

NORTH EAST Regional Road Safety Resource

Project Report: 6

Regional Overview of Junction Collisions 2005 – 2007

**Produced September 2008
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Introduction

This report has been produced by the North East Regional Resource as an overview of injury collisions that occurred at junctions in the NE region 2005 -2007. The data used to produce this report is based on the project database of Stats 19 provided by Cleveland, Durham and Northumbria police forces.

Profile of Junction Collisions 2005-2007

In the North East region 62% of all collisions occur at some type of junction. That is a total of 13,526 collisions over 3 years.

Figure 1: All Junction Collisions by Type 2005-2007

Junction Type	Collisions	% of NE Region Total Collisions
Roundabout	3012	13.8
Mini Roundabout	210	1.0
T or staggered	7136	32.6
Slip Road	448	2.0
Crossroads	1715	7.8
Multiple	84	0.4
Private Drive/entrance	732	3.3
Other	189	0.9
Total	13526	

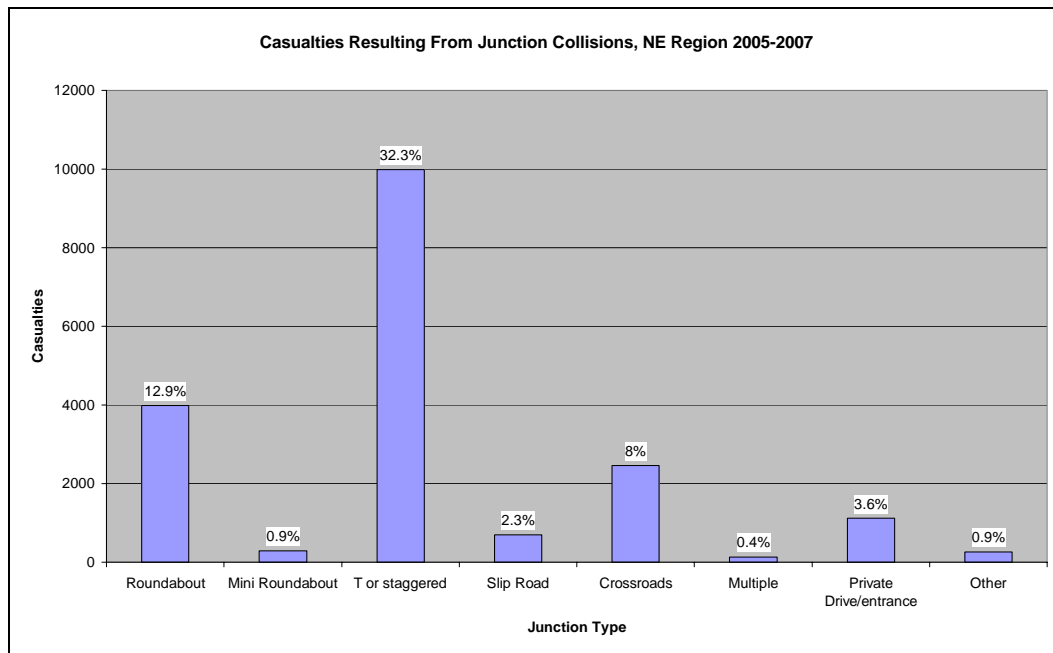
The majority of junction collisions involve 2 vehicles (69%); this is slightly higher than the trend for all collisions across the region. However, 23% involve only 1 vehicle and this is slightly down on the trend for all collisions. This suggests that junction collisions are more likely to be a multiple vehicle incident.

Figure 2: Number of Vehicles Involved In A Junction Collision 2005-2007

No. of vehicles	Collisions
1	3070
2	9353
3	935
4	135
5	23
More than 5	10
Total	13526

In terms of casualties injured in junction collisions the split is almost identical to that of Figure 1 above and they make up almost 62% of the regions total casualties. When split by junction type the casualty levels also mirror Figure 1 with the regional percentages all within a percent of their collision counterparts. This shows that no junction type is showing disproportionately high levels of multiple casualty collisions.

Figure 3: Casualty Breakdown of Junction Collisions by Junction Type 2005-2007



Severity

51% of all North East killed or serious injury (KSI) collisions occur on/at a junction and 64% of all slight injury collisions.

The majority of both KSI and slight injury junction collisions are coded to the junction type 'T or staggered junction'.

Figure 4: KSI Junction Collisions by Junction Type 2005-2007

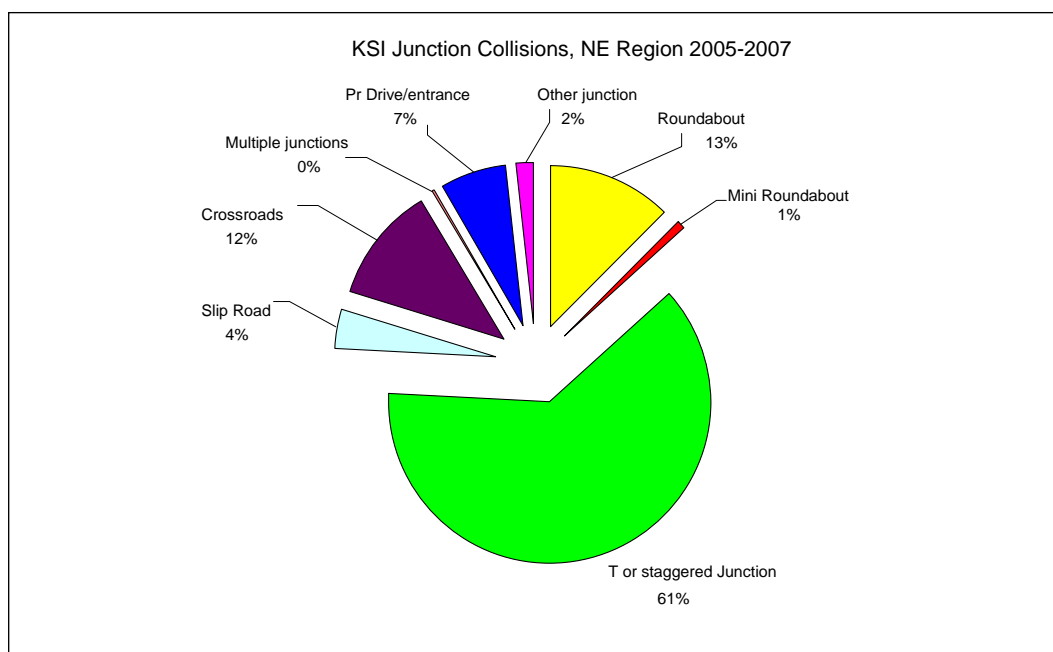
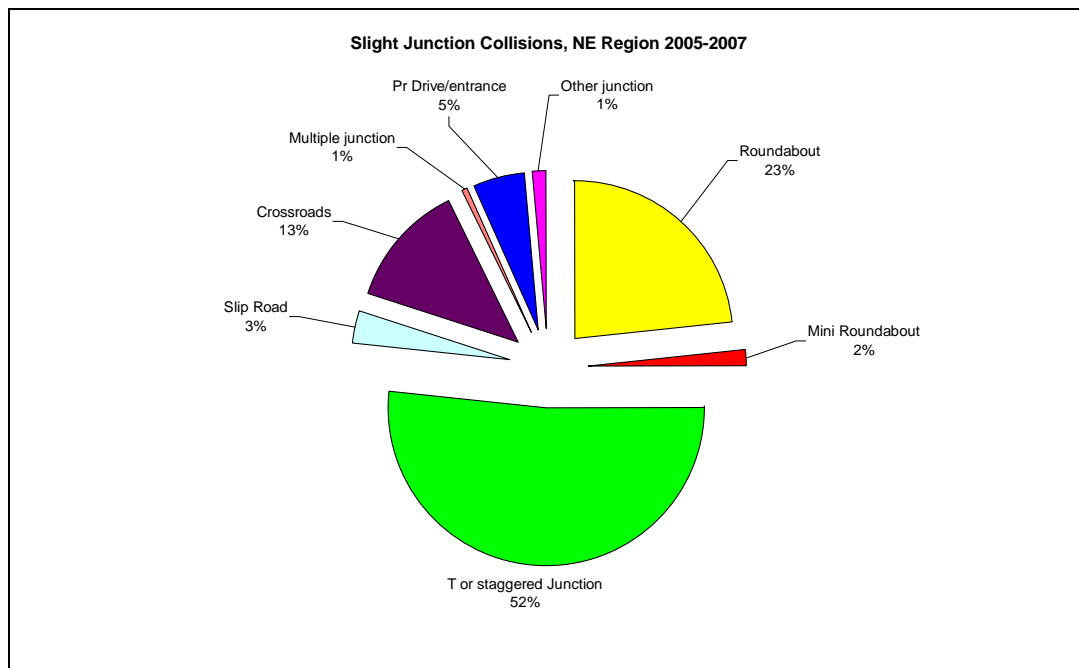


Figure 5: Slight Junction Collisions by Junction Type 2005-2007



The KSI/Slight collision split remains constant for all three police force areas, with around 10% of junction collisions coded as KSI and 90% as Slight.

Light Conditions

75% of all junction collisions occur in daylight, which is in line with the level of all collisions in daylight. However, the levels of these junction collisions differ at different junction types, for example 33% of all slip road collisions occur in the dark.

Figure 6: All Junction Type by Light Condition 2005-2007

Junction Type	Daylight	Dark
Roundabout	77%	23%
Mini Roundabout	74%	26%
T or staggered	76%	24%
Slip Road	67%	33%
Crossroads	71%	29%
Multiple	82%	18%
Private Drive/entrance	81%	19%
Other	78%	22%

A higher proportion of KSI junction collisions occur in darkness than slight junction collisions. This is consistent with the pattern of all regional collisions.

Road Class

Junctions by definition are where two (or more) roads meet, therefore both classes of road must be considered when analysing junction collisions.

Figure 7: All Junction Collisions by Road Class 2005-2007

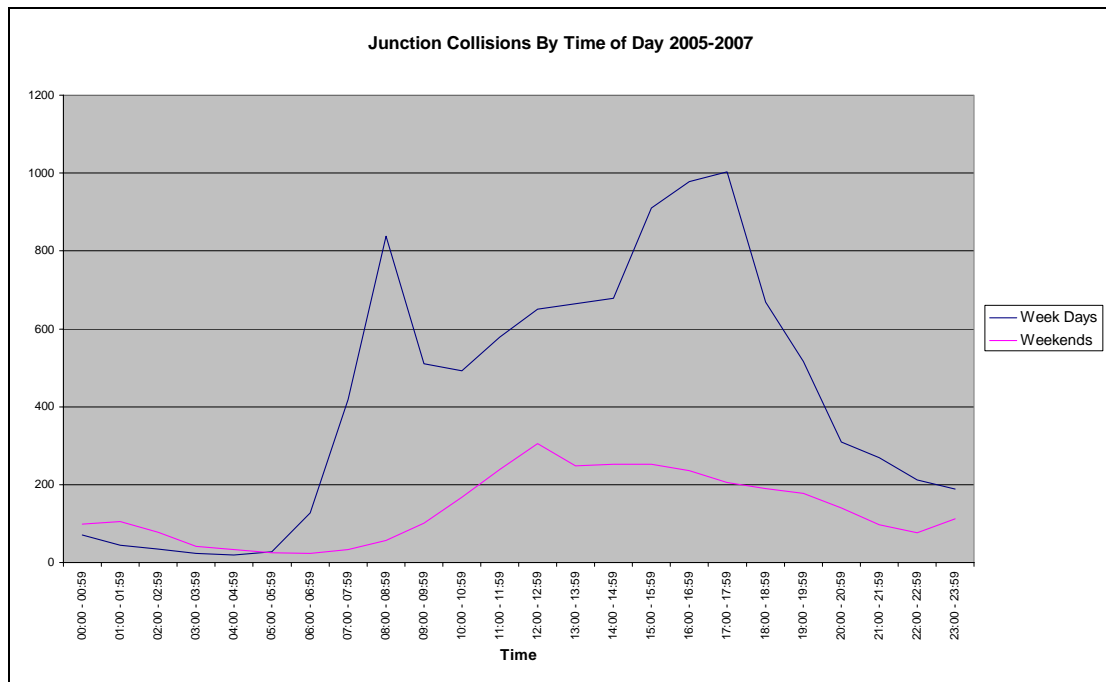
Junction Type	Collisions	% of junction collisions
A(M) - A(M)	53	0.39%
A(M) - A	130	0.96%
A(M) - B	2	0.01%
A - A	1924	14.22%
A - B	921	6.81%
A - C	989	7.31%
A - U	2560	18.93%
B - B	236	1.74%
B - C	421	3.11%
B - U	1279	9.46%
C - C	385	2.85%
C - U	1738	12.85%
U - U	2888	21.35%
Total	13526	

71% of junction collisions in the North East region occur on roads with a speed limit of 30mph or less and 63% involve a road with an 'Unclassified' status. This suggests that the majority of junction collisions take place in a lower limit urban setting.

Time of Day

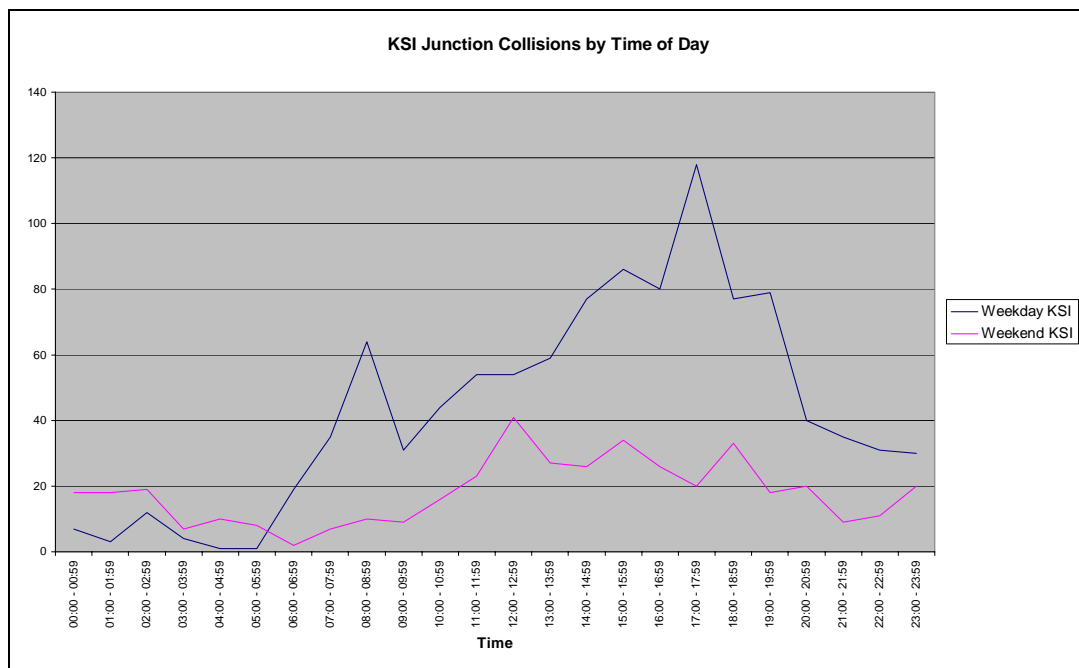
Junction collisions have very similar characteristics to all other collisions in terms of the time of day they occur. Weekday collisions see peaks in line with key commuting times and weekend collisions peak in the afternoon.

Figure 8: All Junction Collisions by Time of Day 2005-2007



KSI junction collisions follow a similar pattern, however, the peak at 5:00pm – 6:00pm on a weekday is far more pronounced and on a weekend the levels of KSI collisions between 12:00am – 4:00am is 60% higher than that of a weekday.

Figure 9: KSI Junction Collisions by Time of Day 2005-2007



Non-junction KSI collisions show a very similar pattern at weekends to junction collisions. However, weekday non-junction collisions have a far less pronounced peak at 08:00-09:00 as collisions tend to level off after this hour.

Junction Control

Junctions can be controlled in several different ways, with the collision rates varying depending on the type of control installed. Just under 86% of all junction collisions occur where the junction control is coded as ‘Give way or uncontrolled’. This is expected as the region has more junctions that fall into the category of ‘Give way/uncontrolled’. Also at these junctions, in particular, there is a big reliance on the driver; both in judgement and driver ability, and unfortunately drivers make errors. The other junction controls tend to reduce the need for a driver to make a judgment before moving off and in most cases the driver would break the law if he/she were to disobey the junction control. For example, jumping a red-light at a junction could result in a £60 fine and 3 penalty points for the driver.

Figure 10: All Junction Collisions by Control Method 2005-2007

Junction Control	Collisions	% of junction collisions
Authorised person	23	0.17
Auto traffic signal	1824	13.49
Stop Sign	73	0.54
Give way/uncontrolled	11600	85.76
Unknown	6	0.04

Junction Collisions Involving Pedestrians

Pedestrians are involved in 15% of all junction collisions; however, 31% of KSI junction collisions involve at least one pedestrian. Looking at the contributory factors for these collisions shows that pedestrian error occurs in 67% of the collisions where as driver error is only 14%; with road layout/environment lower still at less than 1%.

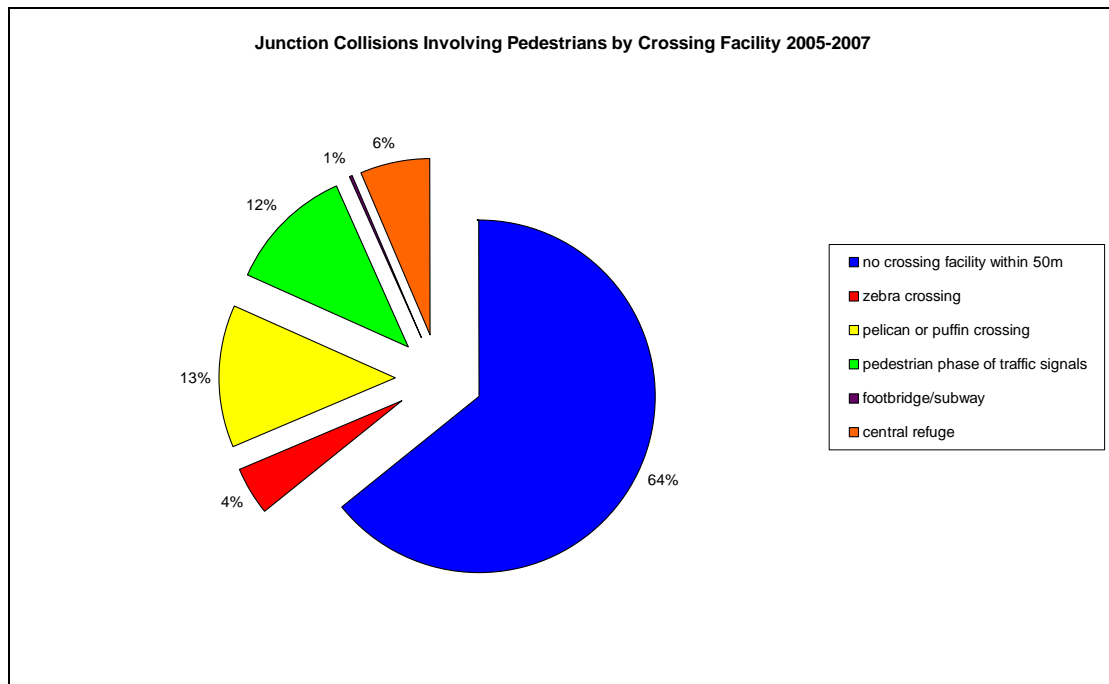
Figure 11: Junction Collisions Involving Pedestrians 2005-2007

Severity	Collisions	% of junction collisions
Fatal	32	31
Serious	421	31
Slight	1619	13
Total	2072	15

64% of junction collisions involving pedestrians take place at junctions with no crossing facility and in the majority of these cases the pedestrian is in the carriageway when the collision occurs. Analysis of the factors contributing to these collisions shows that pedestrian error (and not driver) is by far the highest recorded factor.

46% of junction collisions involving pedestrians occur within 50m of a crossing facility. However, in the majority of these cases the pedestrian is not on the actual crossing itself but elsewhere in the carriageway/roadside when the collision occurs. Therefore could be an issue with pedestrians failing to use the crossing facility correctly or even using it at all. This theory is backed up by the contributory factors of these accidents.

Figure 12: Junction Collisions Involving Pedestrians by Crossing Facility 2005-2007



Light conditions would appear to have some impact on junction collisions involving one or more pedestrians. A higher percentage of collisions occur in the dark when there is at least one pedestrian involved.

Figure 13: Pedestrian Junction Collisions by Light Conditions 2005-2007

	Dark	Daylight
No Pedestrian	23%	77%
Pedestrian Involved	30%	70%

Contributory Factors

Police officers attending road traffic collisions are required to record contributory factors to help assess the reasons behind the collisions. In the North East region officers record contributory factors for 91% of the junction collisions 2005-2007.

Analysis of the contributory factors, for those junction collisions that have been coded, shows that 'Driver/rider error' was recorded in 48% of collisions. This is the highest recorded factor for all junction collisions. However, 'Pedestrian error' is the highest recorded factor in those junction collisions that involve at least one pedestrian.

Figure 14: Contributory Factors Coded In Junction Collisions 2005-2007

Contributory Factors	Junction Collisions
Driver/Rider Error	48%
Injudicious Action	12%
Behaviour/Inexperience	12%
Pedestrian	11%
Road Environment	6%
Vision Affected By	4%
Impairment/Distracted	4%
Other	2%
Vehicle Defects	1%

Within each of these headings there are a series of sub categories, which a police officer would use to further describe the causation of a collision. Breaking down the category 'Driver/Ride Error' into its sub categories shows that 43% of these collisions are down to the driver/rider 'failing to look properly' with 21% 'failing to judge the other person's path or speed'.

Figure 15: Breakdown of Contributory Factor 'Driver/Rider Error' 2005-2007

Driver/Rider Contributory Factor	Total
Failed to look properly	43%
Failed to judge other persons path or speed	21%
Poor turn or manoeuvre	13%
Sudden braking	6%
Loss of control	5%
Junction Overshoot	4%
Junction Restart	3%
Failed to signal or misleading signal	2%
Swerved	2%
Passing too close to cyclist/horse rider/pedestrian	1%

Headline Notes

- Junction collisions account for 62% of the collisions in the North East region.
- 'T or staggered' junctions have the largest collision problem.
- Most junction collisions occur on low speed, 'Unclassified' roads.
- 'Give way/uncontrolled' junctions have the majority of collisions.
- Pedestrians are involved in 15% of junction collisions but make up 31% of KSI junction collisions.
- 64% of junction collisions involving pedestrians occur away from pedestrian crossing facilities.
- Most of the junction collisions involving pedestrians within the vicinity of a crossing facility do NOT occur on the crossing itself but around it.
- Driver/Rider error is the most common cause of all junction collisions, with the majority 'failing to look properly'.
- When one or more pedestrians are involved in a junction collision, the collision is often contributed to pedestrian error, NOT driver.