1502
OTHER JUNCTION	SLIGHT	FROST / ICE	2-Feb-2008 at 0500
OTHER JUNCTION	SLIGHT	DRY	6-Mar-2008 at 1540
SLIP ROAD	SLIGHT	DRY	4-Jun-2008 at 1720
OTHER JUNCTION	SLIGHT	WET / DAMP	18-Aug-2009 at 1325
"T" OR STAGGERED JUNCTION	SERIOUS	WET / DAMP	23-Feb-2010 at 1825
OTHER JUNCTION	SLIGHT	DRY	23-Jun-2010 at 1725

CLUSTERS 6 & 22 RAIGMORE INTERCHANGE - New resurfacing & lining scheme September 2012.



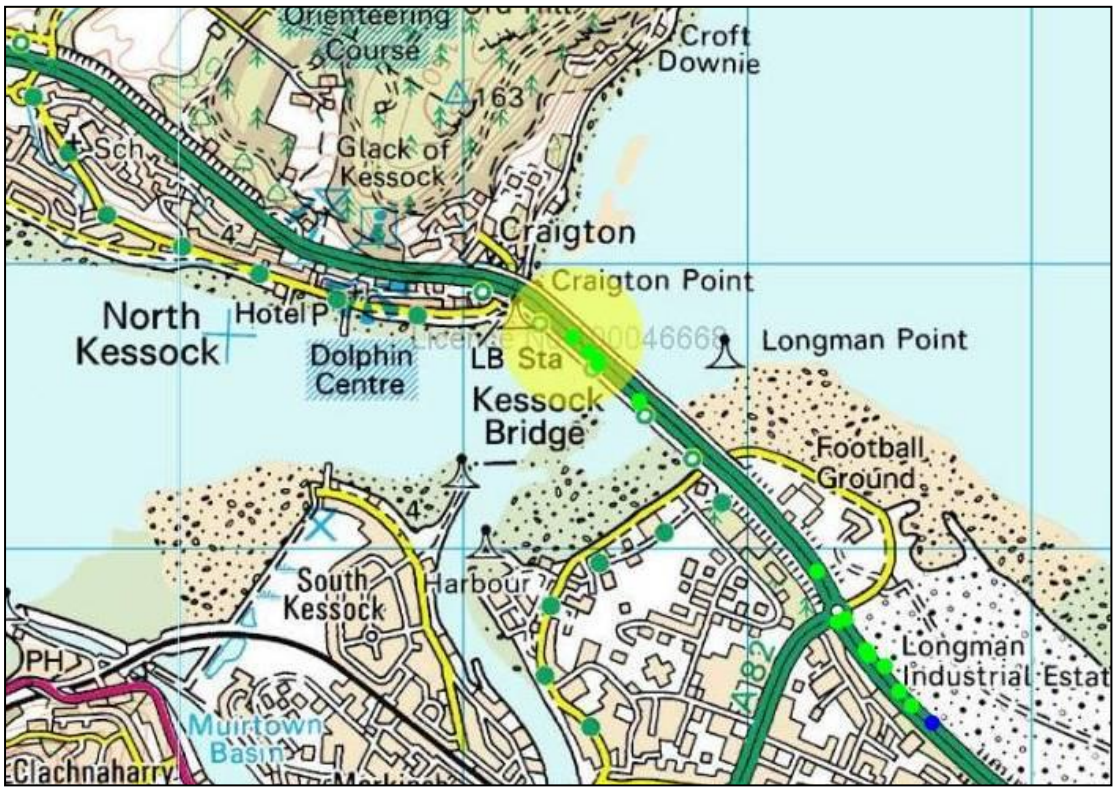
Junction Detail	Severity	Surface	Date and Time
ROUNDABOUT	SLIGHT	WET / DAMP	23-Feb-2007 at 2330
ROUNDABOUT	SLIGHT	DRY	8-Sep-2007 at 1300
ROUNDABOUT	SLIGHT	DRY	23-Apr-2008 at 2115
ROUNDABOUT	SLIGHT	DRY	23-May-2008 at 0810
ROUNDABOUT	SLIGHT	DRY	25-May-2008 at 0940
ROUNDABOUT	SLIGHT	WET / DAMP	22-Jul-2009 at 1600
ROUNDABOUT	SLIGHT	WET / DAMP	24-Nov-2009 at 1209
SLIP ROAD	SLIGHT	DRY	24-Jun-2010 at 1900
ROUNDABOUT	SLIGHT	DRY	23-Jul-2010 at 1840
ROUNDABOUT	SLIGHT	WET / DAMP	6-Aug-2010 at 1850
ROUNDABOUT	SLIGHT	WET / DAMP	23-Aug-2010 at 1740
ROUNDABOUT	SLIGHT	WET / DAMP	25-Nov-2010 at 1100
ROUNDABOUT	SLIGHT	WET / DAMP	8-Jul-2011 at 2057
ROUNDABOUT	SLIGHT	DRY	31-Oct-2011 at 0958

CLUSTERS 20 & 21 LONGMAN ROUNDABOUT– New traffic signals installed in February 2013.



Junction Detail	Severity	Surface	Date and Time
ROUNDABOUT	SLIGHT	WET / DAMP	8-Feb-2007 at 1720
ROUNDABOUT	SLIGHT	DRY	4-Jul-2009 at 1530
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	11-Dec-2009 at 1633
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	3-Dec-2009 at 1615
ROUNDABOUT	SLIGHT	FROST / ICE	17-Dec-2009 at 0740
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	22-Oct-2010 at 2345

Cluster 23 KESSOCK BRIDGE – bridge refurbishment and safety barrier works underway.



Junction Detail	Severity	Surface	Date and Time
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	5-Jun-2007 at 0850
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	24-May-2008 at 0930
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	23-Jun-2008 at 1222
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	5-Jul-2008 at 1615
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	11-Aug-2009 at 1135
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	7-Apr-2011 at 0840

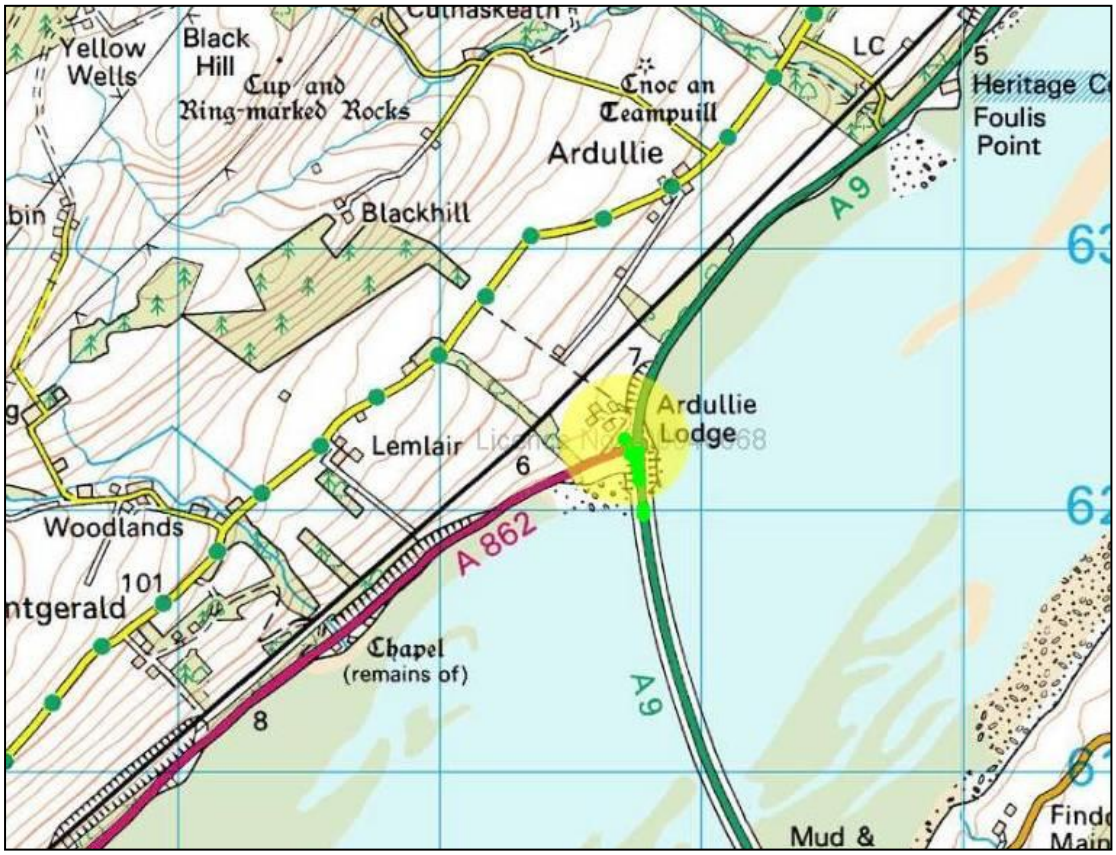
CLUSTER 19 MUNLOCHY JUNCTION - previous Moving Cursor Programme investigation.

Junction Detail	Severity	Surface	Date and Time
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	12-Jan-2007 at 0755
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	22-Aug-2007 at 1600
"T" OR STAGGERED JUNCTION	FATAL	WET / DAMP	26-Oct-2007 at 1850
SLIP ROAD	SLIGHT	DRY	11-Jun-2008 at 1525
SLIP ROAD	SLIGHT	DRY	10-Apr-2009 at 1320
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	10-Aug-2009 at 1345
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	11-Dec-2009 at 1700
OTHER JUNCTION	SLIGHT	DRY	30-Sep-2010 at 1030
SLIP ROAD	SLIGHT	WET / DAMP	24-Nov-2011 at 2015

CLUSTER 18 TORE ROUNDABOUT - previous Moving Cursor Programme investigation. Re-surfaced in 2009.

Junction Detail	Severity	Surface	Date and Time
ROUNDABOUT	SLIGHT	WET / DAMP	5-May-2007 at 1725
ROUNDABOUT	SLIGHT	DRY	26-Jun-2007 at 0908
ROUNDABOUT	SLIGHT	DRY	10-Sep-2007 at 1700
ROUNDABOUT	SLIGHT	FROST / ICE	21-Dec-2007 at 1104
ROUNDABOUT	SLIGHT	DRY	29-Jun-2009 at 1600
ROUNDABOUT	SLIGHT	WET / DAMP	22-Nov-2009 at 1840

CLUSTER 7 ARDULLIE ROUNDABOUT - previous Moving Cursor Programme investigation with no treatable common factors.

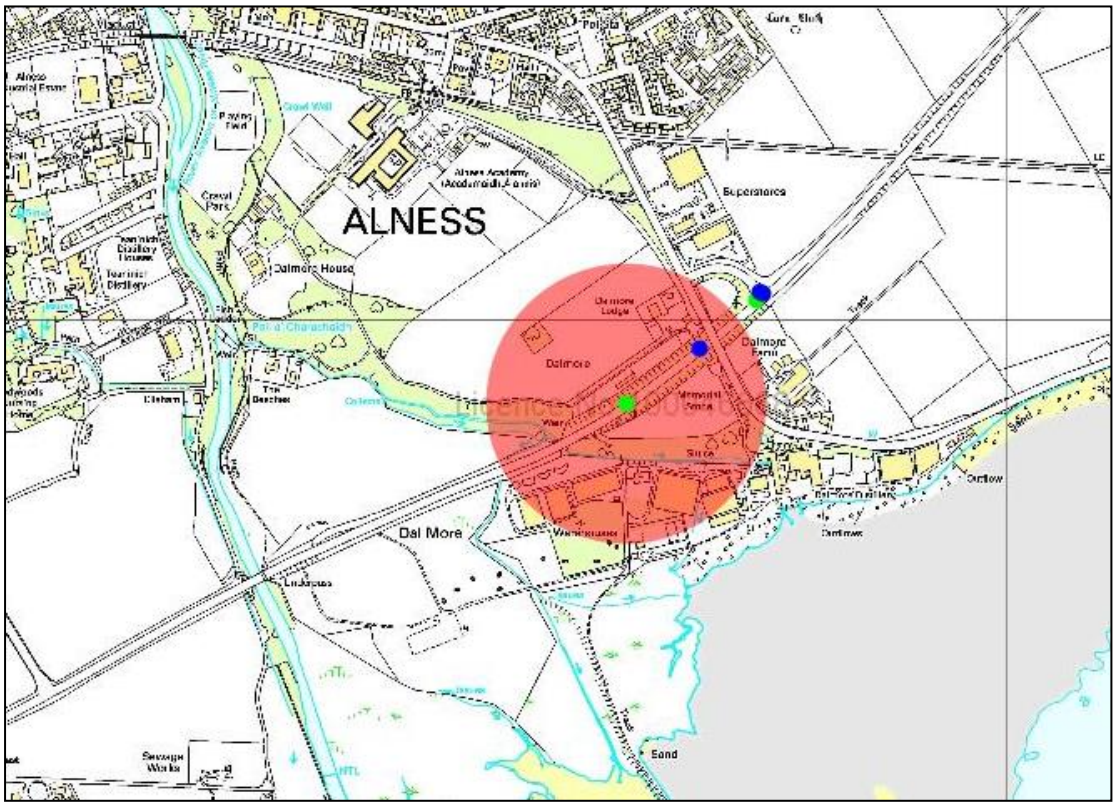


Junction Detail	Severity	Surface	Date and Time
ROUNDABOUT	SLIGHT	DRY	4-Jul-2008 at 1505
ROUNDABOUT	SLIGHT	WET / DAMP	8-Sep-2008 at 1720
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	28-May-2008 at 1342
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	4-Sep-2009 at 1713
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	4-Nov-2010 at 1800
ROUNDABOUT	SLIGHT	WET / DAMP	27-Oct-2010 at 1045
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	23-Jul-2011 at 1201
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	23-Aug-2011 at 1230

CLUSTERS 8 & 9 DRUMMOND JUNCTION- under Moving Cursor Programme investigation.

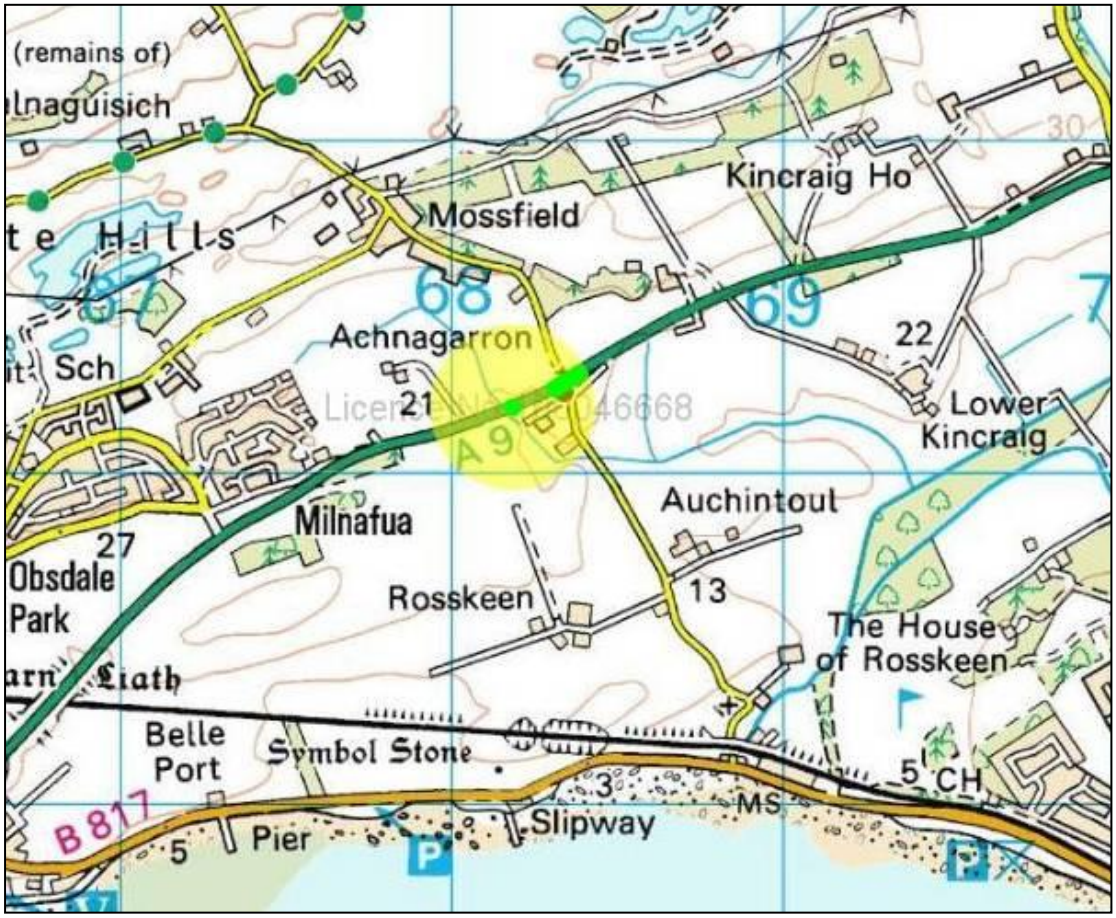
Junction Detail	Severity	Surface	Date and Time
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	27-Feb-2007 at 0730
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	6-Jun-2009 at 1310
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	20-Nov-2009 at 1211
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	30-Apr-2010 at 0250
SLIP ROAD	SLIGHT	DRY	16-Aug-2010 at 1714

CLUSTER 10 DALMORE JUNCTION - previous Moving Cursor Programme investigation, visibility treated.



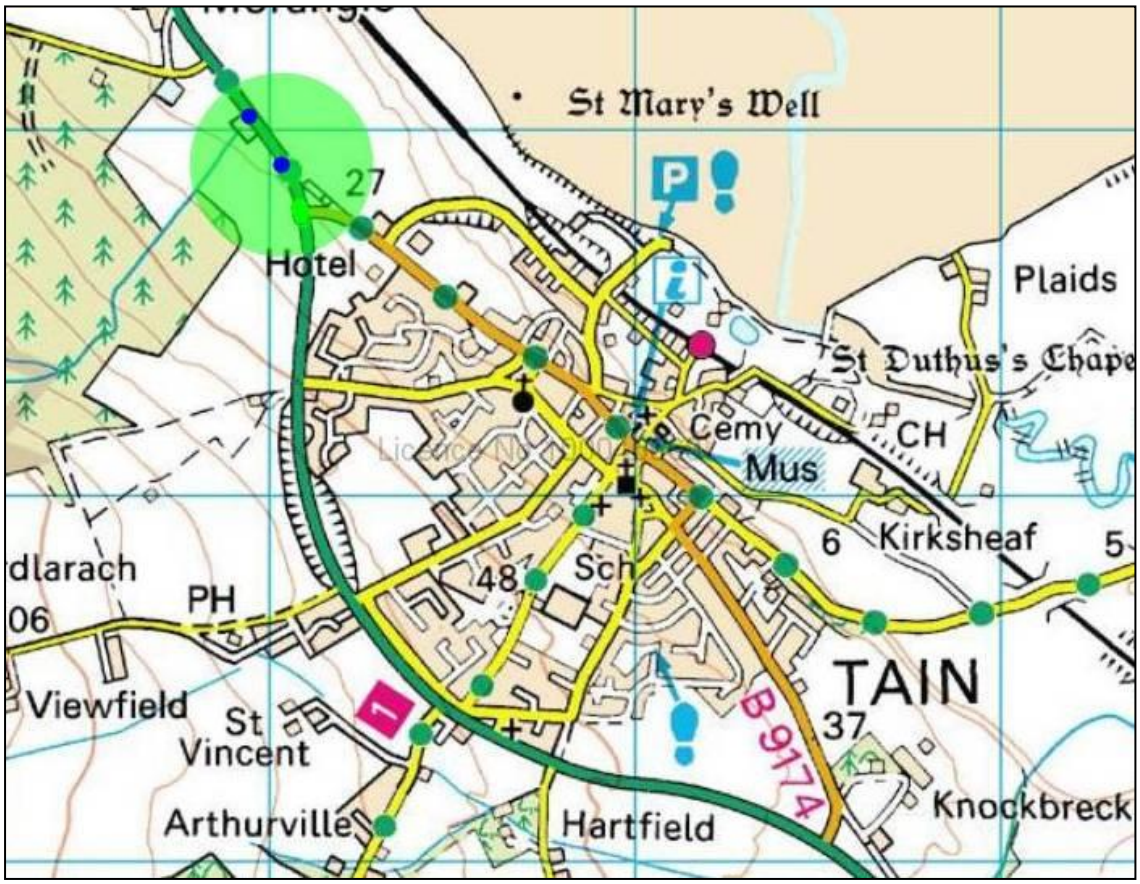
Junction Detail	Severity	Surface	Date and Time
"T" OR STAGGERED JUNCTION	SERIOUS	WET / DAMP	16-Dec-2007 at 1410
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	DRY	7-Nov-2008 at 2150
MULTIPLE JUNCTION	SERIOUS	DRY	16-Jul-2009 at 1230
SLIP ROAD	SLIGHT	DRY	7-Sep-2009 at 0802
"T" OR STAGGERED JUNCTION	SERIOUS	DRY	18-Jun-2011 at 0818

CLUSTER 11 ACHNAGARRON JUNCTION - previous Moving Cursor Programme investigation, vehicle activated sign installed and revised junction layout design underway.



Junction Detail	Severity	Surface	Date and Time
OTHER JUNCTION	SLIGHT	WET / DAMP	28-Jan-2008 at 0800
OTHER JUNCTION	SLIGHT	DRY	11-Mar-2008 at 1200
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	SNOW	2-Jan-2010 at 0830
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	16-Jan-2010 at 1731
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	10-Oct-2010 at 0640
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	2-Jun-2011 at 1600

CLUSTERS 12 & 13 TAIN NORTH - junction improvements June 2010 and in 2013/14 Moving Cursor Programme.

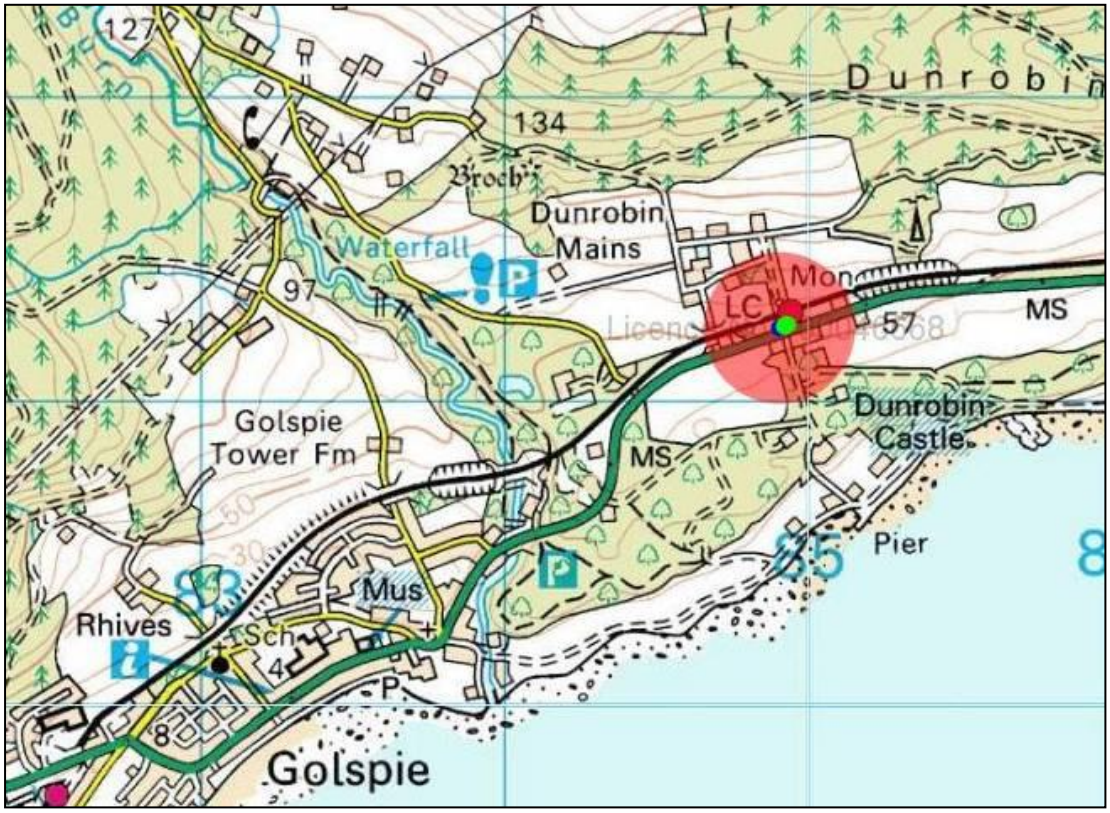


Junction Detail	Severity	Surface	Date and Time
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	31-Jan-2007 at 1125
"T" OR STAGGERED JUNCTION	SERIOUS	WET / DAMP	2-Jul-2007 at 1010
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	5-Dec-2008 at 1755
SLIP ROAD	SLIGHT	DRY	17-Feb-2009 at 1614
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	21-Sep-2009 at 1404
"T" OR STAGGERED JUNCTION	SERIOUS	DRY	25-Sep-2009 at 1440
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	9-Oct-2009 at 1411
SLIP ROAD	SLIGHT	DRY	25-Aug-2010 at 1245
MULTIPLE JUNCTION	SLIGHT	DRY	29-Jul-2010 at 1834
SLIP ROAD	SLIGHT	DRY	4-Jun-2011 at 1140
"T" OR STAGGERED JUNCTION	FATAL	DRY	30-Jun-2011 at 0955

Clusters 14 & 15 SKELBO WOOD - resurfaced and signed 2010. No accidents since.

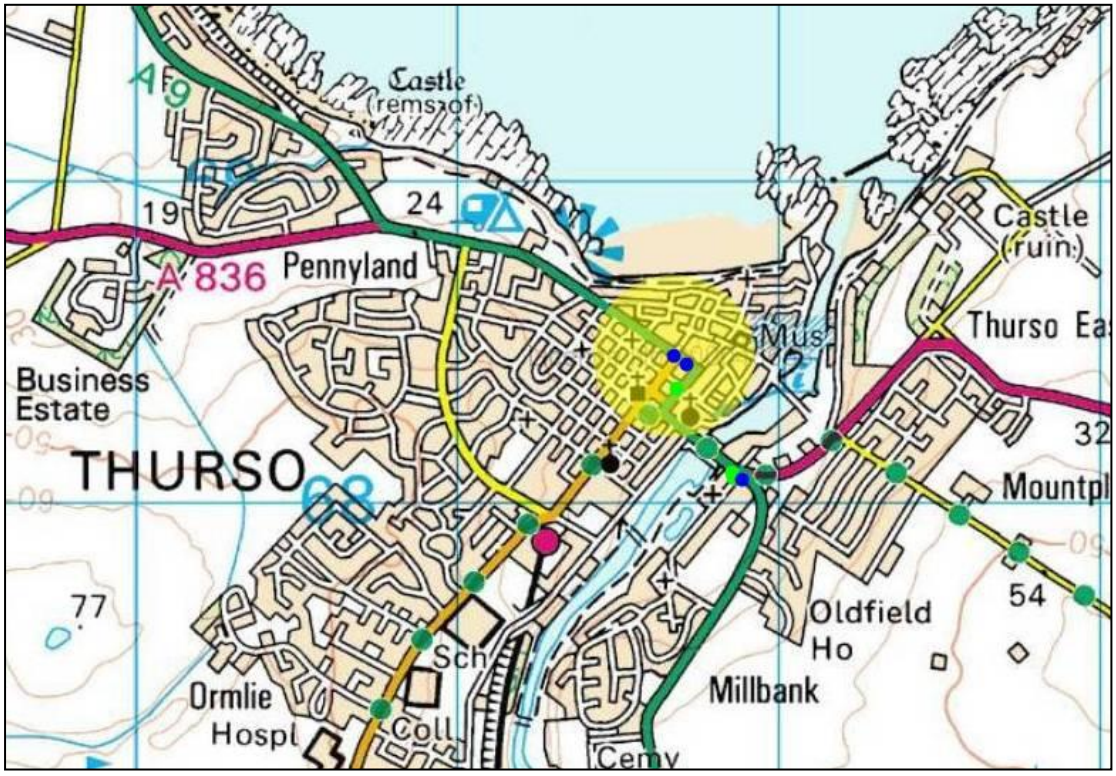
Junction Detail	Severity	Surface	Date and Time
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	27-Nov-2007 at 1010
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	18-Sep-2008 at 1925
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	27-Oct-2008 at 1400
NOT AT OR WITHIN 20 METRES OF JUNCTION	SERIOUS	WET / DAMP	11-Jan-2009 at 1323
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	5-Apr-2009 at 0010
NOT AT OR WITHIN 20 METRES OF JUNCTION	SLIGHT	WET / DAMP	18-Jun-2009 at 0942
NOT AT OR WITHIN 20 METRES OF JUNCTION	FATAL	WET / DAMP	28-Sep-2009 at 1734
NOT AT OR WITHIN 20 METRES OF JUNCTION	SERIOUS	WET / DAMP	4-Sep-2009 at 1840

CLUSTER 16 DUNROBIN CASTLE - under Moving Cursor Programme investigation.



Junction Detail	Severity	Surface	Date and Time
USING PRIVATE DRIVE OR ENTRANCE	SLIGHT	DRY	21-Aug-2007 at 1322
USING PRIVATE DRIVE OR ENTRANCE	SLIGHT	DRY	5-May-2008 at 1517
USING PRIVATE DRIVE OR ENTRANCE	SERIOUS	DRY	24-May-2009 at 1048
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	23-Jun-2009 at 1745
USING PRIVATE DRIVE OR ENTRANCE	SLIGHT	DRY	10-Nov-2010 at 1549

Cluster 17 - **THURSO** - previous Moving Cursor Programme investigation, surface treatment and signing 2011.



Junction Detail	Severity	Surface	Date and Time
MULTIPLE JUNCTION	SERIOUS	WET / DAMP	25-Jan-2009 at 0025
"T" OR STAGGERED JUNCTION	SLIGHT	DRY	10-Mar-2009 at 1030
MULTIPLE JUNCTION	SLIGHT	DRY	1-Sep-2009 at 1400
"T" OR STAGGERED JUNCTION	SLIGHT	WET / DAMP	11-Dec-2009 at 2214
OTHER JUNCTION	SERIOUS	DRY	20-Jul-2010 at 1035
MULTIPLE JUNCTION	SERIOUS	SNOW	11-Mar-2011 at 1905

6 Summary of Accident findings

This section sets out the key findings of the accident review;

A9 from Perth to Scrabster

- Yearly accident numbers generally show a downward trend in serious and slight accidents between 2009 and 2011.
- The predominate accident manoeuvre involved in accidents, for the whole A9, is going ahead other, then going ahead on the left/right hand bend, overtaking moving vehicle on its offside and turning right.
- The main contributory factors of accidents for the whole A9 are loss of control, slippery road, failing to look properly, failing to judge other person's speed or path and careless/reckless/in a hurry.
- Drivers from over 50 km away make up 21.3% of accident of the A9; the national average from *Reported Road Causalities Scotland 2011* for over 50 km from home is only 5.9%.
- The vehicle types involved proportionately more in accidents on the A9 compared to the NW Unit average are: agricultural vehicles; goods vehicle between 3.5 and 7.5 tonnes mgw; goods vehicle 7.5 tonnes mgw and over; moped; scooter; other motor vehicle; PSV.

- The vehicle manoeuvres involved in proportionately more in accidents on the A9 compared to the NW Unit average are: changing lane to left; changing lane to right; going ahead other; overtaking moving vehicle on its offside; parked; slowing or stopping; turning left; turning right; U turn; waiting to go ahead but held up; waiting to turn left; waiting to turn right.

- The contributory factors involved proportionately more in accidents on the A9 compared to the NW Unit averageare; failed to look properly, failed to judge other person's path or speed, Poor turn or manoeuvre, swerved, following too close, inexperienced or learner driver/rider, rain/sleet/snow/fog, fatigue, distraction in vehicle, exceeding speed limit, animal or object in carriageway, disobey give way or stop sign or markings, dazzling sun; failed to signal/misleading signal; aggressive driving; junction overshoot.

- 18 cluster sites identified of which;
    - 6 have been re-alignment or re-surfacing or works are underway
    - 10 have been subject to Moving Cursor investigations
    - 1 has been signalised
    - 1 has no treatable common factors in the accident characteristics

A9 from Perth to Tore

- There is a 40% increase in traffic during the summer months.
- 78% of all fatal accidents on the A9 have occurred on the 186km section of the route

between Perth and Tore roundabout 6 miles north of Inverness.

- The A9 South of Tore section accident numbers have a pronounced peak rising from June to August.
- The main type of vehicles involved in accidents on the A9 South of Tore, other than cars, are good vehicles 7.5 tonnes and over.
- There are a greater proportion of junction and multiple vehicle accidents compared to the NW Unit.
- Those vehicle types involved in proportionately more in accidents on the A9 south compared to the NW Unit average are: agricultural vehicles; goods vehicle between 3.5 and 7.5 tonnes mgw; goods vehicle 7.5 tonnes mgw and over; moped; scooter; other motor vehicle; PSV.

- The vehicle manoeuvres involved proportionately more in accidents on the A9 south when compared to the NW Unit average are: changing lane to left; changing lane to right; going ahead other; moving off; overtaking moving vehicle on its offside; overtaking stationary vehicle on its offside; parked; reversing; slowing or stopping; turning left; turning right; U turn; waiting to go ahead but held up; waiting to turn left.

- The contributory factors involved proportionately more in accidents on the A9 south when compared to the NW Unit average are; failed to look properly; failed to judge other person's path or speed; Poor turn or manoeuvre; sudden braking; swerved; following too close; rain/sleet/snow/fog; fatigue; distraction in vehicle; exceeding speed limit; impaired by alcohol; animal or object in carriageway; disobey give way or stop sign or markings; dazzling sun; aggressive driving; illness or disability/mental or physical.

A9 Perth to Tore Single Carriageway Sections

- 13 of the 15 single carriageway sections are below the national Scottish accident rate and 2 sections had had improvement measures recently delivered.
- There are 2.1 times the number of accidents on single carriageways than on dual carriageway sections.
- There are 15 contributory factors highlighted for single carriageway sections.
- There are a greater proportion of junction and multiple vehicle accidents compared to the NW Unit.
- The vehicle types involved proportionately more in accidents on the A9 south single carriageway sections when compared to the NW Unit average are: agricultural vehicles; goods vehicle between 3.5 and 7.5 tonnes mgw; goods vehicle 7.5 tonnes mgw and over; other motor vehicle; PSV.

- The vehicle manoeuvres involved proportionately more in accidents on the A9 south single carriageway sections when compared to the NW Unit average are: changing lane to left; changing lane to right; going ahead other; overtaking moving vehicle on its offside; overtaking stationary vehicle on its offside; parked; reversing; slowing or stopping; turning left; turning right; waiting to go ahead but held up; waiting to turn left.

- The contributory factors involved proportionately more in accidents on the A9 single carriageway sections when compared to the NW Unit average are: failed to look properly; failed to judge other person's path or speed; poor turn or manoeuvre; swerved; following too close; rain/sleet/snow/fog; fatigue; distraction in vehicle; exceeding speed limit; impaired by alcohol; animal or object in carriageway; disobey give way or stop sign or markings; dazzling sun; aggressive driving; illness or

disability/mental or physical.

A9 Perth to Tore Dual Carriageway Sections

- Between Perth and Tore, dual carriageway sections compare favourably, as 9 of the 10 dual carriageway sections have an accident rate below the national average rate of 7.77 accidents per 100 mvk.
- There are 9 main contributory factors for dual carriageways.
- The contributory factors which are higher than other areas are 'fail to judge other persons path or speed', 'sudden braking', and 'dazzling sun'.
- The vehicle manoeuvre 'waiting to go ahead but held up' is greater on the A9 south dual carriageway.
- There are a greater proportion of junction and multiple vehicle accidents compared to the NW Unit.
- The vehicle types involved proportionately more in accidents on the A9 dual carriageway sections when compared to the NW Unit average are: agricultural vehicles; moped, scooter; PSV; car.

- The vehicle manoeuvres involved proportionately more in accidents on the A9 dual carriageway sections when compared to the NW Unit average are: changing lane to left; changing lane to right; going ahead other; moving off; overtaking moving vehicle on its offside; parked; slowing or stopping; turning left; U turn; waiting to go ahead but held up; waiting to turn left.

- The contributory factors involved proportionately more in accidents on the A9 dual carriageway sections when compared to the NW Unit average are: failed to look properly; failed to judge other person's path or speed; sudden braking; swerved; following too close; rain/sleet/snow/fog; distraction in vehicle; exceeding speed limit; dazzling sun; failed to signal/misleading signal; junction overshoot; other.

A9 from Tore to Scrabster

- There is a 33% increase in traffic during the summer months.
- A9 North of Tore section has an accident rate of 24.27 accidents per mvk, which is 29% higher than the national average.
- 43% of accidents occurred at a junction, compared to the NW unit average of 26%.
- Inexperienced or learner drivers are involved proportionately more in accidents when compared to the NW Unit average.
- The vehicle manoeuvre 'turning right' is greater on the A9 north.
- There are a greater proportion of junction and multiple vehicle accidents compared to the NW Unit.
- The vehicle types involved proportionately more in accidents on the A9 north when compared to the NW Unit average are: goods vehicle between 3.5 and 7.5 tonnes mgw; goods vehicle 3.5 tonnes mgw and under; moped; scooter; other motor vehicle; pedal cycle; taxi/private hire car and car.

- The vehicle manoeuvres involved proportionately more in accidents on the A9 north when compared to the NW Unit average are: going ahead other; overtaking moving vehicle on its offside; slowing or stopping; turning left; turning right; U turn; waiting to turn right.

- The contributory factors involved proportionately more in accidents on the A9 north when compared to the NW Unit average are: failed to look properly; failed to judge other person's path or speed; careless/reckless/in a hurry; poor turn or manoeuvre; inexperienced or learner driver/rider; rain/sleet/snow/fog, distraction in vehicle,

exceeding speed limit, animal or object in carriageway, disobey give way or stop sign or markings, failed to signal/misleading signal, aggressive driving and junction overshoot.

Appendix A – Accident Summary Table

A9 South single carriageway data

Accident Type	Number of Accidents
Slight	142
Serious	41
Fatal	25
Total	208

Involved	Number of	% of Total
By Vehicle Type		
Car(s) only	38	9
HGV(s) > 7.5T	54	13
Agricultural Vehicle(s)	3	1
Motorcycle(s)	16	3
PSV	8	1
Pedal Cycle	2	1
Location		
Not at a Junction	130	63
At a Junction	78	37
Number of Vehicles		
Single	61	29
Multiple	147	71
By Manoeuvre (top 5*)		
Turning right	31	7
Waiting to going ahead but held up	29	7
Slowing or Stopping	25	6
Overtaking	22	5
Going ahead right hand bend	13	3
By Contributory Factor (top 5)		
Loss of Control	55	10
Slipper Road (weather)	55	10
Failed to look properly	55	10
Failed to judge another person's speed	41	8
Swerved	28	5

* **Note – 'Going ahead' manoeuvre not included in the above table.**

A9 South dual carriageway data

Accident Type	Number of Accidents
Slight	79
Serious	14
Fatal	6
Total	99

Involved	Number of	% of Total
By Vehicle Type		
Car(s) only	39	13
HGV(s) > 7.5T	11	10
Agricultural Vehicle(s)	2	2
Motorcycle(s)	14	14
PSV	6	6
Pedal Cycle	1	1
Location		
Not at a Junction	69	70
At a Junction	30	30
Number of Vehicles		
Single	38	38
Multiple	61	62
By Manoeuvre (top 5*)		
Waiting to ahead but held up	27	12
Slowing or stopping	22	10
Overtaking	12	4
Going ahead left hand bend	10	4
Turning right	8	3
By Contributory Factor (top 5)		
Loss of Control	27	10
Slipper Road (weather)	26	10
Failed to look properly	22	9
Failed to judge another person's speed	20	8
Poor turn or manoeuvre	9	3

* **Note – 'Going ahead' manoeuvre not included in the above table.**

A9 North data

Accident Type	Number of Accidents
Slight	203
Serious	41
Fatal	9
Total	253

Involved	Number of	% of Total
By Vehicle Type		
Car(s) only	72	16
HGV(s) > 7.5T	15	4
Agricultural Vehicle(s)	3	1
Motorcycle(s)	23	5
PSV	5	1
Pedal Cycle	3	1
Location		
Not at a Junction	144	57
At a Junction	109	43
Number of Vehicles		
Single	99	39
Multiple	154	61
By Manoeuvre (top 5*)		
Right turn	60	13
Going ahead left hand bend	44	9
Going ahead right hand bend	42	9
Slowing or Stopping	28	6
Overtaking	24	6
By Contributory Factor (top 5)		
Failed to look properly	77	12
Loss of Control	66	10
Slipper Road (weather)	60	10
Failed to judge another person's speed	47	7
Careless/Reckless/In a hurry	45	7

* **Note – 'Going ahead' manoeuvre not included in the above table.**