

# ROAD TRAFFIC COLLISIONS AND CASUALTIES IN THE NORTH WEST OF ENGLAND

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## 1. Introduction

The aim of this report is to present comprehensive data on road traffic collisions and casualties in the North West. This intelligence is intended to support local decision-making and inform the development of local plans to reduce the risk of injury and death from road traffic collisions, thereby protecting the health of people who travel in the North West.

For the first time, the report brings together data from five sources: (STATS19 [police incident information], the North West Ambulance Service, accident and emergency attendances, hospital admissions and mortality data) to describe the current picture of road traffic collisions and casualties arising from these incidents across the North West and within local areas, for people of all ages and where possible for children.

Although road traffic casualties have decreased over the short and long term, the North West still has a significantly higher overall casualty rate than the England average, with rates for killed or seriously injured (KSI) casualties and slightly injured casualties being higher than the equivalent rates for England. This remains a key public health issue for the region.

There are many interventions that have had, and will continue to have, an impact on reducing road traffic collisions and casualties. One intervention that has attracted considerable local and national debate is 20 miles per hour (mph) speed limits. A modelling exercise has been undertaken to estimate the potential for reducing the numbers of casualties on the North West's roads if such limits were introduced, and the results are presented in the appendices.

The report presents compelling evidence for continuing action to reduce road traffic collisions and casualties in the North West. However, interventions to reduce road traffic collisions and casualties should be considered alongside other health improvement activity, such as increasing physical activity, reducing obesity through walking and cycling promotion, and encouraging community cohesion. The challenge is to reduce road traffic danger while improving population health and wellbeing.

## 2. Summary

- The North West has the highest rates of all age and child road casualties in England.
- Over the last thirty years, the number of road traffic casualties in the North West has fallen by around a fifth.
- 269 people were killed, 3,055 were seriously injured and 26,137 were slightly injured in road traffic collisions in the North West in 2008.
- Rates of road traffic casualties in the North West vary considerably between local authority areas.
- Young people are most at risk of becoming a casualty of a road traffic collision, although older people are more likely to be killed or seriously injured if they become a casualty.
- Of all road traffic casualties in the region in 2008, 67.2% were car users, 13.3% were pedestrians, 7.0% were motorcyclists and 6.3% were pedal cyclists.
- The severity of injuries from road traffic collisions increases in rural areas.
- In 2008, 3,348 casualties in the North West were infants and children (0-15 years), with more males injured in road traffic collisions than females. Eleven-year-olds are significantly more likely than ten-year-olds to be injured.
- Children are most likely to be killed or seriously injured in road traffic collisions in the months of June and October, on Fridays, and between 3.00 and 3.59 pm.
- Over four-fifths of all child casualties occur on roads that have a speed limit of 30 mph.
- A modelling exercise indicates that 140 killed or seriously injured child casualties could have been prevented each year between 2004 and 2008 if 20 mph traffic speed zones had been introduced in residential areas (other than main roads) across the North West.

## Trends

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Over the last thirty years, the number of road casualties in the North West has fallen by around a fifth. There has not been a consistent decrease, however, although there has been a clear fall in the number of casualties in the last decade. Between 1994-98 and 2008:

- the number of people killed or seriously injured in the North West fell by 38.1%;
- the number of children killed or seriously injured in the North West fell by 54.5%; and
- the North West's slight casualty rate decreased by 43.6%.

These decreases generally compare favourably to other English regions and the England average.

## Current position

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However, in terms of the current position, the North West compares less favourably to other regions and England, and in 2008:

- 269 people were killed, 3,055 were seriously injured and 26,137 were slightly injured in road traffic collisions in the North West.
- there were 5.8 killed or seriously injured casualties per 100 million vehicle kilometres, the third highest regional rate in England and higher than the England rate of 5.5.
- there were 45.2 slightly injured casualties per 100 million vehicle kilometres, the second highest regional rate, and above the England average of 40.8.
- the region's casualty rate per 100,000 population was significantly higher than the England average (428.5 per 100,000 compared with 396.8).

## Casualties

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### Casualties of all ages

Well over a third of all casualties in the North West in 2006-08 were between the ages of 15 and 29 years. Overall, young people between the ages of 15 and 24 years are most at risk of becoming a casualty of a road traffic collision, with 18 year olds being significantly more at risk than people of any other single year of age. There are significant increases in road casualty rates in children between the ages of 10 and 11 years (when children move from primary to secondary school), and significant year-on-year step change increases in young people aged between 15 to 18 years. However, if they become a casualty from a road traffic collision, older people are more likely to be killed or seriously injured than younger people.

Of all road traffic casualties in the region in 2008, 67.2% were car users, 13.3% were pedestrians, 7.0% were motorcyclists and 6.3% were pedal cyclists. Casualty rates were higher than the England average for car users and pedestrians and lower than the national average for motorcyclists and pedal cyclists. Children aged 10-14 years are the most likely to be killed or seriously injured as a pedestrian casualty, while people aged 15-34 years are significantly more likely to be killed or seriously injured as a car occupant than any other age group.

The severity of injuries from road traffic collisions increases in rural areas. For example, of all those slightly injured in 2006-08, 70.4% of people were injured in urban areas and 29.6% in rural areas, while 45.7% of fatal injuries occurred in urban areas and 54.3% in rural areas.

- There are 469.36 road traffic casualties per 100,000 population in the North West (directly standardised rate, 2006-08), the highest rate in England. This rate varies within the region from 342.26 in Stockport to 793.09 in Eden.
- Within the region there are 50.89 killed or seriously injured casualties per 100,000 population (directly standardised rate, 2006-08). This is the fifth highest regional rate nationwide. The rate varies from 28.27 in Stockport to 121.40 in Eden.
- The rate of pedestrian casualties is the second highest in England: 61.84 per 100,000 population (directly standardised rate, 2006-08), and the rate varies from 31.50 in Ribble Valley to 106.28 in Preston.

- During 2006-08, there were 320.40 road traffic collisions in the North West per 100,000 population (crude rate), the highest regional rate in England, with the rate varying from 242.41 in Sefton to 541.82 in Preston.

### **Child casualties**

In the North West in 2008, there were 3,348 casualties between the ages of 0 and 15 years as a result of road traffic collisions. Of these casualties, 16 were fatally injured and 433 were seriously injured. More young males are injured in road traffic collisions than young females, and this is especially pronounced for fatal and serious injuries: two-thirds of those killed or seriously injured are males. The gender gap is larger for older children than younger children.

Children are more likely to be injured in road traffic collisions in the late spring and summer months and there are fewer casualties in winter months than in other months. More children are injured in collisions on Fridays, and there are fewer casualties on Sundays than any other day of the week. For example, there are 2.4 times more child pedestrian casualties on Fridays than on Sundays. Child casualties are highest between 3.00 to 3.59 p.m., and are also high between 4.00 and 5.59 p.m. and 8.00 and 8.59 a.m. However, there are clear differences between winter and summer months when children are on holiday from school.

Over four-fifths of all child casualties occur on roads that have a speed limit of 30 mph. Of all child casualties, 45.3% are vehicle passengers/occupants, while 41.2% are pedestrians and 13.6% are pedal cyclists, but these proportions vary with severity of injury and of all children who were killed or seriously injured, over two-thirds are pedestrians.

- Across the region in 2006-08, the child casualty rate was 281.48 per 100,000 population, the highest regional rate in England. The variation between local authority districts was large: from 177.30 per 100,000 in Ribble Valley to 435.36 in Preston (2.5 times higher).
- In 2006-08, 36.45 children per 100,000 in the North West were killed or seriously injured in road traffic collisions, the second highest regional rate. Again, there was a large variation in the rate within the region, from 12.28 per 100,000 population (Barrow-in-Furness) to 78.91 (Hyndburn). Areas in North and East Lancashire tend to have particularly high rates.

### **Ambulance call outs**

Data on where ambulances went to, to respond to a call relating to a road traffic collision, are collected by the North West Ambulance Service. There is significant variation in the rate of ambulance call outs for road traffic collisions and the rate in Eden is two-and-a-half times the rate in Barrow-in-Furness.

The rate of call outs significantly increases as deprivation increases across the region, with the rate being 1.6 times higher in the most deprived areas than in the least deprived. Three geodemographic classification (P<sup>2</sup> People and Places ©) groups have particularly high rates: Country Orchards, New Starters and Urban Challenge.

The highest quarter of the year for ambulance call outs for road traffic collisions is October to December, followed by the lowest quarter, January to March.

### **Accident and Emergency attendances**

Data on attendances to accident and emergency (A&E) departments as a result of a road traffic collision are available for hospitals in Cumbria, Merseyside and Lancashire. This information shows that 55.3% of attendances were by males and 44.7% were by females of all ages (2007-09), with similar percentages for 0-15 year olds.

Following attendance at A&E, 9.1% of attendees were admitted to hospital, 68.1% were discharged, 19.2% given a follow-up appointment and 3.7% had another outcome. This pattern

was broadly similar for children, although a slightly higher percentage were discharged and a slightly lower percentage were given a follow-up appointment.

Of the hospitals for which information is available, Whiston Hospital in Merseyside had the most attendances (averaging 3,915 per year, 2007-09), while Westmorland General Hospital in Cumbria had the least (308).

### **Hospital admission**

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The North West rate of hospital admission for road traffic collisions during 2006/07-2008/09 was 123.05 per 100,000 population. The rate in Knowsley was 1.7 times higher than the rate in Fylde.

The crude rate of hospital admission for road traffic collisions in 2006/07-2008/09 for children aged 0 to 15 years in the North West was 148.18 per 100,000, and the rate in Liverpool is 2.3 times higher than the rate in Fylde.

Evidence suggests that hospital admission for road traffic collisions increases as deprivation increases, more so for children than for people of all ages. Some more deprived and rural geodemographic classifications have particularly high rates of hospital admission. For example, the all age rate for Country Orchards is 1.4 times higher than the North West average.

### **Mortality**

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In 2008, 277 North West residents died as a result of land transport accidents. This represented one in 255 of all deaths. The North West mortality rate for land transport accidents was significantly below the England average.

Nearly three-quarters of deaths were male, and death rates were highest among the 15-34 years and 75+ years population. There is a large variation in mortality rates in local authorities in the region: from 1.33 per 100,000 population in Blackpool to 16.75 in Eden. There was little variation in mortality rates by deprivation, but by geodemographic classification, Country Orchards had the highest death rates.

Across the North West, 16.82 years of life are lost (the potential number of years which people could have lived) per 10,000 population under 75 years due to land transport accidents, although this is significantly below the England average. However, there is a large difference between genders: 26.76 years for men and 6.71 years for women. At a local authority level, years of life lost ranges from 2.58 years in Pendle to 84.10 years in Eden.

### **Modelling the potential for reducing casualties through the adoption of 20 mph zones**

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A modelling exercise has been undertaken to estimate the potential for reducing the numbers of casualties on the North West's roads if 20 mph zones were introduced in residential areas that have 30 mph limits, utilising factors presented in a BMJ<sup>1</sup> paper. The model indicates that:

- an average of 140 killed or seriously injured child casualties each year could have been prevented across the region in the period 2004-08, a reduction of 26% on actual figures from 1994-98;
- there may have also been additional reductions of 26% in the number of pedestrians of all ages killed or seriously injured and of 14% in the number of cyclists of all ages killed or seriously injured;
- between 2008 and 2010, the number of children killed or seriously injured could have saved by 31% above the improvement achieved as underlying trend, with the corresponding decreases for the number of pedestrians of all ages killed or seriously injured being 17%, and the number of pedal cyclists of all ages killed or seriously injured being 18%.

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<sup>1</sup> Grundy et al. (2009). *Effect of 20 mph traffic speed zones on road injuries in London, 1986-2006: controlled interrupted time series analysis*. BMJ 2009;339:b4469doi:10.1136/bmj.b4469.



### 3. Context

#### 3.1 Infrastructure

The North West has 36,901 kilometres of road, 12.3% of the total road network in England. Urban minor roads comprise half of the road length in the North West (Table 1), more than across England (37.3%). Motorways and principal urban 'A' roads also form proportionately more of the region's road network than England's, while rural roads – in particular, rural trunk 'A' roads and minor rural roads – represent proportionately less.

**Table 1: Road lengths, North West and England(kilometres).**

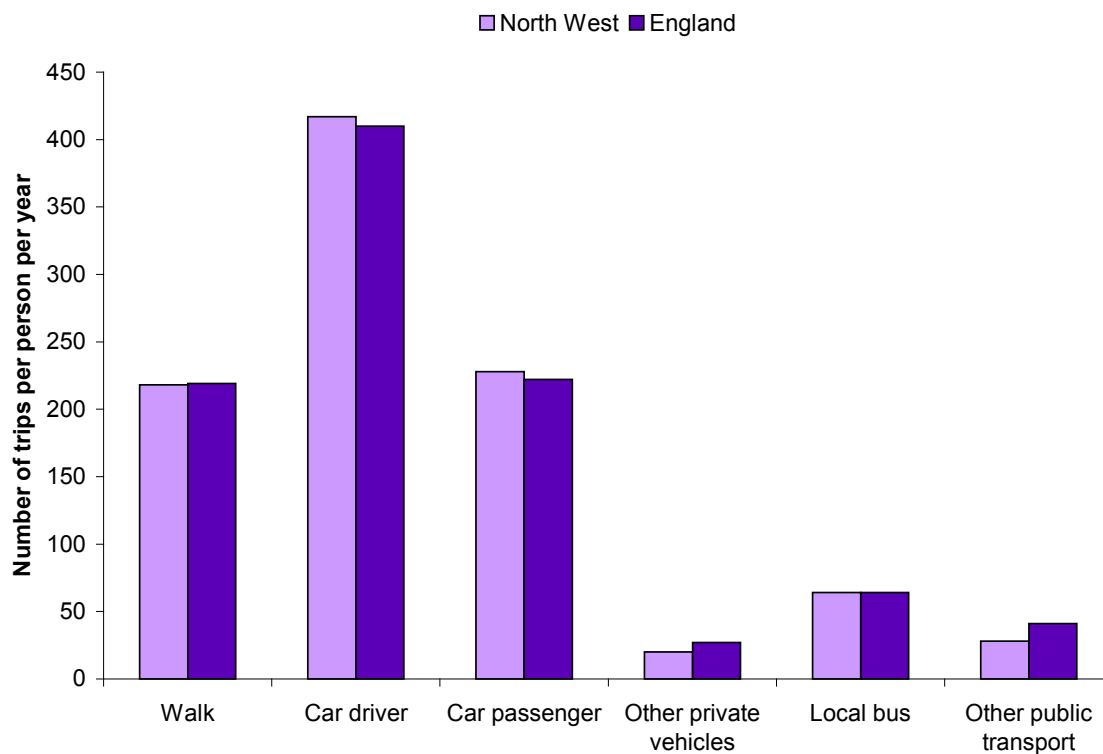
		North West		England	
<b>Motorway</b>		637	1.7%	3,011	1.0%
<b>Rural 'A' Roads</b>	<b>Trunk</b>	300	0.8%	3,996	1.3%
	<b>Principal</b>	2,020	5.5%	18,579	6.2%
	<b>Total</b>	2,320	6.3%	22,575	7.5%
<b>Urban 'A' Roads</b>	<b>Trunk</b>	32	0.1%	285	0.1%
	<b>Principal</b>	1,645	4.5%	9,396	3.1%
	<b>Total</b>	1,677	4.5%	9,681	3.2%
<b>All major roads</b>		<b>4,634</b>	<b>12.6%</b>	<b>35,266</b>	<b>11.7%</b>
<b>Minor roads</b>	<b>Rural</b>	13,652	37.0%	153,339	50.9%
	<b>Urban</b>	18,615	50.4%	112,361	37.3%
	<b>Total</b>	32,267	87.4%	265,700	88.3%
<b>All roads</b>		<b>36,901</b>	<b>100.0%</b>	<b>300,967</b>	<b>100.0%</b>

Source: Regional tables on roads and traffic, Department for Transport.

### 3.2 Volume of journeys

The National Travel Survey suggests that North West residents make 976 trips per year, slightly fewer than the England average of 985. The number of trips per person per year by each method of transport cited is broadly similar across the North West and England (Figure 1).

**Figure 1: Number of trips per person per year by method of transport. North West and England, 2007-08.**

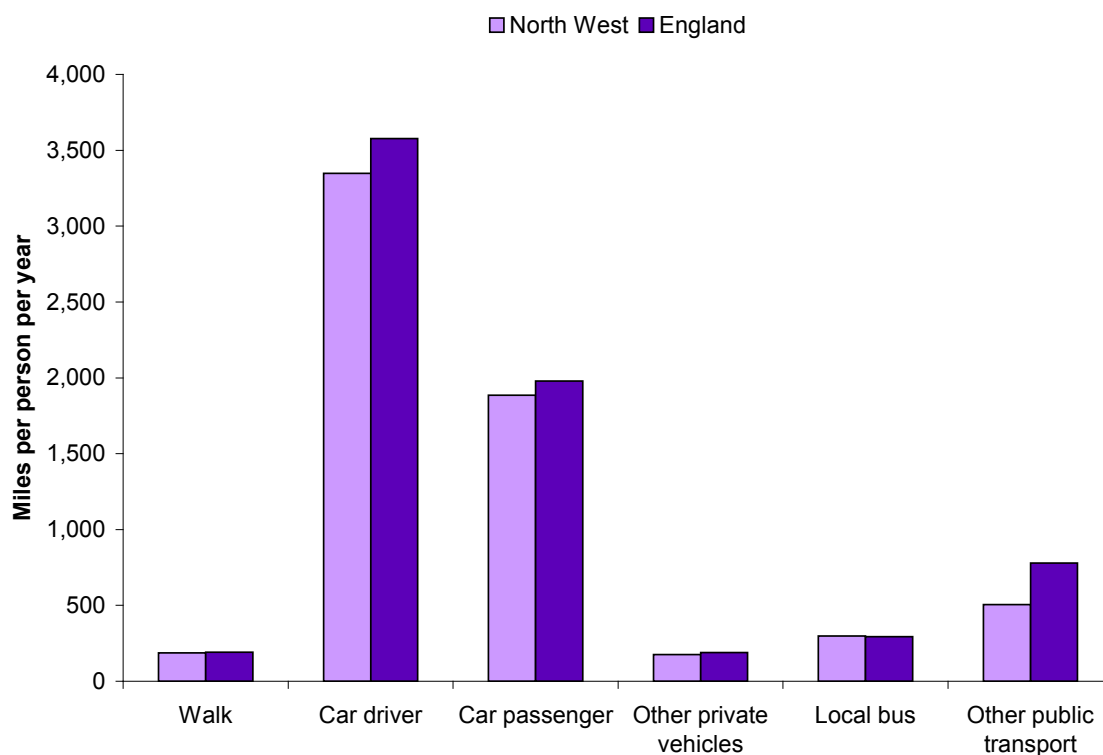


Source: National Travel Survey, Regional Transport Statistics, Department for Transport.

### 3.3 Methods of travel

North West residents travel an average of 6,399 miles each year, lower than the national average of 7,010. The largest proportionate difference in terms of average distance travelled by mode between the North West and England is that travelled by other public transport: North West residents travel 506 miles per year by this method, compared with the England average of 778 miles (Figure 2).

**Figure 2: Average distance travelled by mode. North West and England, 2007-08.**

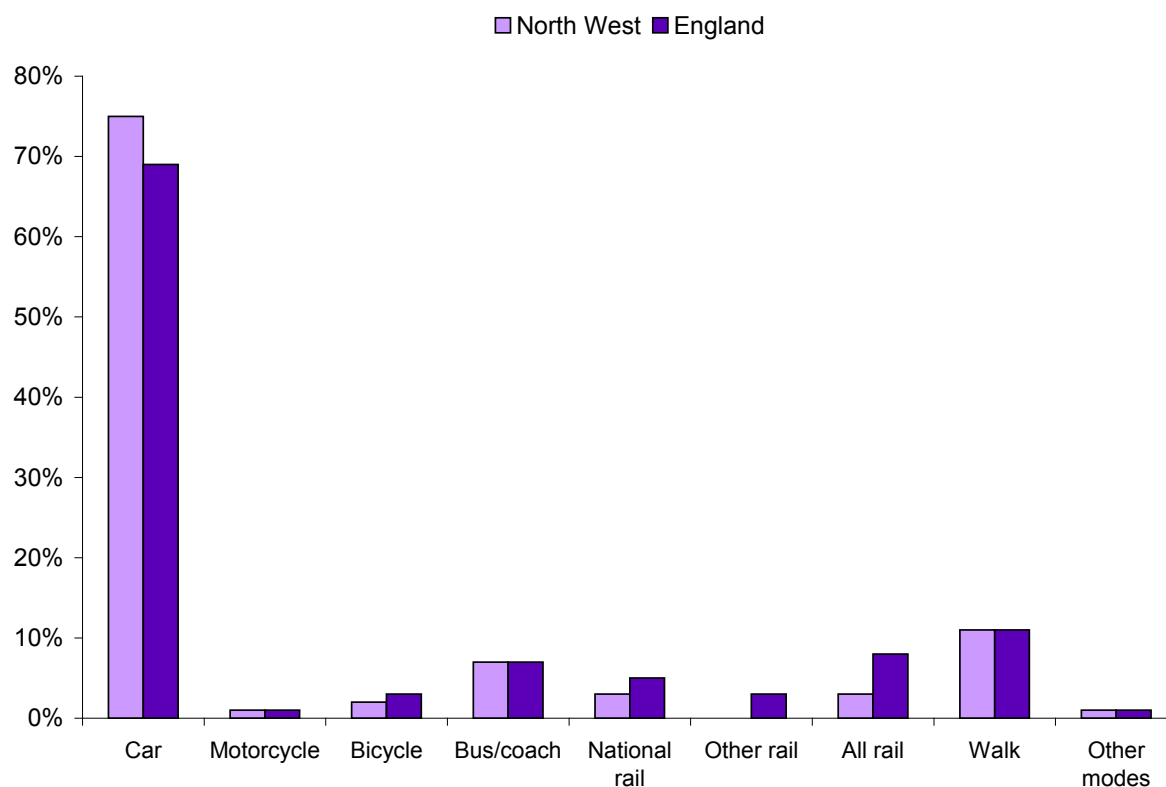


Source: National Travel Survey, Regional Transport Statistics, Department for Transport.

### 3.3.1 Travelling to work and school

The Labour Force Survey estimates that there are 2,662,000 North West residents in employment. Of these employees, around 75% usually travel to work by car, higher than the national average of 69% (Figure 3). Of the North West commuters who travel to work by car, 85% are usually the driver, 8% the passenger and 6% are sometimes the driver, sometimes the passenger.<sup>2</sup> North West resident employees are less likely to travel to work by train than employees across England (3% of employees compared with 8%).

**Figure 3: Usual method of travel to work. North West and England, October to December 2008.**



Source: Labour Force Survey, Office for National Statistics.

<sup>2</sup> Source: Regional tables on personal travel, Department for Transport

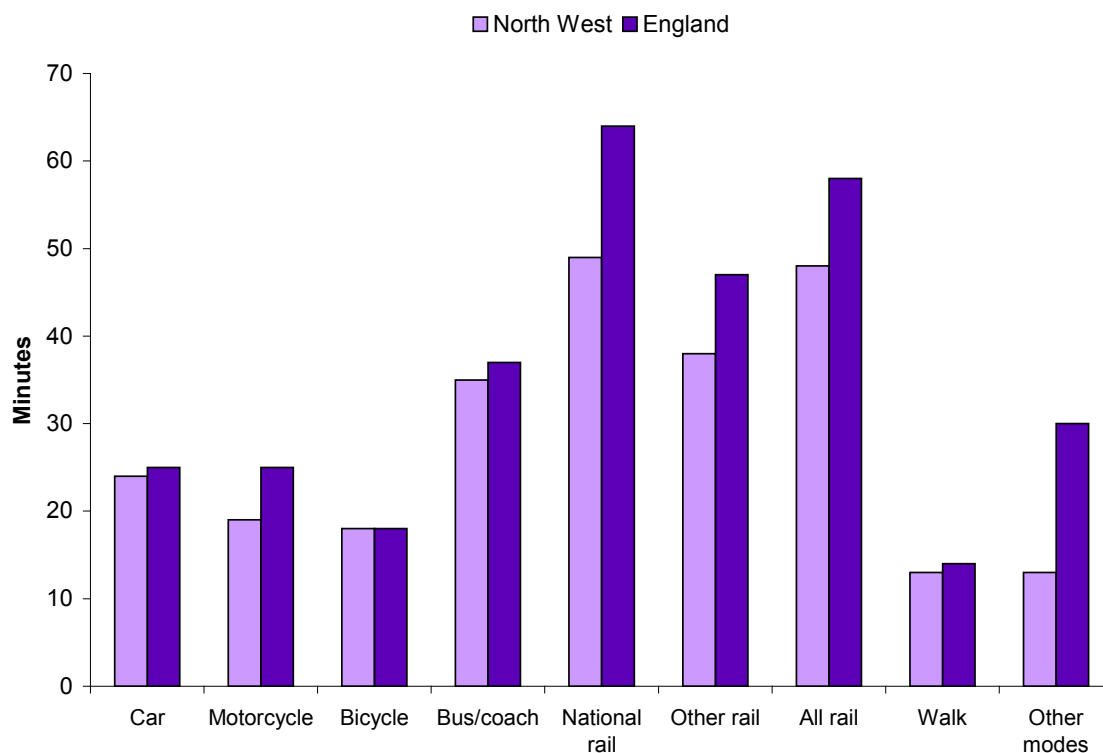
In general, North West based commuters have shorter journeys to work than the national average (Table 2). The average time taken to travel to work in the North West is 24 minutes, slightly less than the England average of 27 minutes. The average time taken to travel to work by usual method is shown in Figure 4.

**Table 2: Time taken to travel to work. North West and England, October to December 2008.**

	Cumulative percentage			
	<20 minutes	<40 minutes	<60 minutes	<90 minutes
North West	46	82	91	98
England	42	76	88	96

Source: Regional tables on personal travel, Department for Transport.

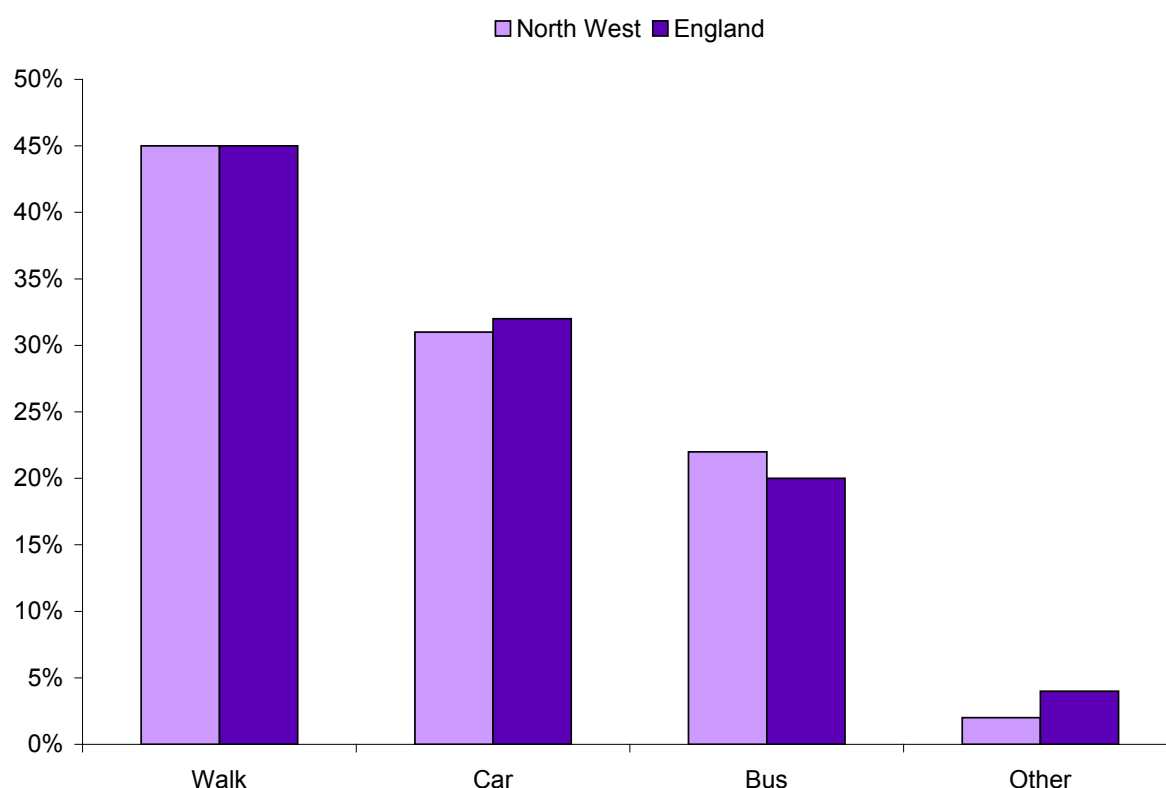
**Figure 4: Time taken to travel to work by usual method. North West and England, October to December 2008.**



Source: Labour Force Survey, Office for National Statistics.

Just under half (45%) of children aged 5-16 years walk to school, the same proportion as across England (Figure 5). However, the average journey to school is slightly shorter in the North West than in England: 1.3 miles for 5-10 year olds (compared with 1.6 miles) and 3.0 miles for 11-16 year olds (compared with 3.2 miles).<sup>3</sup>

**Figure 5: Trips to and from school by main mode. North West and England, 2007-08.**



Source: National Travel Survey, Regional Transport Statistics, Department for Transport.

### 3.3.2 Access to cars

Since 1996, the proportion of households in the North West with no access to a car has decreased from 31% to 26%, while the proportion of households with two cars has increased from 24% to 32%. North West households are slightly more likely than households across England to have no access to a car (Table 3).

**Table 3: Household car ownership, 2007.**

	No car	One car	Two cars
North West	26%	42%	32%
England	24%	43%	33%

Source: Regional tables on personal travel, Department for Transport.

Around 70% of people in the North West aged 17+ years hold a full car driving licence, slightly lower than the England average of 72%. More North West men (79%) than women (62%) hold a full licence. The highest percentages of full car driving licence owners are in the South East and South West (both 79%), while the lowest are in the North East (63%) and London (64%).<sup>3</sup>

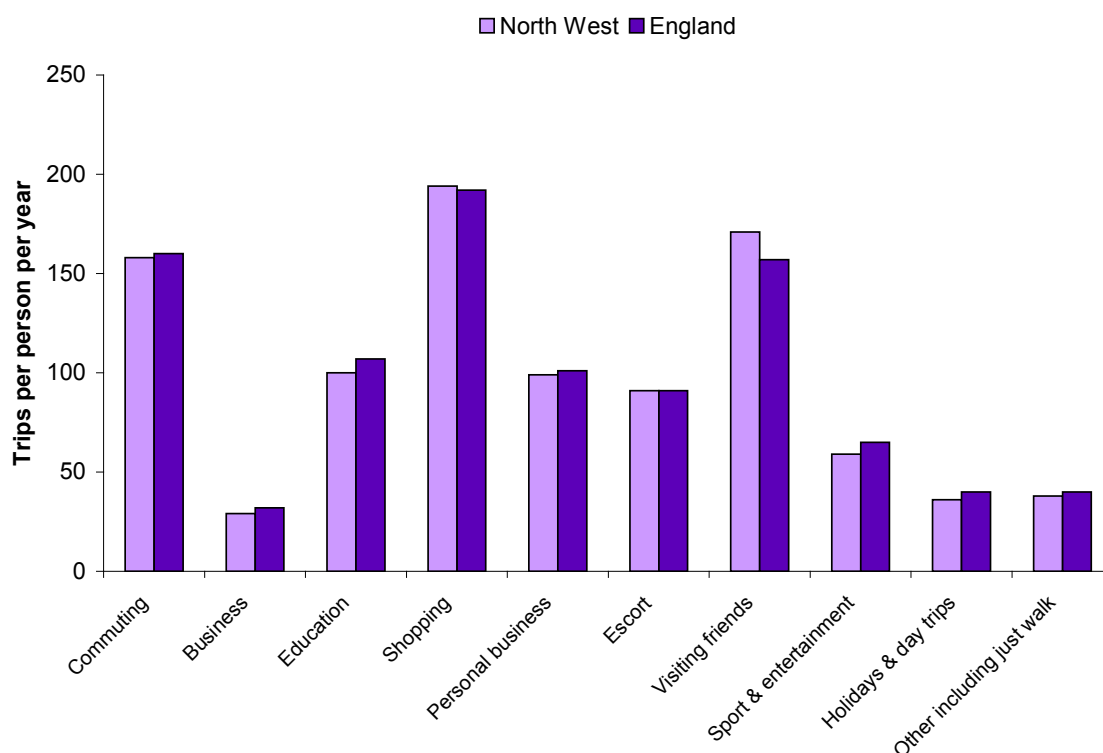
<sup>3</sup> Source: Regional tables on personal travel, Department for Transport

### 3.4 Why we travel

Of the average of 976 trips that North West residents make per year, a fifth (194) are for shopping, while 17.5% (171) are for visiting friends (slightly higher than the England average) and 16.2% are for commuting purposes (Figure 6).

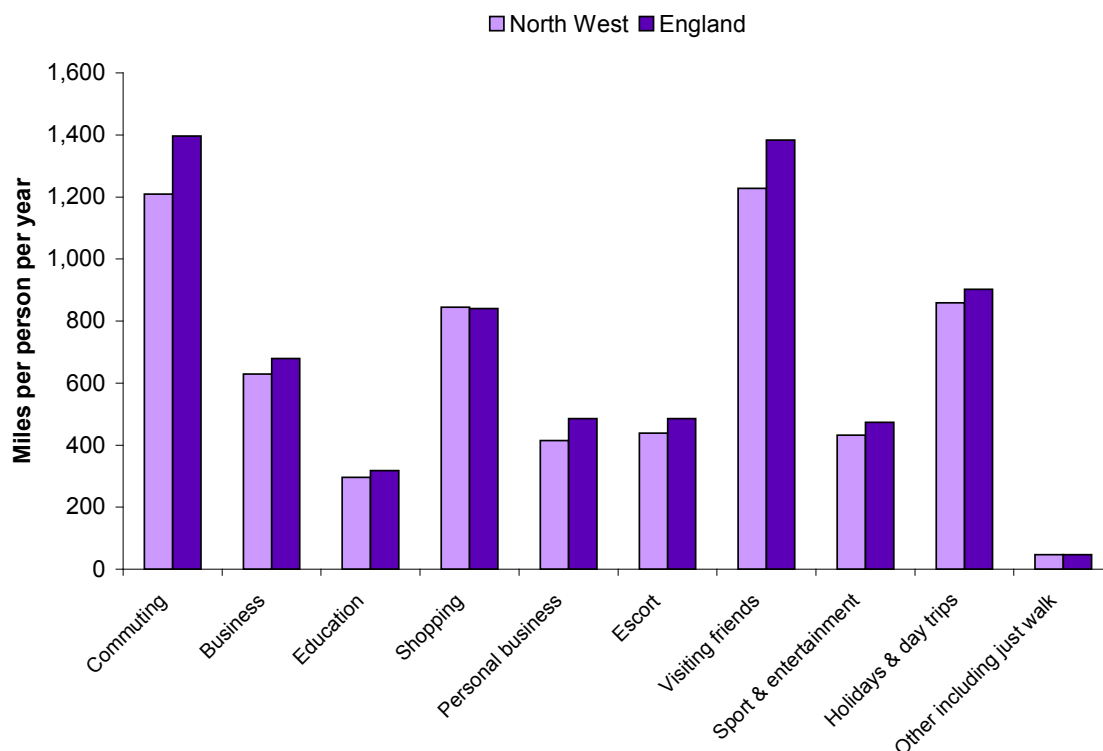
North West residents travel less far than England residents for personal business (415 miles compared with 485 miles per year), commuting (1,209 miles compared with 1,397) and visiting friends (1,228 miles compared with 1,383) (Figure 7).

**Figure 6: Trips by purpose. North West and England, 2007-08.**



Source: National Travel Survey, Regional Transport Statistics, Department for Transport.

**Figure 7: Average distance travelled by purpose. North West and England, 2007-08.**



Source: National Travel Survey, Regional Transport Statistics, Department for Transport.

Summary transport indicators are shown in Table 4, including the position of the North West in relation to other English regions.

**Table 4: Summary of transport indicators.**

	North West	England	NW ranking among English regions (from 1 = highest to 9 = lowest)
Average distance travelled (in miles) by all modes of transport	6,399	7,010	=7th
Average distance travelled (in miles) by car per person per year	3,347	3,577	7th
Percentage of households within 13 minutes walk of a bus stop with a service at least once an hour	93	90	3rd
Percentage of households with one or more cars	74	76	6th
Percentage of population who usually travel to work by car	75	69	=5th
Length of road (km)	36,901	300,967	4th
Yearly motor vehicle flow (billion vehicle km)	57.3	436.3	2nd
Traffic increase 1998 to 2008	10.1	8.6	5th
Number of registered vehicles per 1,000 population	468	470	6th
Average vehicle age (years)	6.4	7	8th

Source: Regional tables, Department for Transport.



#### 4. Data sources

Five data sources have been used to present information on road traffic collisions and casualties:

- STATS19: collected by police at the scene of a road traffic collision (incident-based), this dataset provides information on collisions and casualties;
- Data from the North West Ambulance Service: information on the location which the ambulance went to, to respond to incidents identified as road traffic collisions;
- Accident and Emergency admission data: for hospitals in Cumbria, Lancashire and Merseyside, for injuries caused by road traffic collisions;
- Hospital admission data, from Hospital Episode Statistics (HES): residence-based information on hospital admission following a road traffic collision;
- Mortality data, from the Office for National Statistics mortality dataset: residence-based information on deaths following a land transport accident.

Throughout the report, the term ‘accident’ has not been used, apart from when data has been taken from a published source that specifically utilises the term. This is consistent with papers published in the British Medical Journal (BMJ)<sup>4</sup> and the World Health Organization:

*The term ‘accident’, which is widely used, can give the impression, probably unintended, of inevitability and unpredictability – an event that cannot be managed.*  
World Health Organization, 2004.<sup>5</sup>

Instead, the term ‘collision’ has been used where possible.

Where comparable and meaningful indicators (usually rates) can be calculated at a local level, they have been presented in this report for each of the 39 local authority districts in the North West, alongside equivalent measures for the public health network areas: Cheshire and Merseyside, Cumbria, Greater Manchester and Lancashire, as well as the North West average. To highlight where there are distinct differences between areas, 95% confidence intervals (CIs) have been calculated and areas that have measures that are significantly different from the North West average have been highlighted as such.<sup>6</sup>

For some measures, additional information has been shown by deprivation level and geodemographic classification. This information provides further insight into the scale of the issues and inequalities, and shows groups of people that are most affected by the issues concerned. For the information displayed by deprivation level, the national rankings of respective lower super output areas in the North West within the Index of Multiple Deprivation 2007 are used to group areas into quintiles (from the least deprived national fifth of areas to the most deprived). For geodemographic analysis, the classifications of the North West lower super output areas according to P<sup>2</sup> People and Places © are used in a similar fashion, and data are displayed on charts, ordered from the least deprived (left) to the most deprived (right) classifications.

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<sup>4</sup> Davis R and Pless B (2001). BMJ bans “accidents”. Accidents are not unpredictable. BMJ2001;322:1320doi:10.1136/bmj.322.7298.1320.

<sup>5</sup> Peden M et. al. (eds) (2004). World report on road traffic injury prevention. Geneva: World Health Organization.

<sup>6</sup> Confidence intervals indicate the reliability of the indicators. It is possible to be 95% confident that the true result for the particular area in question is within the confidence limits calculated. Confidence intervals also allow comparison to be made between areas. In other words, where one measure is ‘significantly’ better or worse than another (i.e. the confidence limits do not overlap), we are 95% confident that this is not due to random error or chance.

## **5. Road traffic collisions and casualties**

Data on personal injury road traffic collisions and the casualties resulting from them are collected by the police and submitted to the Department for Transport through a system known as STATS19. Records for each collision and its circumstances, vehicle involved in the collision, and casualty resulting from the injury collision, are collected and reported. These statistics are essential for informing and monitoring road safety policy and initiatives, and provide evidence to support road safety education and enforcement as well as remedial engineering work.

It has long been acknowledged that STATS19 is not a comprehensive record of all injury road traffic collisions and casualties. While very few, if any, fatalities are not known by the police, a large number of less serious collisions are not reported, as police do not attend all collisions and there is no legal requirement to report collisions – including those that cause injury – as long as details are exchanged by those involved at the scene of the collision. However, STATS19 is the most detailed, consistent, complete and reliable source of data on road traffic collision casualties, and provides essential information for developing effective measures to reduce road casualties.<sup>7</sup>

STATS19 severity of injury definitions (fatal, serious and slight) are detailed in the appendices (section 10.2.2).

### **5.1 Long-term trends**

Over the last thirty years, the total number of road casualties in the North West has fallen by 21.1%, although there has not been a consistent decrease. The number of casualties remained relatively stable between 1979 and 1985, with the lowest number seen in 1983. After the mid-1980s, the number of casualties then steadily increased to a peak in 1997. However, over the last decade, the total number of casualties has fallen (Figure 8). The total number of child casualties follows a broadly similar pattern (Figure 10).

Over the same period, the decline in killed or seriously injured (KSI) casualties, both casualties of all ages (Figure 9) and child casualties (Figure 11), has been larger and more consistent: -58.2% for casualties of all ages and -54.3% for child casualties. This therefore means that the reduction in slightly injured casualties has been far less dramatic, around 11.0%. In addition, there was a steady increase in the number of slightly injured casualties from 1979 right through until 1999. This could be due to increased reporting of casualties, change in classification of injury ('serious' injury now classified as 'slight') as a result of improved road safety interventions or an actual increase in the numbers of slight injuries.<sup>8</sup>

The downward trend in the number of casualties also needs to be considered alongside information on exposure to risk. For example, data from the National Travel Survey indicates a steady decline in the number of walking and cycling trips made across Great Britain – with the average number for 2009 being 78% of the 1995/97 figure for walking and 84% of the 1995/97 figure for cycling.

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<sup>7</sup> Department for Transport (2010). The 2008 review of reported road casualty statistics (STATS19) – summary report.

<sup>8</sup> South West Public Health Observatory (2007). A Heavy Toll: Road traffic collisions in the South West.

Figure 8: All road casualties. North West, 1979-2008.

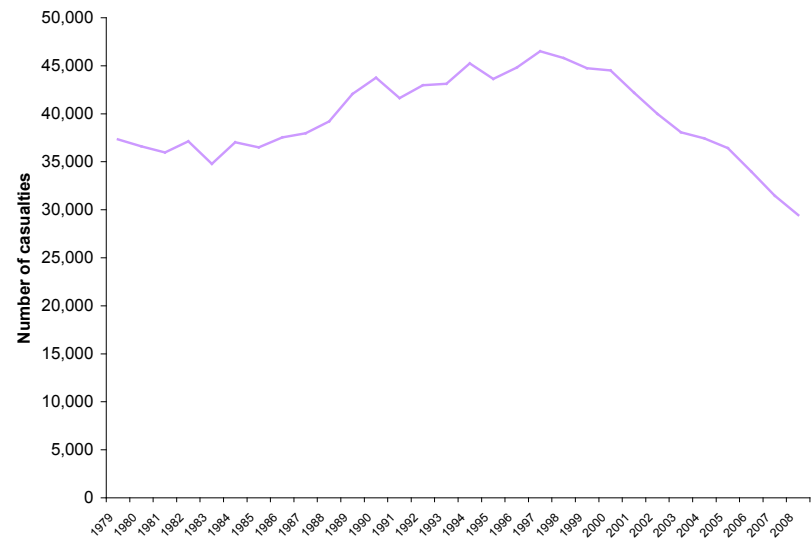


Figure 9: Killed or seriously injured road casualties. North West, 1979-2008.

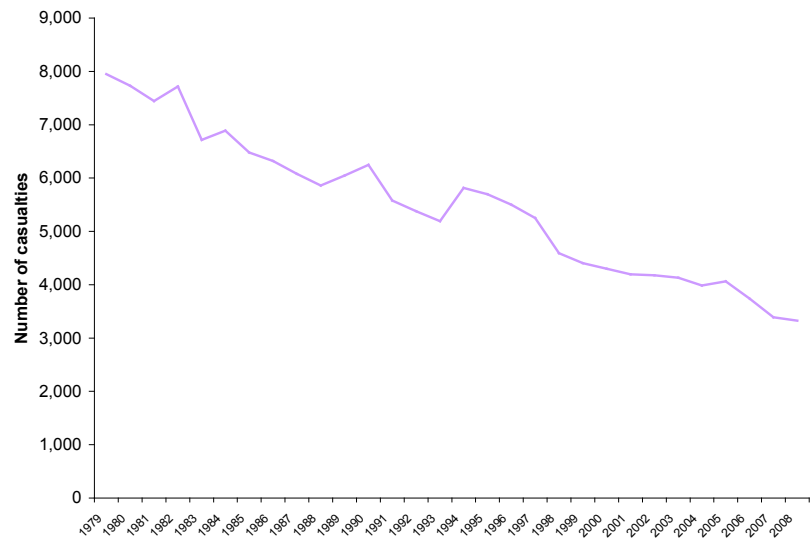


Figure 10: All child road casualties. North West, 1979-2008.

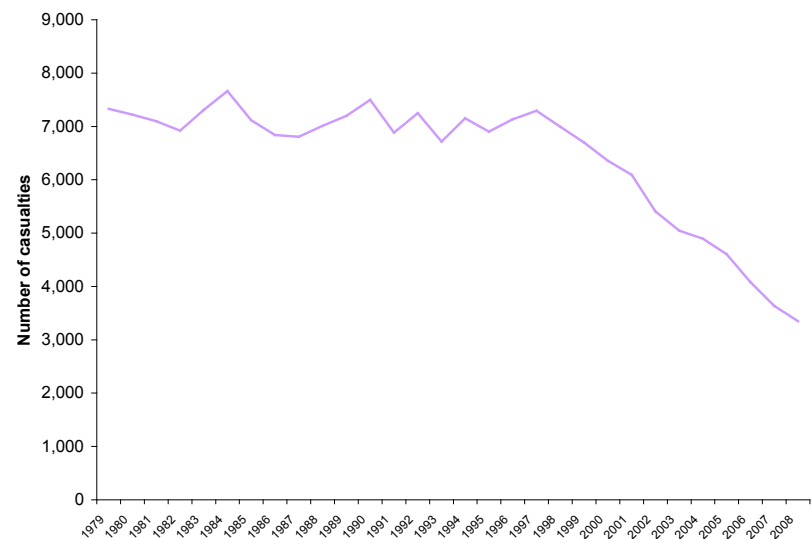
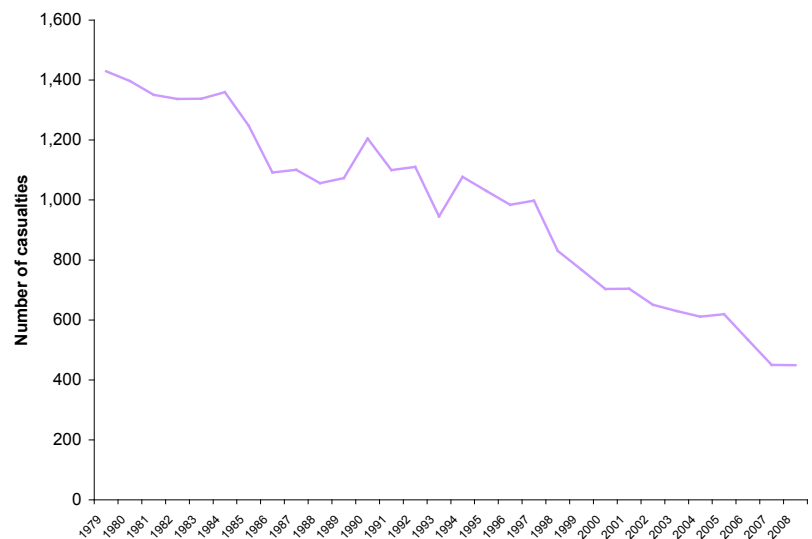


Figure 11: Killed or seriously injured child road casualties. North West, 1979-2008.



## 5.2 Ten year trends

The period 1994-1998 has long been established as a baseline average for measuring progress towards reducing road traffic casualties. It is useful to consider changes since this period in the North West, and compared with the England average, to assess the more recent picture for key casualty measures.

### 5.2.1 Numbers of people killed or seriously injured

The number of people killed or seriously injured in the North West fell by 38.1% from 5,371 in 1994-98 to 3,324 in 2008 (Table 5). This was a slightly smaller decrease than seen across England (40.3%), although the rate of decrease is fifth highest of the nine English regions.

The number of fatal casualties in the North West has decreased by 31.5% since 1994-98 (Table 6). This decrease was slightly larger than across England (28.9%), and was the second largest regional decrease in England.

**Table 5: Reported killed or seriously injured casualties, 1994-98 and 2008.**

	1994-98	2008	% change
North West	5,371	3,324	-38.1
England	40,815	24,369	-40.3

Reported Road Casualties English Local Authority Tables: 2008.

**Table 6: Reported fatal casualties, 1994-98 and 2008.**

	1994-98	2008	% change
North West	393	269	-31.5
England	2,986	2,123	-28.9

Reported Road Casualties English Local Authority Tables: 2008.

### 5.2.2 Numbers of children killed or seriously injured

In 2008, 449 children (aged 0-15 years) were killed or seriously injured in the North West, a 54.4% fall from 1994-98. This was a slightly smaller decrease than across England (58.1%), and was the third smallest decrease across the English regions (Table 7).

**Table 7: Reported child killed or seriously injured casualties, 1994-98 and 2008.**

	1994-98	2008	% change
North West	984	449	-54.4
England	5,729	2,402	-58.1

Reported Road Casualties English Local Authority Tables: 2008.

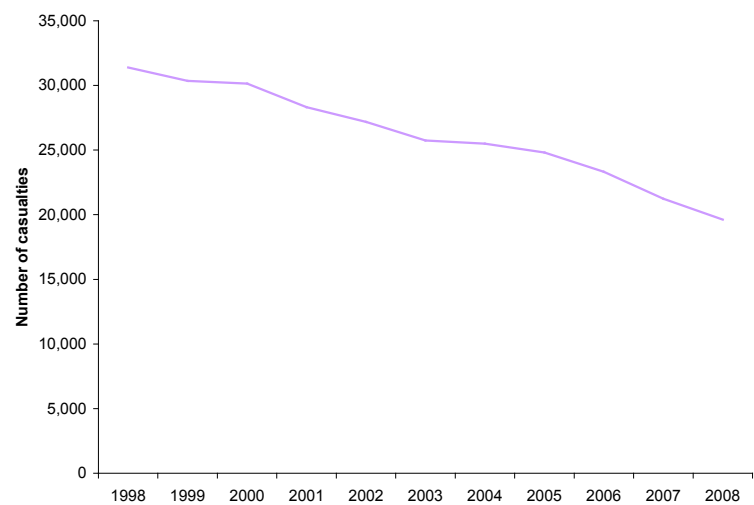
### 5.2.3 Slight casualty rate

The slight casualty rate is expressed as the number of people slightly injured per 100 million vehicle kilometres. The North West's slight casualty rate decreased by 43.6% between 1994-98 and 2008. This is the largest regional decrease over the period.

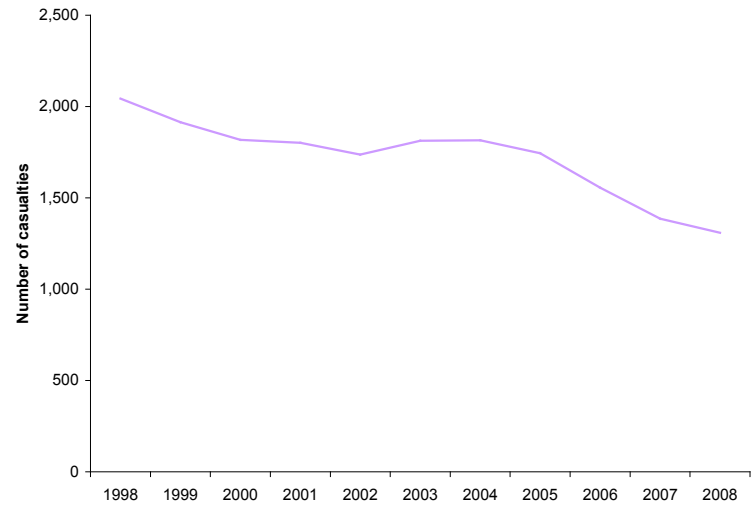
### 5.2.4 Casualties by road user type

Between 1998 and 2008 in the North West, the total number of pedestrian casualties, car user casualties and pedal cycle casualties have all decreased by at least one-third (-39.3%, -37.5% and -33.4% respectively) (Figure 18, Figure 12 and Figure 16). However, the number of motorcycle user casualties has increased by 3.5% (Figure 14). The numbers of car users and pedestrians who were killed or seriously injured have also decreased by over one-third (-36.0% and -34.1% respectively, Figure 13 and Figure 19), but the decline in pedal cyclists who were killed or seriously injured has been less substantial (-10.3%, Figure 17). The number of motorcyclists who were killed or seriously injured has increased by 10.4% over the same period (Figure 15).

**Figure 12: Car user casualties. North West, 1998-2008.**



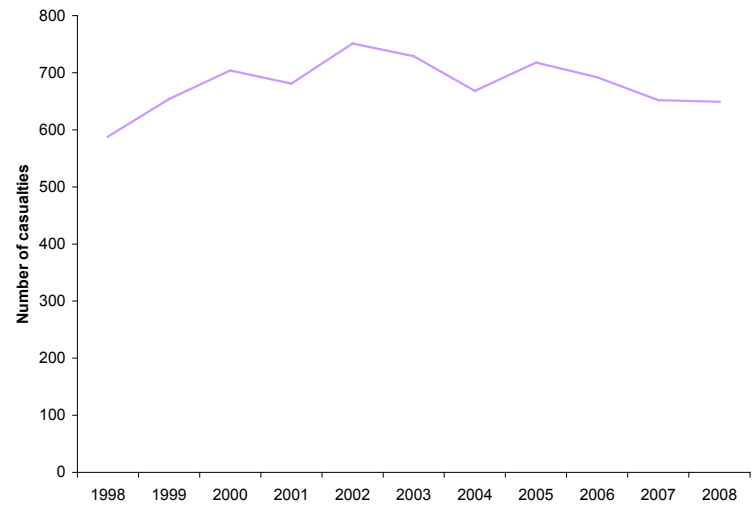
**Figure 13: Killed or seriously injured car user casualties. North West, 1998-2008.**



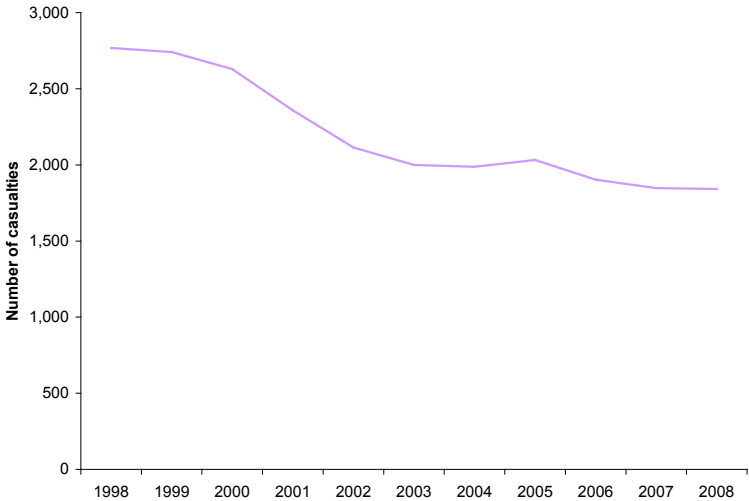
**Figure 14: Motorcycle user casualties. North West, 1998-2008.**



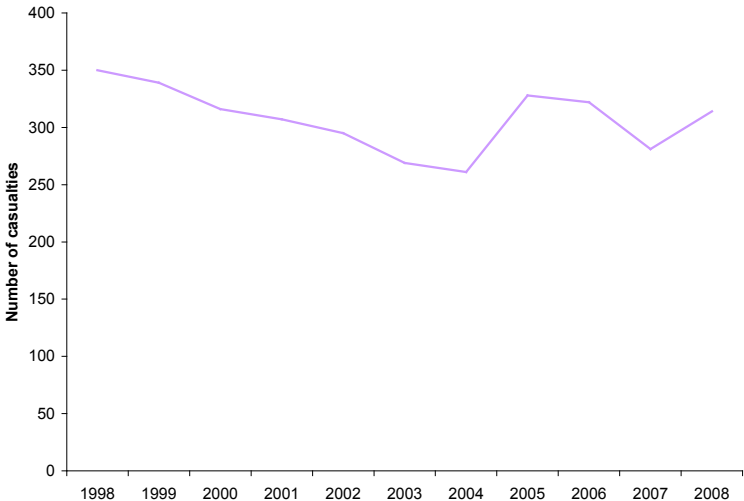
**Figure 15: Killed or seriously injured motorcycle user casualties. North West, 1998-2008.**



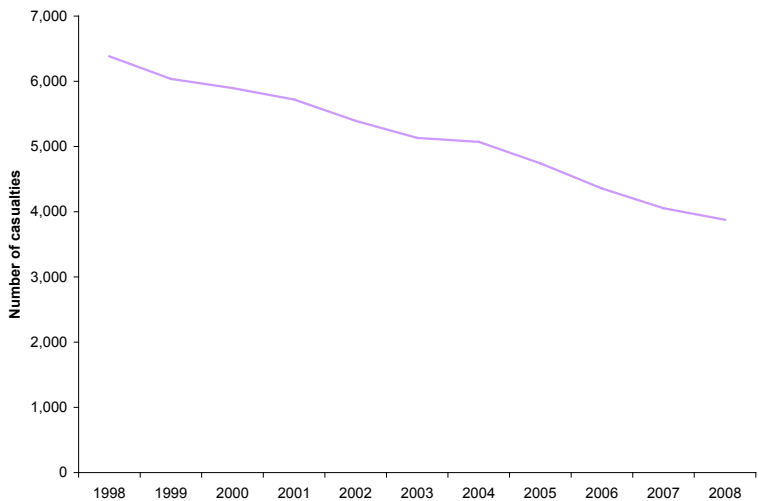
**Figure 16: Pedal cycle casualties. North West, 1998-2008.**



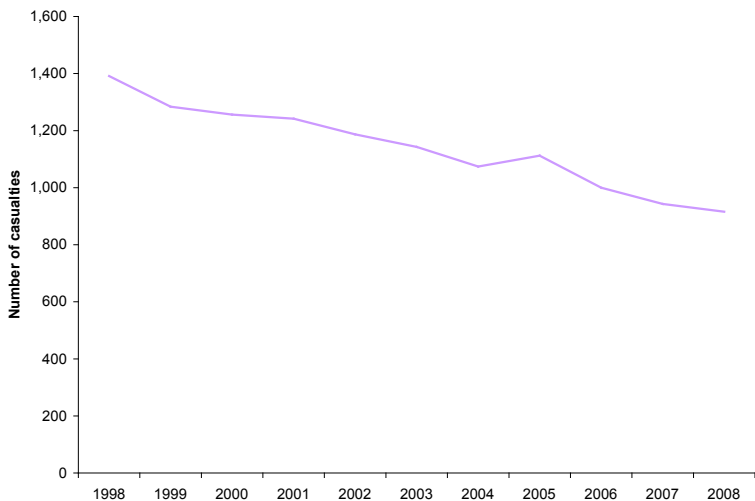
**Figure 17: Killed or seriously injured pedal cycle casualties. North West, 1998-2008.**



**Figure 18: Pedestrian casualties. North West, 1998-2008.**



**Figure 19: Killed or seriously injured pedestrian casualties. North West, 1998-2008.**



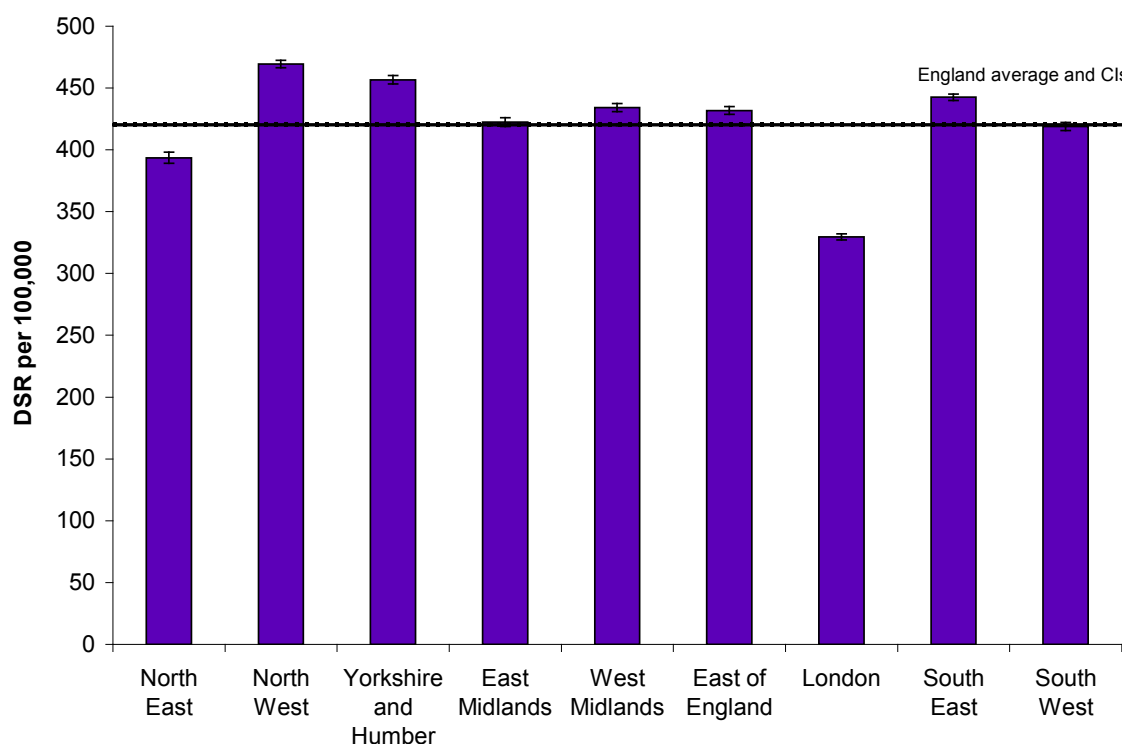
### 5.3 All casualties

In 2008, 269 people were killed, 3,055 were seriously injured and 26,137 were slightly injured in road traffic collisions in the North West. This represented 12.7% of all those killed, 13.7% of all those seriously injured and 14.5% of those slightly injured in road traffic collisions in England,<sup>9</sup> while 13.4% of England's population lived in the North West.<sup>10</sup>

#### 5.3.1 Rates

The directly standardised rate of road traffic casualties per 100,000 population is 469.36 in the North West (2006-08). This is the highest English regional rate, significantly higher than all other English regions and the England average (420.21 per 100,000) (Figure 20).

**Figure 20: Directly standardised rate of road traffic casualties per 100,000 population. English regions, 2006-08.**



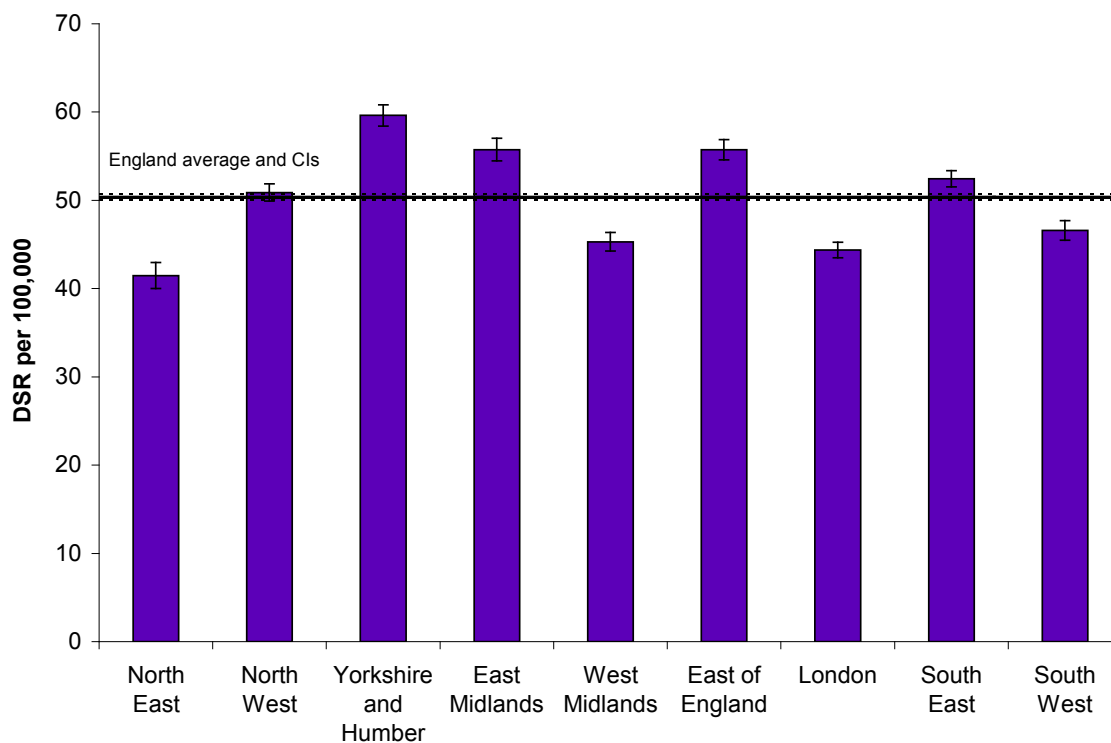
Source: NWPFO from STATS19 and Office for National Statistics mid-year population estimates.

<sup>9</sup> Regional tables on Report road accidents and casualties 2008, Department for Transport.

<sup>10</sup> Mid-year population estimates 2008, Office for National Statistics.

The directly standardised rate of killed or seriously injured road traffic casualties per 100,000 population across the North West is 50.89 (2006-08). This is the fifth highest regional rate in England and is slightly higher, but not significantly different from, the England average of 50.36 per 100,000 (Figure 21).

**Figure 21: Directly standardised rate of killed or seriously injured road traffic casualties per 100,000 population. English regions, 2006-08.**

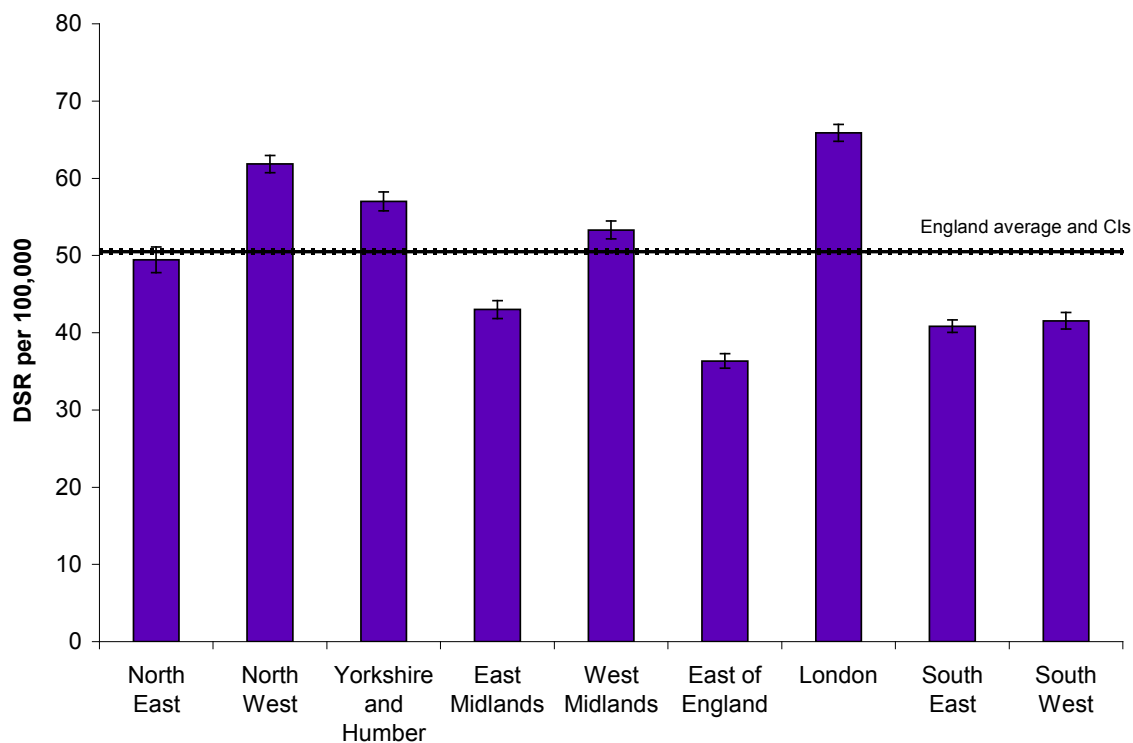


Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.



Across the North West, the directly standardised rate of pedestrian road traffic casualties is 61.84 per 100,000 population (2006-08). This is the second highest English regional rate, and is significantly higher than all other regions apart from London, and the England average of 50.49 per 100,000 (Figure 22).

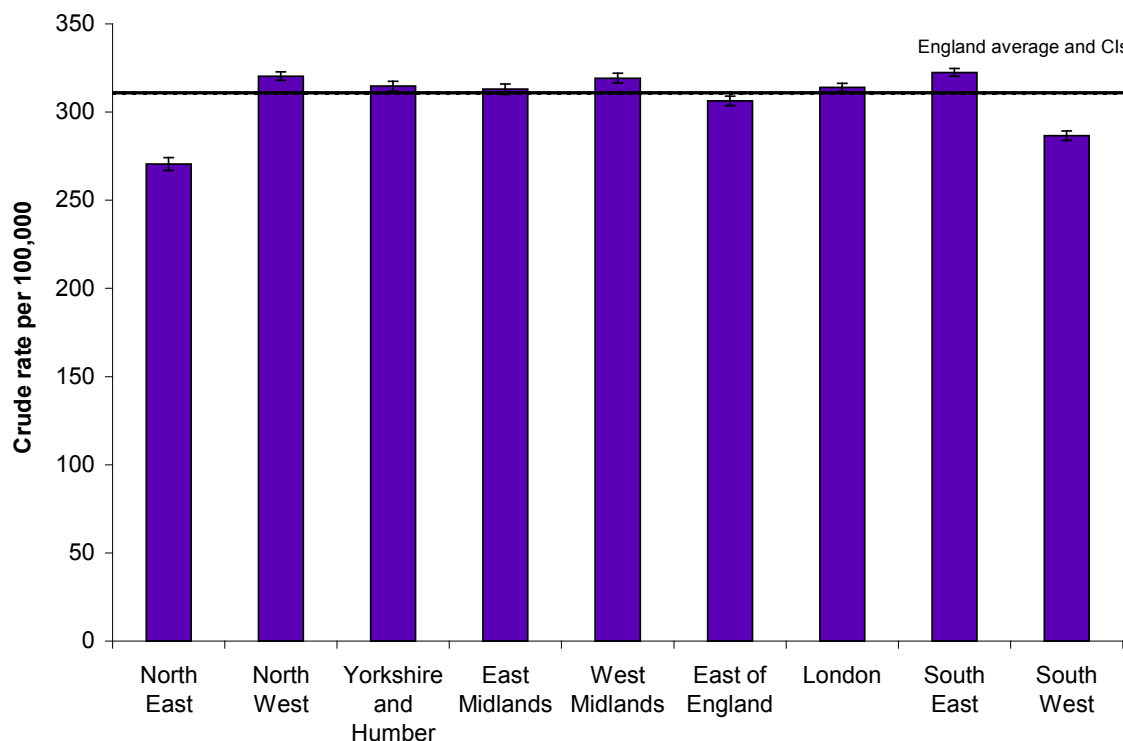
**Figure 22: Directly standardised rate of pedestrian road traffic casualties per 100,000 population. English regions, 2006-08.**



Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

The crude rate of road traffic collisions in the North West is 320.40 per 100,000 population. This is the highest regional rate in England, and is significantly higher than the England average of 310.99 (Figure 23).

**Figure 23: Crude rate of road traffic collisions per 100,000 population. English regions, 2006-08.**

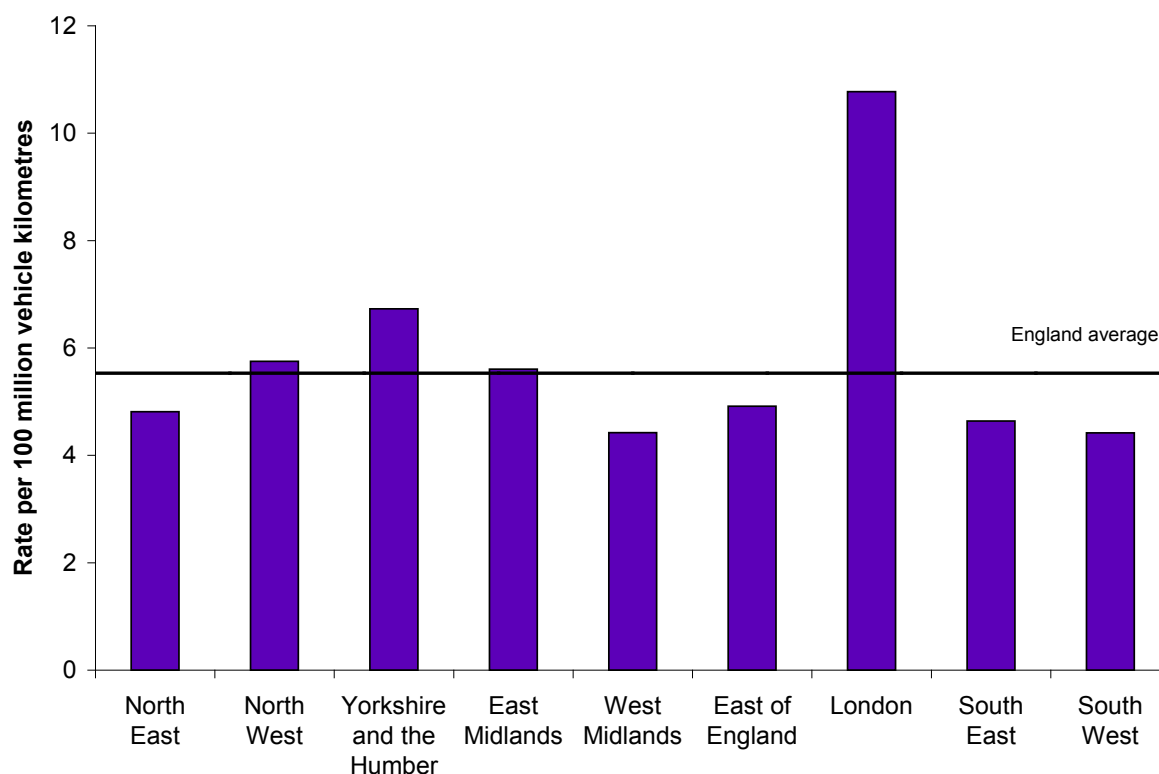


Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

Another way of measuring and comparing casualty rates is by rates per 100 million vehicle kilometres. The North West killed or seriously injured casualty rate per 100 million vehicle kilometres was 5.8 in 2008, the third highest regional rate in England, and higher than the England rate of 5.5 (Figure 24). London stands out in particular as having a high casualty rate per 100 million vehicle kilometres.

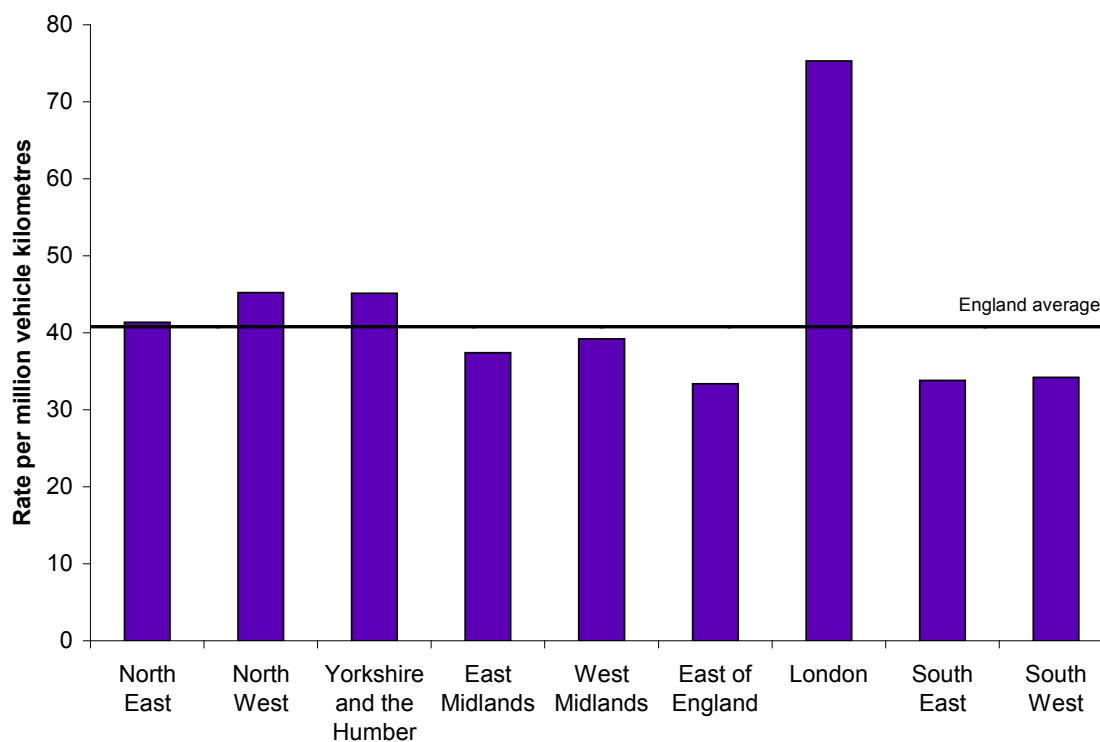
The slight casualty rate in the North West was 45.2 per 100 million vehicle kilometres in 2008, the second highest regional rate in England, and above the England average of 40.8 (Figure 25).

**Figure 24: Reported killed or seriously injured casualty rate per 100 million vehicle kilometres, 2008.**



Source: Reported road casualties, district and county tables, Department for Transport.

**Figure 25: Reported slight casualty rate per 100 million vehicle kilometres, 2008.**



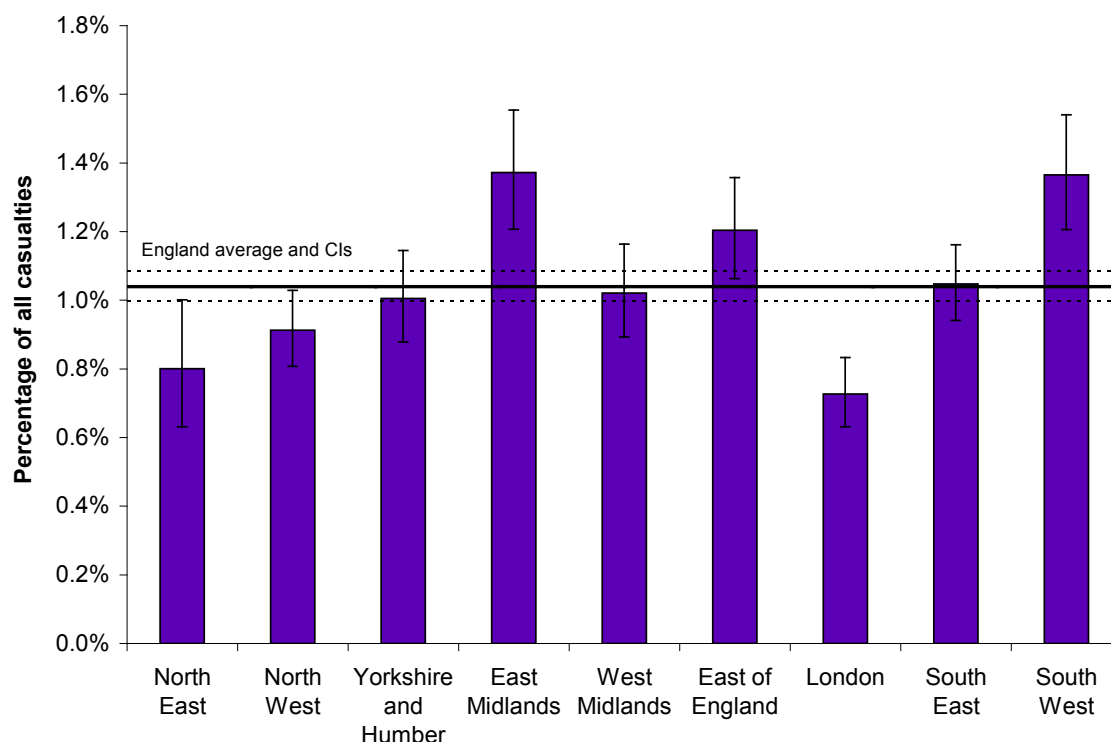
Source: Reported road casualties, district and county tables, Department for Transport.

The fatality rate (percentage of all casualties resulting in deaths) and killed or seriously injured rate (percentage of all casualties killed or seriously injured) are also commonly used as key road safety indicators and measures of performance.

Of all casualties in the North West in 2008, 0.91% were fatally injured, the third lowest England regional rate (Figure 26). This proportion was slightly below, but not significantly different from, the England average (1.04%).

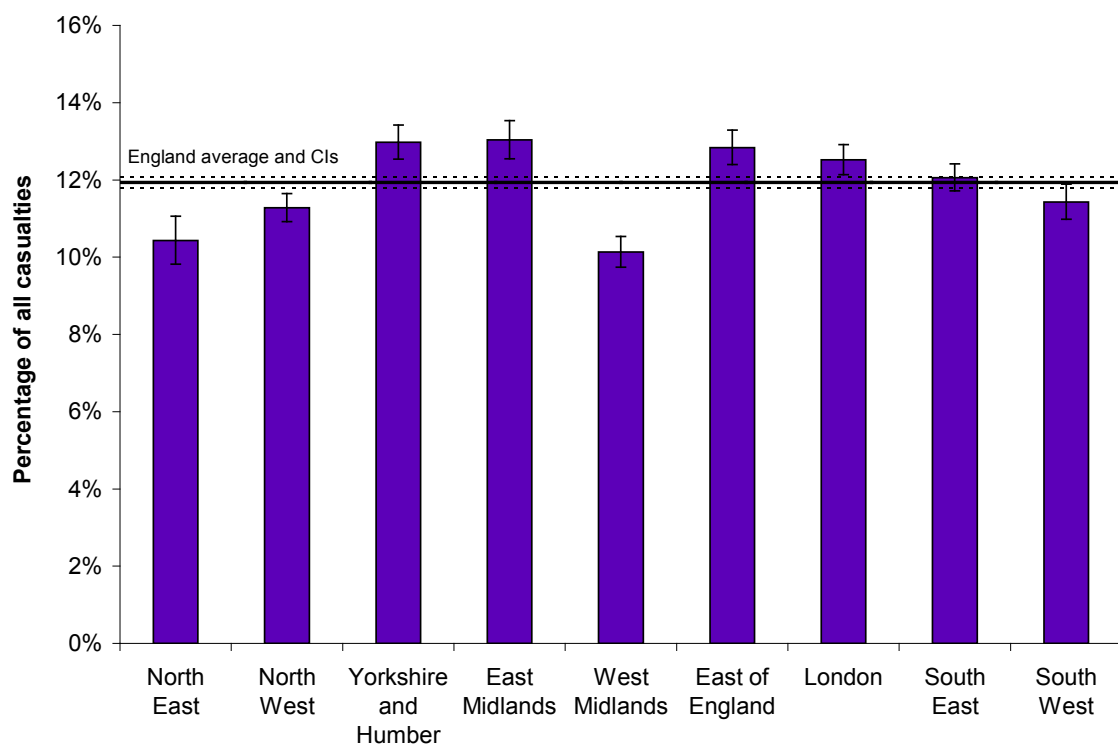
In total, 11.28% of all casualties were killed or seriously injured in the North West in 2008 (Figure 27). This was significantly lower than the England average (11.94%).

**Figure 26: Percentage of all casualties who were fatally injured by region, 2008.**



Source: NWPHO from STATS19.

**Figure 27: Percentage of all casualties who were killed or seriously injured by region, 2008.**



Source: NWPHO from STATS19.

## 5.3.2 Local rates

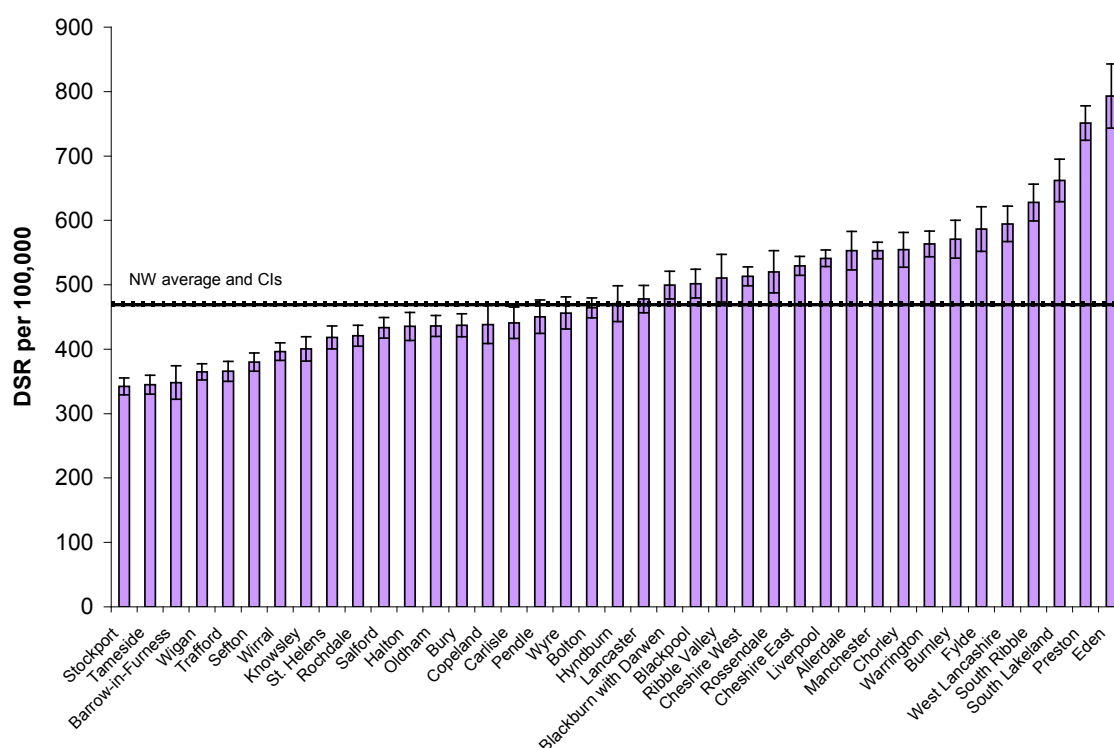
### 5.3.2.1 All casualties

The North West directly standardised rate of road traffic casualties per 100,000 population is 469.39 in the North West, and local rates vary from 342.26 per 100,000 in Stockport to 793.09 in Eden, a ratio of 1: 2.3 (Figure 28, Map 1).

Stockport, Tameside, Barrow-in-Furness, Wigan, Trafford, Sefton, Wirral, Knowsley, St Helens, Rochdale, Salford, Halton, Oldham, Bury and Carlisle all have rates that are significantly better than the North West average, while Eden, Preston, South Lakeland, South Ribble, West Lancashire, Fylde, Burnley, Warrington, Chorley, Manchester, Allerdale, Liverpool, Cheshire East, Rossendale, Cheshire West and Chester, Ribble Valley, Blackpool and Blackburn with Darwen have rates that are significantly worse.

However, when compared with the England average, there are more local authorities – in addition to the above – which have rates that are significantly worse. Lancaster, Hyndburn, Bolton, Wyre, Pendle are among these areas, as well as local authorities that have better rates than the North West average: Carlisle, Bury, Oldham, Halton and Salford.

**Figure 28: Directly standardised rate of road traffic casualties per 100,000 population. North West local authorities, 2006-08.**

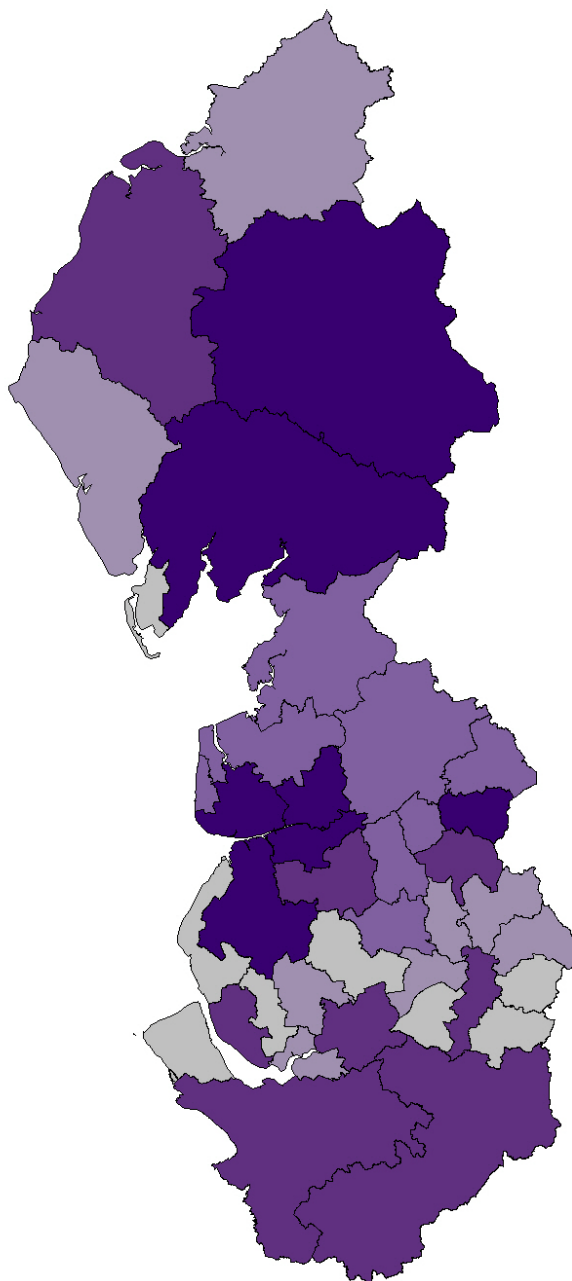
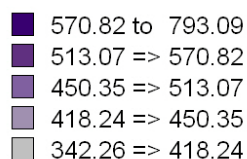


Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

**Map 1: Directly standardised rate of road traffic casualties per 100,000 population.  
North West local authorities, 2006-08.**

Local authority	Rate
Allerdale	552.98
Barrow-in-Furness	348.11
Blackburn with Darwen	499.64
Blackpool	501.68
Bolton	464.25
Burnley	570.82
Bury	437.17
Carlisle	440.94
Cheshire East	529.55
Cheshire West and Chester	513.07
Chorley	554.42
Copeland	438.41
Eden	793.09
Fylde	586.50
Halton	435.33
Hyndburn	470.53
Knowsley	400.61
Lancaster	477.80
Liverpool	541.15
Manchester	553.09
Oldham	436.04
Pendle	450.35
Preston	751.08
Ribble Valley	510.39
Rochdale	420.84
Rossendale	520.15
Salford	433.31
Sefton	379.98
South Lakeland	662.04
South Ribble	627.77
St Helens	418.24
Stockport	342.26
Tameside	344.91
Trafford	365.66
Warrington	563.55
West Lancashire	594.56
Wigan	364.84
Wirral	396.31
Wyre	456.21
Cheshire and Merseyside	472.08
Cumbria	521.47
Lancashire	540.41
Greater Manchester	420.55
<b>North West</b>	<b>469.36</b>

Rate per 100,000 population



Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

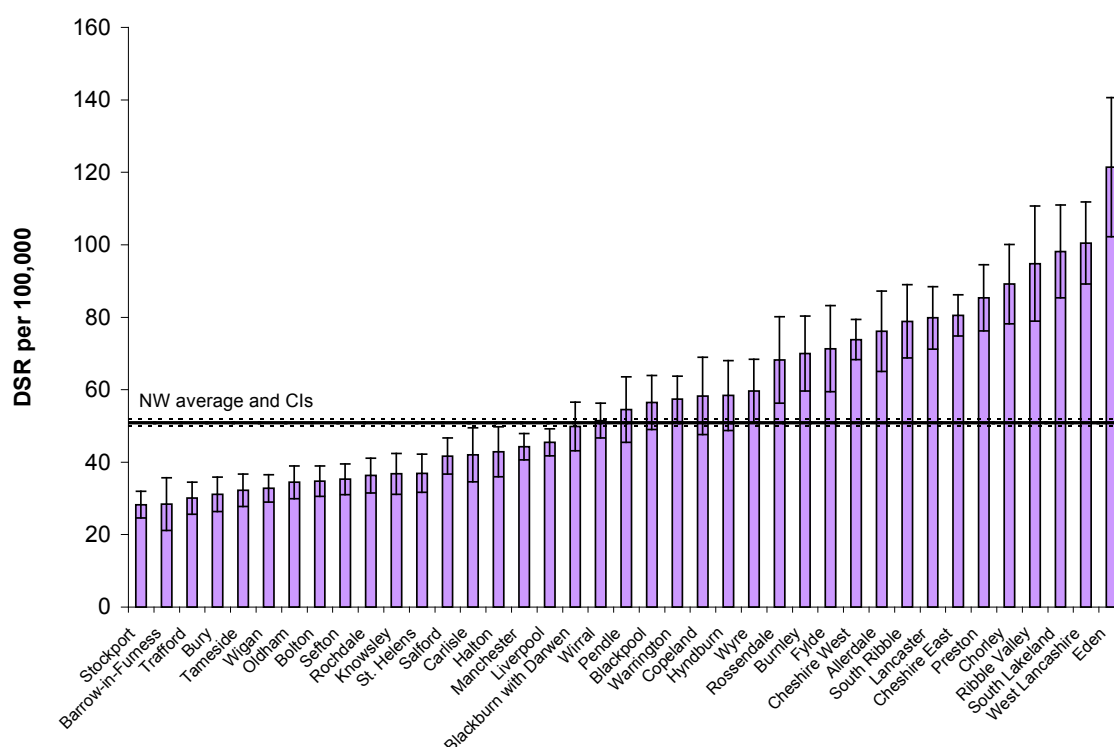
### 5.3.2.2 Killed or seriously injured casualties

The North West's directly standardised rate of killed or seriously injured road traffic casualties per 100,000 population across the North West is 50.89, and local rates vary from 28.27 per 100,000 in Stockport to 121.40 in Eden, a ratio of 1: 4.3 (Figure 29, Map 2).

Stockport, Barrow-in-Furness, Trafford, Bury, Tameside, Wigan, Oldham, Bolton, Sefton, Rochdale, Knowsley, St Helens, Salford, Carlisle, Halton, Manchester and Liverpool all have rates that are significantly better than the North West average, while Eden, West Lancashire, South Lakeland, Ribble Valley, Chorley, Preston, Cheshire East, Lancaster, South Ribble, Allerdale, Cheshire West and Chester, Fylde, Burnley and Rossendale have rates that are significantly worse.

The above local authorities that have rates that are significantly worse than the North West average, also have rates that are significantly worse than the England average together with Wyre and Warrington.

**Figure 29: Directly standardised rate of killed or seriously injured road traffic casualties per 100,000 population. North West local authorities, 2006-08.**



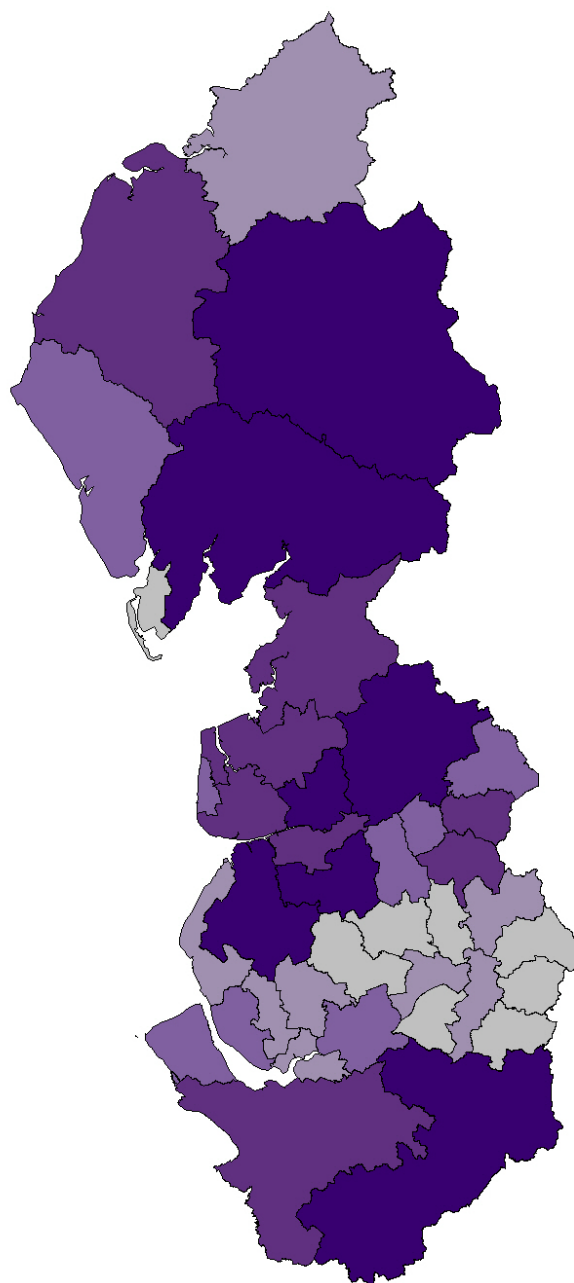
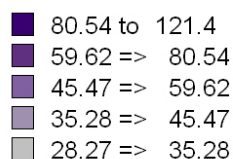
Source: NWPFO from STATS19 and Office for National Statistics mid-year population estimates.



**Map 2: Directly standardised rate of killed or seriously injured road traffic casualties per 100,000 population. North West local authorities, 2006-08.**

Local authority	Rate
Allerdale	76.11
Barrow-in-Furness	28.44
Blackburn with Darwen	49.87
Blackpool	56.49
Bolton	34.74
Burnley	70.00
Bury	31.14
Carlisle	42.04
Cheshire East	80.54
Cheshire West and Chester	73.85
Chorley	89.17
Copeland	58.26
Eden	121.40
Fylde	71.33
Halton	42.88
Hyndburn	58.42
Knowsley	36.80
Lancaster	79.83
Liverpool	45.47
Manchester	44.27
Oldham	34.44
Pendle	54.53
Preston	85.37
Ribble Valley	94.79
Rochdale	36.31
Rossendale	68.21
Salford	41.67
Sefton	35.28
South Lakeland	98.16
South Ribble	78.87
St Helens	36.95
Stockport	28.27
Tameside	32.24
Trafford	30.06
Warrington	57.43
West Lancashire	100.48
Wigan	32.76
Wirral	51.47
Wyre	59.62
Cheshire and Merseyside	53.25
Cumbria	66.76
Lancashire	71.33
Greater Manchester	34.90
<b>North West</b>	<b>50.89</b>

Rate per 100,000 population



Source: NWPHO from STATS 19 and Office for National Statistics mid-year population estimates.

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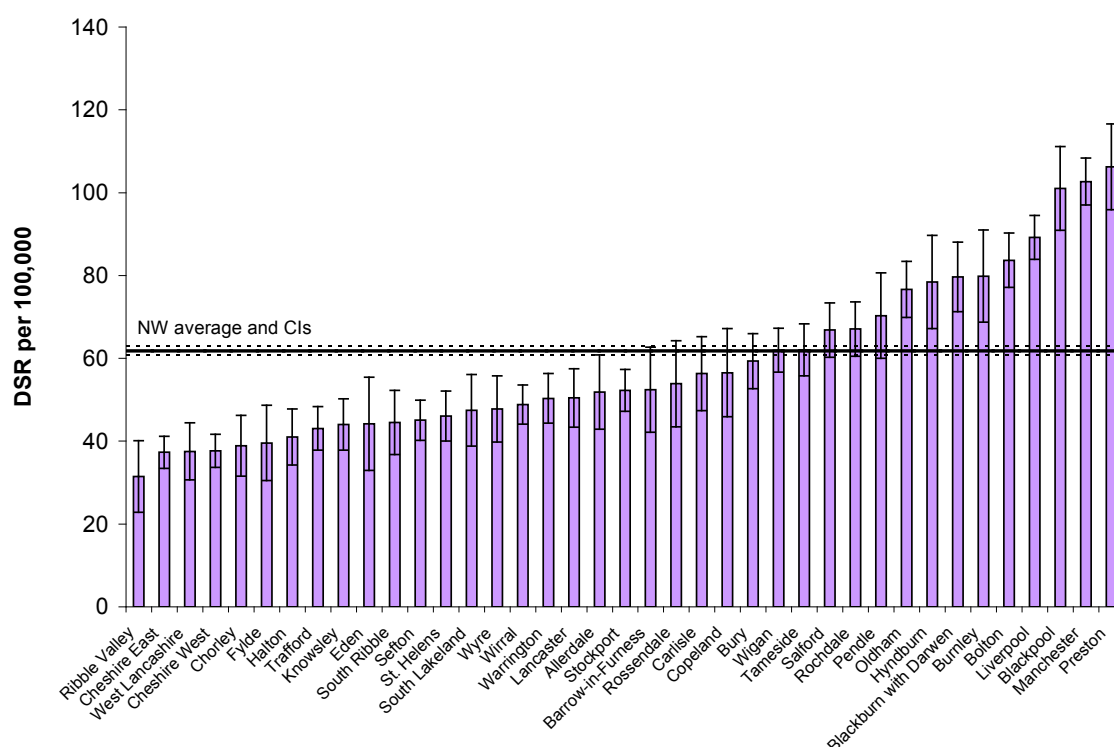
Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

### 5.3.2.3 Pedestrian casualties

The directly standardised rate of pedestrian road traffic casualties varies from 31.50 per 100,000 in Ribble Valley to 106.28 in Preston ratio of 1: 1.7, while the overall North West rate is 61.84 (Figure 30, Map 3).

Rates are significantly better than the North West average in Ribble Valley, Cheshire East, West Lancashire, Cheshire West and Chester, Chorley, Fylde, Halton, Trafford, Knowsley, Eden, South Ribble, Sefton, St Helens, South Lakeland, Wyre, Wirral, Warrington, Lancaster and Stockport. Significantly worse rates are found in Preston, Manchester, Blackpool, Liverpool, Bolton, Burnley, Blackburn with Darwen, Hyndburn and Oldham.

**Figure 30: Directly standardised rate of pedestrian road traffic casualties per 100,000 population. North West local authorities, 2006-08.**

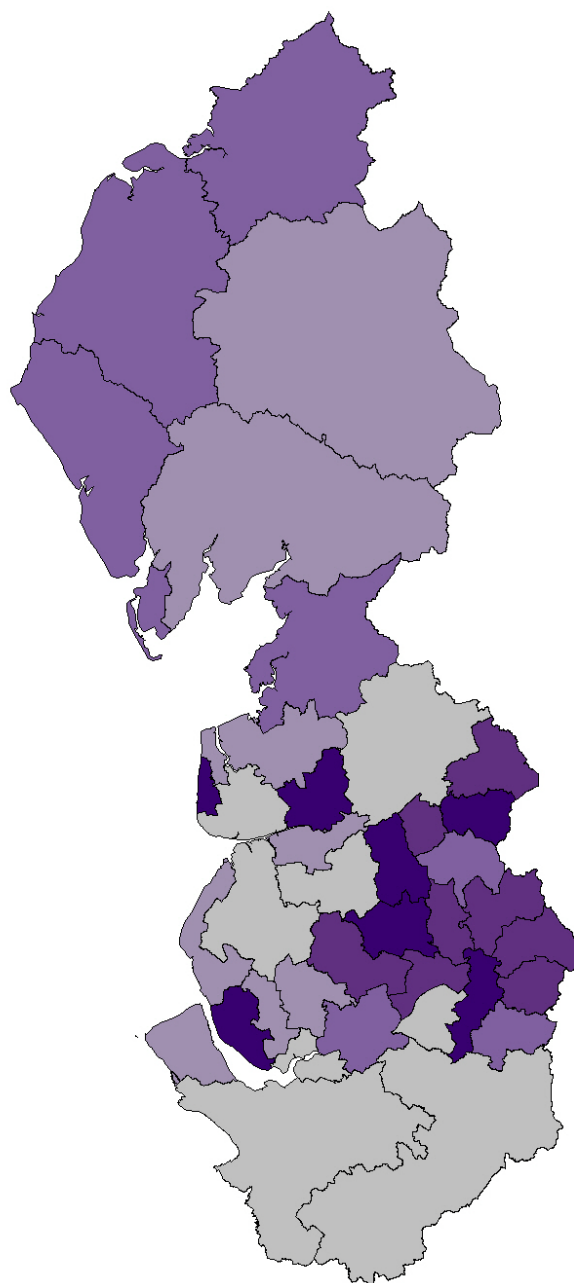
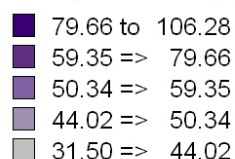


Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

**Map 3: Directly standardised rate of pedestrian road traffic casualties per 100,000 population. North West local authorities, 2006-08.**

Local authority	Rate
Allerdale	51.83
Barrow-in-Furness	52.43
Blackburn with Darwen	79.66
Blackpool	101.03
Bolton	83.69
Burnley	79.85
Bury	59.35
Carlisle	56.32
Cheshire East	37.32
Cheshire West and Chester	37.67
Chorley	38.89
Copeland	56.51
Eden	44.20
Fylde	39.58
Halton	41.04
Hyndburn	78.43
Knowsley	44.02
Lancaster	50.44
Liverpool	89.23
Manchester	102.68
Oldham	76.68
Pendle	70.32
Preston	106.28
Ribble Valley	31.50
Rochdale	67.07
Rossendale	53.89
Salford	66.82
Sefton	45.06
South Lakeland	47.44
South Ribble	44.53
St Helens	46.09
Stockport	52.25
Tameside	62.04
Trafford	43.08
Warrington	50.34
West Lancashire	37.53
Wigan	61.99
Wirral	48.84
Wyre	47.77
Cheshire and Merseyside	51.84
Cumbria	51.84
Lancashire	65.24
Greater Manchester	70.59
<b>North West</b>	<b>61.84</b>

Rate per 100,000 population



Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

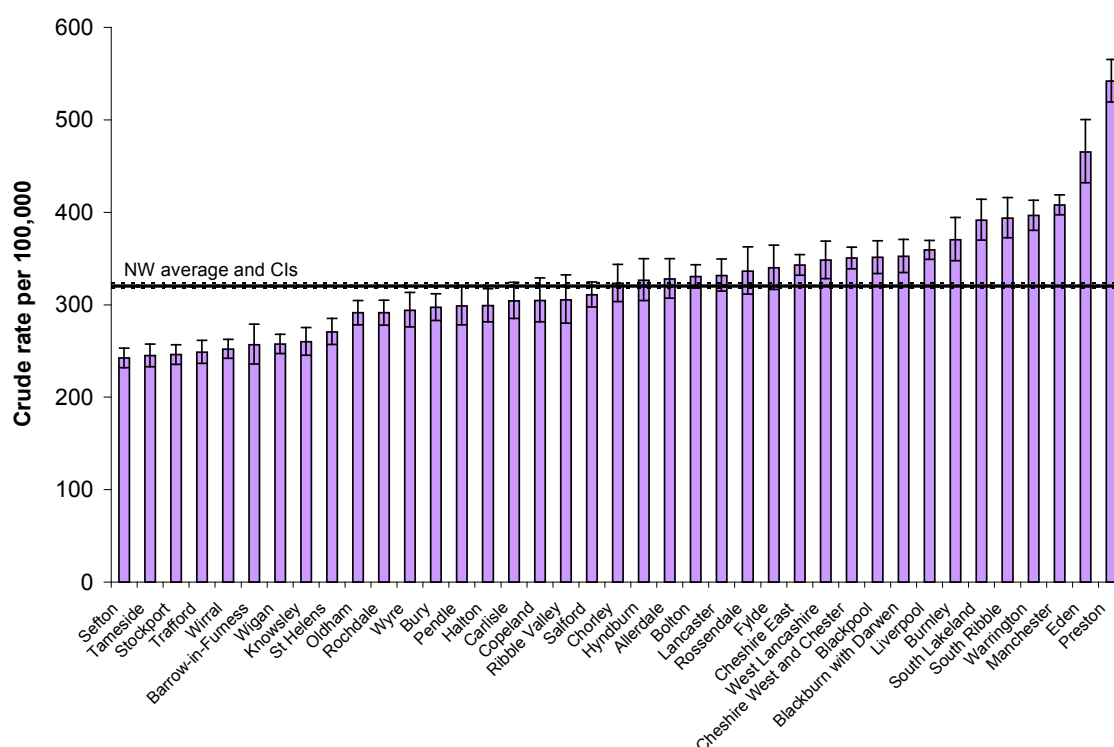
### 5.3.2.4 Road traffic collisions

Within the North West, the crude rate of road traffic collisions varies from 242.41 per 100,000 population in Sefton to 465.09 in Eden (Figure 31, Map 4), while the North West rate is 320.40 per 100,000.

The rates of road traffic collisions in Sefton, Tameside, Stockport, Trafford, Wirral, Barrow-in-Furness, Wigan, Knowsley, St Helens, Oldham, Rochdale, Wyre, Bury, Halton are significantly better than the North West average. Rates in Preston, Eden, Manchester, Warrington, South Ribble, South Lakeland, Burnley, Liverpool, Blackburn with Darwen, Blackpool, Cheshire West and Chester, West Lancashire and Cheshire East are significantly worse than the regional average.

As the North West rate is higher than the England average, Allerdale, Bolton, Fylde, Lancaster and Rossendale join the local authorities already listed above as being significantly worse than the national average.

**Figure 31: Crude rate of road traffic collisions per 100,000 population. North West local authorities, 2006-08.**



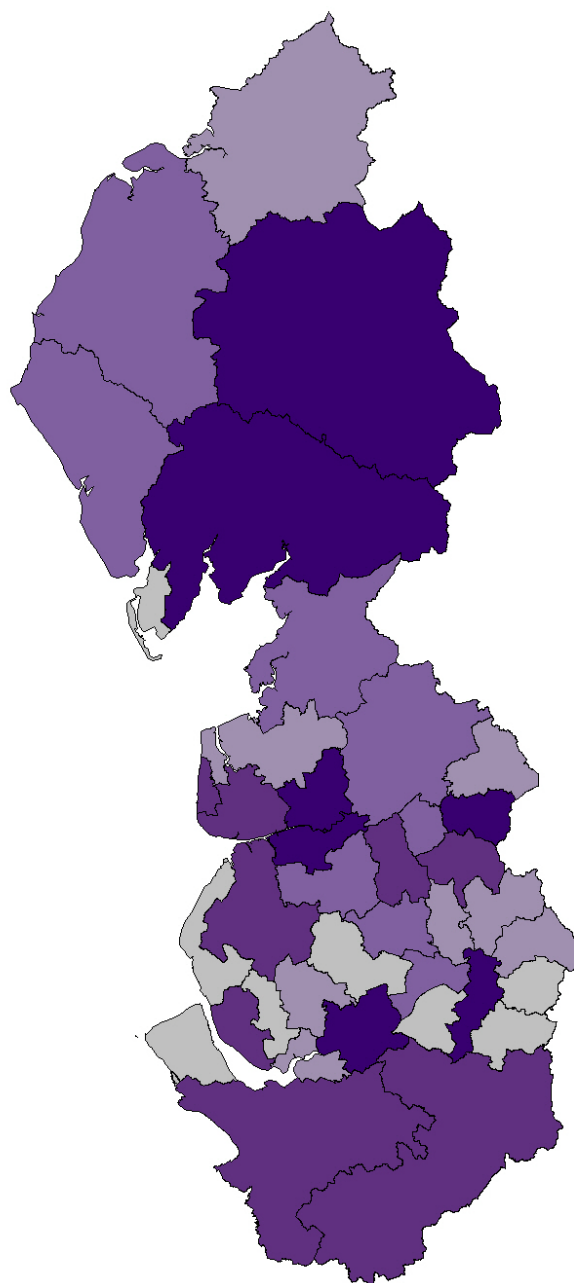
Source: NWPFO from STATS19 and Office for National Statistics mid-year population estimates.

**Map 4: Crude rate of road traffic collisions per 100,000 population. North West local authorities, 2006-08.**

Local authority	Rate
Allerdale	328.01
Barrow-in-Furness	256.80
Blackburn with Darwen	352.44
Blackpool	351.18
Bolton	330.53
Burnley	370.35
Bury	297.24
Carlisle	304.28
Cheshire East	342.90
Cheshire West and Chester	350.56
Chorley	323.11
Copeland	304.64
Eden	465.09
Fylde	339.91
Halton	299.04
Hyndburn	326.60
Knowsley	260.03
Lancaster	331.67
Liverpool	359.30
Manchester	407.99
Oldham	291.30
Pendle	298.58
Preston	541.82
Ribble Valley	305.41
Rochdale	291.31
Rossendale	336.31
Salford	310.88
Sefton	242.41
South Lakeland	391.65
South Ribble	393.71
St Helens	270.76
Stockport	246.03
Tameside	244.93
Trafford	248.80
Warrington	396.42
West Lancashire	348.29
Wigan	257.55
Wirral	252.13
Wyre	294.15
Cheshire and Merseyside	314.69
Cumbria	337.18
Lancashire	356.65
Greater Manchester	301.88
<b>North West</b>	<b>320.40</b>

Rate per 100,000 population

- 370.35 to 541.83
- 336.31 => 370.35
- 304.64 => 336.31
- 270.76 => 304.64
- 242.41 => 270.76



Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

### 5.3.3 Age

Of all casualties in the North West in 2006-08, 14.0% were aged between 15 and 19 years and 13.4% were between 20 and 24 years. In total, well over a third of all casualties were between the ages of 15 and 29 years (Figure 32).

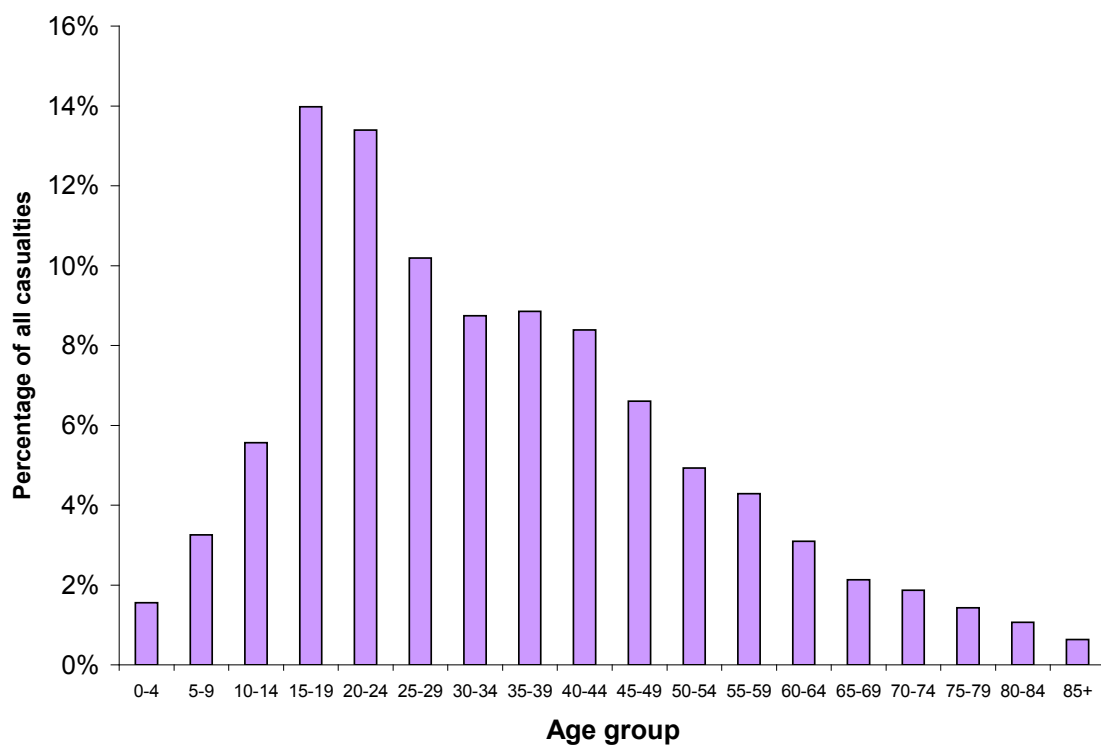
As population figures in each five-year age group vary, however, the best way of comparing relative risk by age is by crude rates by age (Figure 33). This shows that young people aged between 15 and 19 years and between 20 and 24 years are most at risk, but older people are at more risk than the distribution of all casualties would suggest.

Further in-depth analysis of casualty rates by single year of age reveals some clear differences in risk between consecutive single-year cohorts of children and young people.

- The casualty rate for 11-year-olds is significantly higher than the casualty rate for 10-year-olds (415.29 per 100,000 compared with 342.97, an increase of over one-fifth). This increased risk (predominately in pedestrian and cyclist casualties) occurs at a critical time for children – as they move from primary to secondary school.
- There are also stark differences for young people in their mid to late teens. The most dramatic, and significant, differentials are between 15 year olds and 16 year olds (with 16 year olds being 60% more likely to be a road traffic casualty than 15 year olds, a rate of 712.57 per 100,000 compared with 446.12) and between 16 year olds and 17 year olds (with 17 year olds being 57% more likely than 16 year olds to be a casualty, a rate of 1,117.05 per 100,000 compared with 712.57). Between 15 and 16 years, motorcycle (up to 50cc) riders/passengers and car occupants account for the majority of the increase, while the increase between 16 and 17 year olds is largely due to car occupant casualties, but also motorcycle (51cc to 125 cc) riders/passengers.
- Therefore, in just two years, the risk of becoming a road traffic casualty increases dramatically (with 17 year olds being 2.5 times more likely than 15 year olds to be a casualty).
- The road traffic casualty rate is higher still for 18 year olds (1,250.51 per 100,000, significantly higher than for any other single year cohort), but it is only after the age of 20 years that the rate of road traffic casualties really starts to steadily decrease.

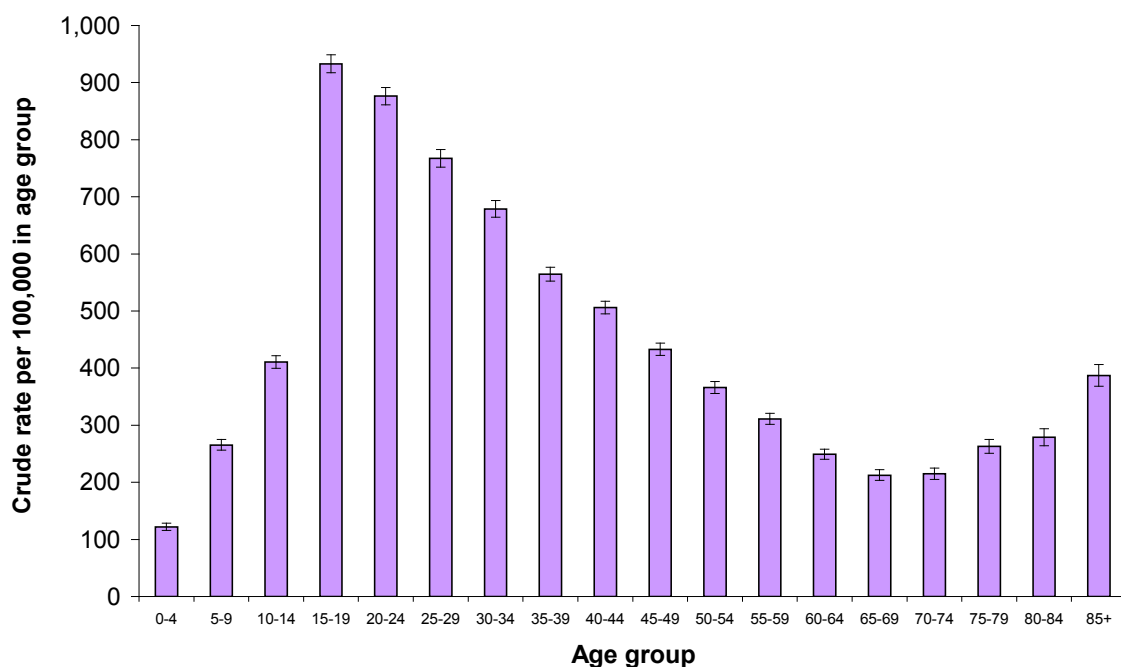
If they become a casualty from a road traffic collision, older people are more likely to be killed or seriously injured than younger people (Figure 34).

**Figure 32: Distribution of all casualties by age group. North West, 2006-08.**



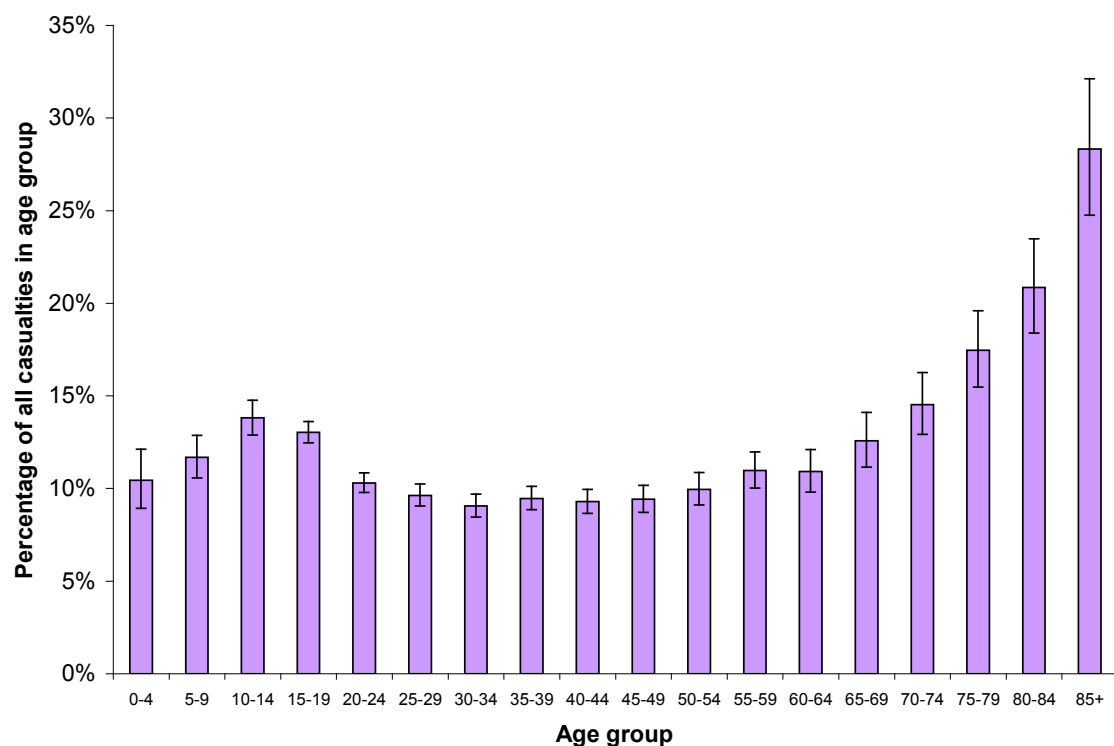
Source: NWPHO from STATS19.

**Figure 33: Crude rate of casualties per 100,000 population, by age group. North West, 2006-08.**



Source: NWPHO from STATS19.

**Figure 34: Proportion of all casualties who were killed or seriously injured, by age group. North West, 2006-08.**

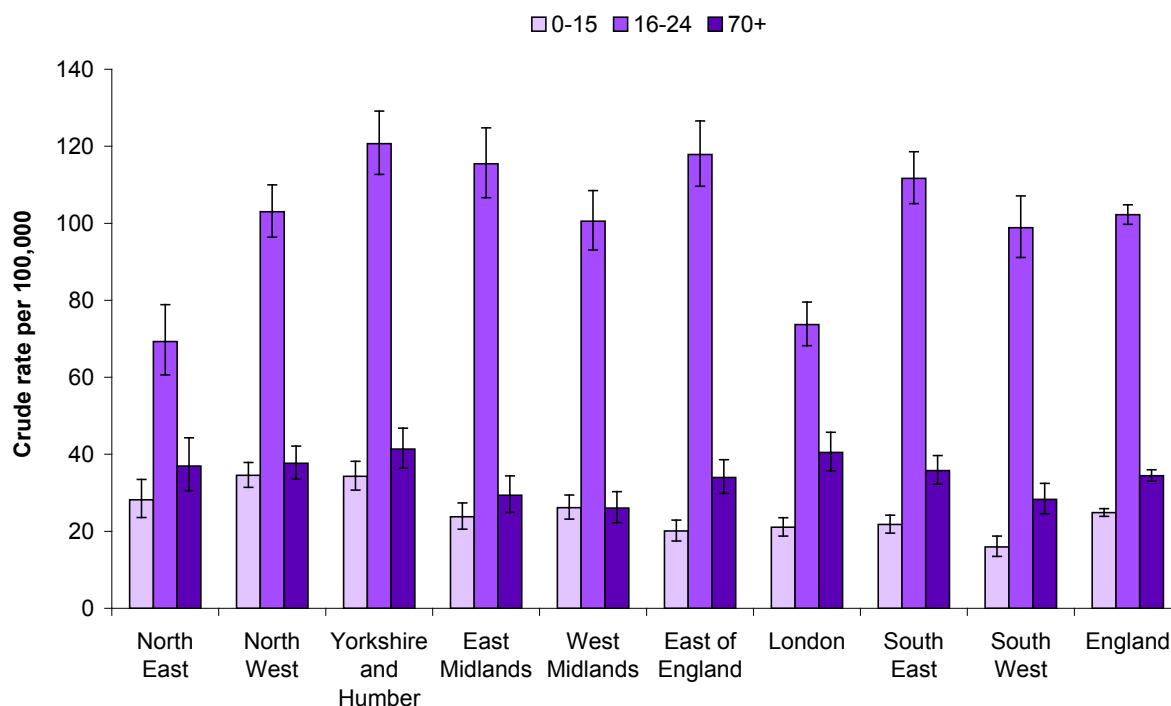


Source: NWPHO from STATS19.



There is variation between the regions in the rate of casualties by age (Figure 35). For example, the North West has the highest crude rate of killed or seriously injured casualties per 100,000 population for 0-15 year olds, but the fifth highest regional rate of killed or seriously injured casualties for people aged 16-24 years. The rate for people aged 70+ years is third highest in the country.

**Figure 35: Crude rate of people killed or seriously injured, by age, 2008.**



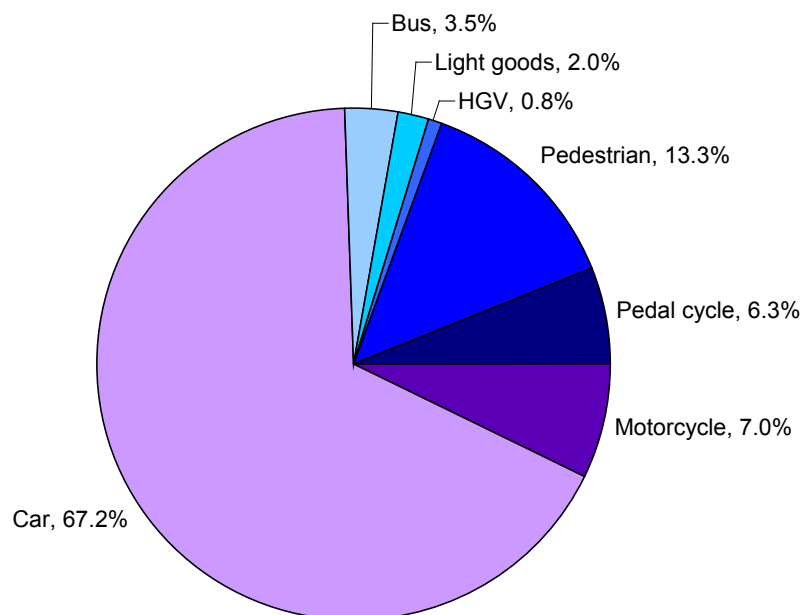
Source: NWPFO from STATS19 and mid-year population estimates, Office for National Statistics.

### 5.3.4 Road user type

Of all casualties in the region in 2008, 67.2% were car users, 13.3% were pedestrians, 7.0% were motorcyclists and 6.3% were pedal cyclists (Figure 36). Compared with the England average, proportionately more casualties were car users or pedestrians (England: 64.7% and 12.1% respectively), while proportionately fewer were motorcyclists and pedal cyclists (England: 9.8% and 7.5% respectively).

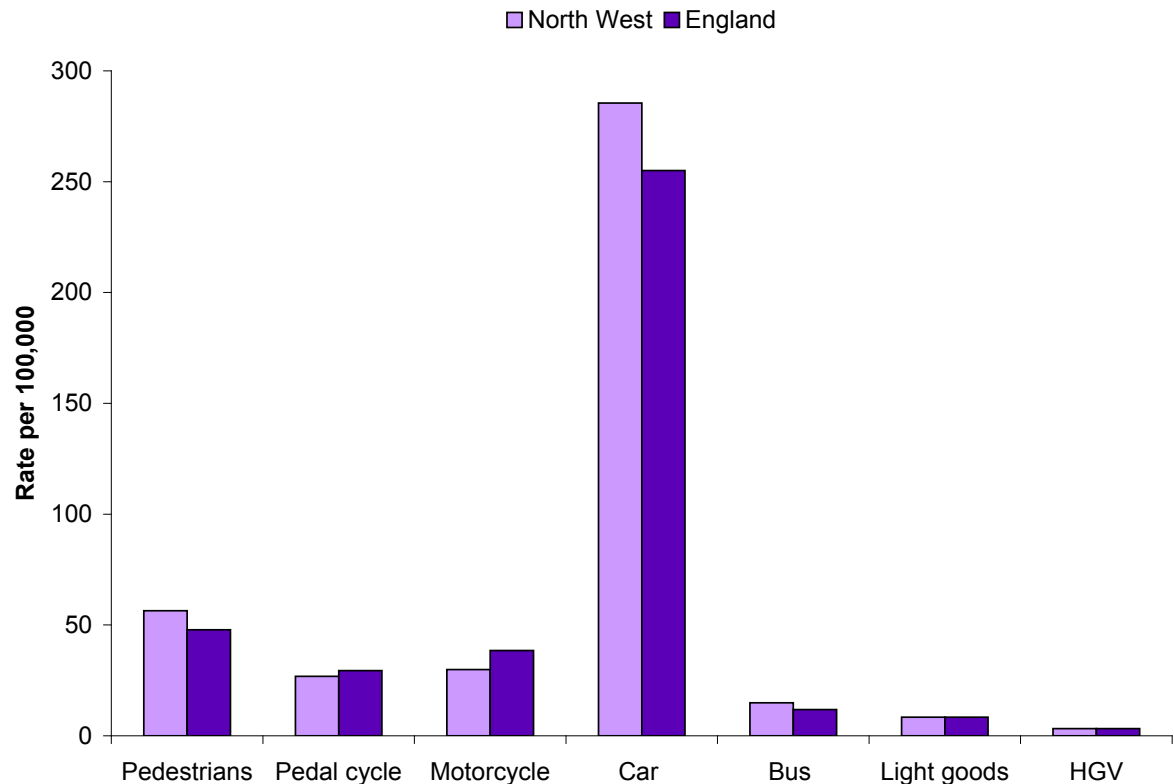
This is reflected in casualty rates, which were higher in the North West than the England average for car users (285.5 per 100,000 population compared with 255.1), pedestrians (56.4 per 100,000 compared with 47.8), and lower than the national average for motorcyclists (29.9 per 100,000 compared with 38.5) and pedal cyclists (26.8 per 100,000 compared with 29.4) (Figure 37).

**Figure 36: Reported casualties by road user type. North West, 2008.**



Source: Reported road casualties, district and county tables, Department for Transport.

**Figure 37: Reported casualty rate per 100,000 population by road user type, 2008.**

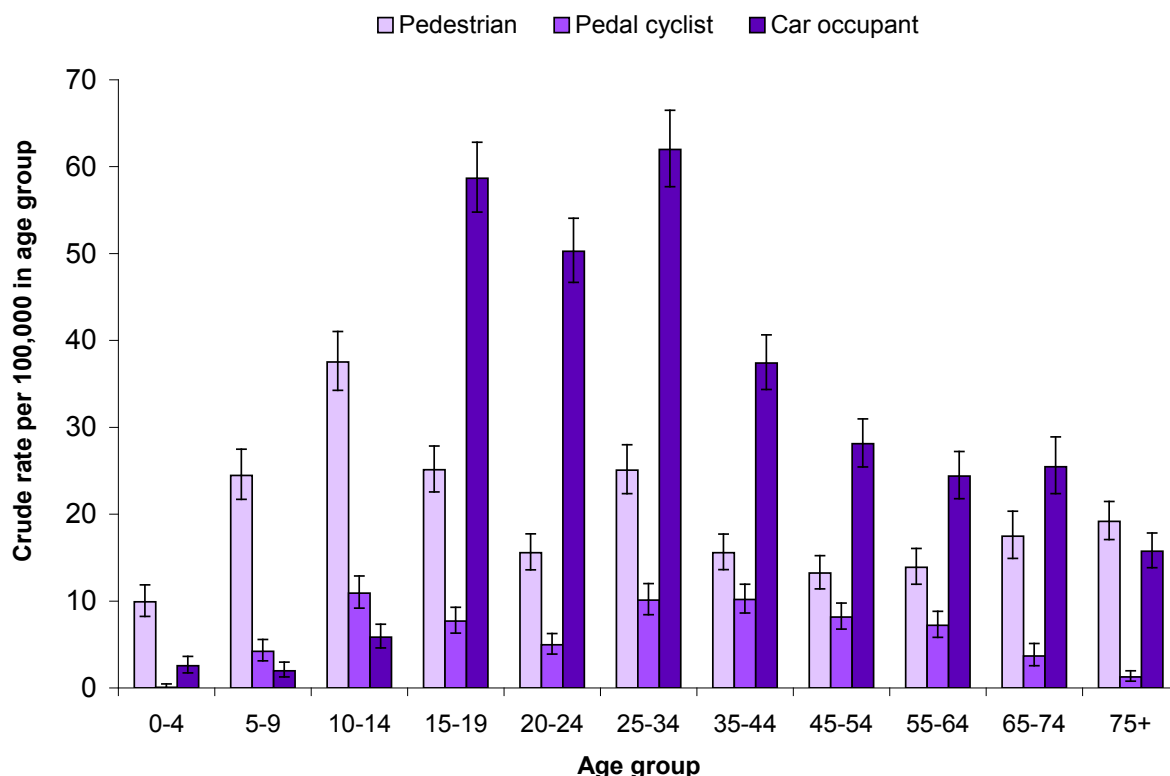


Source: Reported road casualties, district and county tables, Department for Transport.

Analysis of the rate of killed or seriously injured casualties by road user type and age group reveals some distinct differences (Figure 38). Children and young people from the age of 0 to 14 years are more likely to be killed or seriously injured as a pedestrian, and the rate of killed or seriously injured casualties who are pedestrians is significantly higher for children aged 10-14 years than any other age group. However, between 15 years and 34 years, the killed or seriously injured casualty rate for car occupants (drivers or passengers) is far higher than the rate for pedestrians and pedal cyclists of the same age, and people of this age are significantly more likely to be killed or seriously injured as a car occupant than any other age group.

The rate of killed or seriously injured pedal cyclists is relatively low for all age groups, but this is accounted for by the low use of pedal cycling as a mode of transport in comparison to walking and car use (as a driver or passenger). The killed or seriously injured rate for pedal cyclists is higher among people aged 10-14, 35-44 and 25-34 years than for other age groups.

**Figure 38: Crude rate of killed or seriously injured casualties by age group and road user type. North West, 2006-08.**



Source: NWPHO from STATS19.

### 5.3.5 Road type

Of all road casualties in the North West in 2006-08, 7.5% were injured on motorways, 0.2% on A(M) roads, 44.3% on A roads, 10.9% on B roads, 7.8% on C roads and 29.4% on roads that are unclassified (Table 8). For children, the pattern is not dissimilar, although children were most likely to be injured on unclassified roads (44.3% of child casualties, Table 9). Of all those killed or seriously injured, 44.2% are injured on A roads, while 49.8% of children who are killed or seriously injured are injured on unclassified roads.

However, there is substantial variation between local authorities in the North West, reflecting the different characteristics and road infrastructure in each area (Table 8, Table 9). This emphasises the need to consider a range of interventions to reduce road casualties, as what may work in one area may not have such an impact in another area.

**Table 8: All road casualties by road classification. North West local authorities, 2006-08.**

	<b>Motorway</b>	<b>A(M)</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Unclassified</b>
Allerdale	0.0%	0.0%	56.5%	14.0%	2.6%	26.9%
Barrow-in-Furness	0.0%	0.0%	24.0%	0.3%	6.5%	69.2%
Blackburn with Darwen	3.7%	0.0%	36.9%	4.7%	0.4%	54.3%
Blackpool	0.2%	0.0%	36.8%	9.8%	0.4%	52.8%
Bolton	5.5%	0.0%	50.1%	13.1%	12.2%	19.1%
Burnley	3.7%	0.0%	44.4%	2.6%	1.2%	48.1%
Bury	14.9%	0.0%	43.3%	14.0%	14.6%	13.2%
Carlisle	4.1%	0.0%	47.7%	7.8%	14.6%	25.8%
Cheshire East	16.4%	0.0%	43.5%	10.0%	12.0%	18.0%
Cheshire West & Chester	7.5%	0.0%	51.4%	10.4%	9.3%	21.4%
Chorley	17.1%	0.0%	36.9%	14.2%	0.0%	31.8%
Copeland	0.0%	0.0%	49.8%	14.3%	1.3%	34.7%
Eden	17.9%	0.0%	51.8%	10.1%	11.2%	9.1%
Fylde	11.4%	0.0%	38.7%	11.0%	0.3%	38.6%
Halton	2.2%	0.0%	27.0%	16.0%	19.3%	35.6%
Hyndburn	3.5%	0.0%	34.8%	10.6%	1.5%	49.6%
Knowsley	13.1%	0.0%	34.2%	6.4%	0.0%	46.3%
Lancaster	10.0%	0.2%	39.9%	8.3%	1.5%	40.0%
Liverpool	0.2%	0.0%	47.4%	11.0%	0.0%	41.4%
Manchester	3.0%	0.8%	48.3%	9.8%	18.9%	19.2%
Oldham	1.3%	1.2%	51.6%	11.2%	17.4%	17.5%
Pendle	2.5%	0.0%	42.7%	8.5%	0.3%	45.9%
Preston	9.2%	0.0%	35.3%	14.1%	4.2%	37.3%
Ribble Valley	0.0%	0.0%	46.5%	15.6%	0.0%	38.0%
Rochdale	13.8%	2.0%	44.4%	10.3%	10.9%	18.5%
Rossendale	1.2%	0.0%	59.7%	9.6%	0.9%	28.6%
Salford	23.1%	0.0%	46.7%	10.2%	6.6%	13.5%
Sefton	1.5%	0.0%	44.1%	9.0%	0.0%	45.4%
South Lakeland	7.2%	0.0%	66.7%	6.9%	1.1%	18.1%
South Ribble	21.5%	0.0%	28.4%	13.9%	0.3%	35.9%
St Helens	6.6%	0.0%	43.3%	8.6%	0.0%	41.5%
Stockport	6.6%	0.0%	45.6%	13.5%	16.7%	17.6%
Tameside	8.9%	0.0%	44.8%	11.9%	17.1%	17.4%
Trafford	9.5%	0.1%	41.4%	19.1%	18.2%	11.7%
Warrington	17.7%	0.0%	41.5%	3.1%	12.0%	25.6%
West Lancashire	4.4%	0.0%	45.8%	11.6%	0.8%	37.5%
Wigan	5.3%	0.0%	47.1%	14.0%	15.4%	18.2%
Wirral	5.2%	0.0%	39.1%	15.1%	0.0%	40.6%
Wyre	4.9%	0.0%	34.9%	14.6%	1.3%	44.3%
Cheshire and Merseyside	7.6%	0.0%	43.6%	10.1%	5.5%	33.3%
Cumbria	5.2%	0.0%	52.7%	9.2%	5.9%	27.1%
Greater Manchester	8.0%	0.4%	46.9%	12.2%	15.3%	17.2%
Lancashire	7.4%	0.0%	38.9%	10.6%	1.2%	41.9%
<b>North West</b>	<b>7.5%</b>	<b>0.2%</b>	<b>44.3%</b>	<b>10.9%</b>	<b>7.8%</b>	<b>29.4%</b>

Source: NWPHO from STATS19.

**Table 9: Child road casualties by road classification. North West local authorities, 2006-08.**

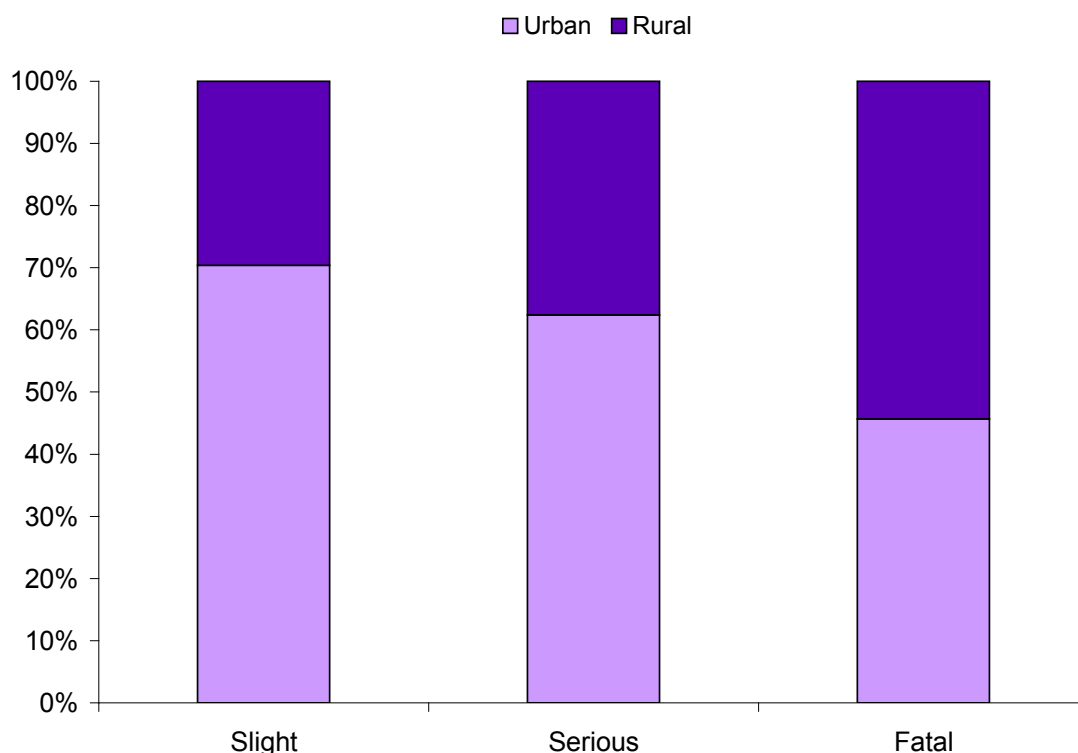
	<b>Motorway</b>	<b>A(M)</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Unclassified</b>
Allerdale	0.0%	0.0%	46.1%	12.7%	2.4%	38.8%
Barrow-in-Furness	0.0%	0.0%	11.0%	0.0%	1.8%	87.2%
Blackburn with Darwen	0.3%	0.0%	23.8%	4.8%	0.3%	70.8%
Blackpool	0.0%	0.0%	24.9%	11.1%	0.0%	64.0%
Bolton	2.0%	0.0%	37.0%	13.4%	14.0%	33.6%
Burnley	1.6%	0.0%	31.6%	0.5%	0.5%	65.8%
Bury	4.4%	0.0%	36.2%	12.4%	19.8%	27.2%
Carlisle	3.4%	0.0%	39.9%	7.4%	8.1%	41.2%
Cheshire East	15.0%	0.0%	32.1%	7.3%	13.7%	31.9%
Cheshire West & Chester	6.2%	0.0%	39.0%	11.9%	6.7%	36.2%
Chorley	15.5%	0.0%	26.7%	16.1%	0.0%	41.6%
Copeland	0.0%	0.0%	28.7%	16.0%	1.1%	54.3%
Eden	11.4%	0.0%	43.0%	15.2%	8.9%	21.5%
Fylde	5.0%	0.0%	20.8%	16.8%	0.0%	57.4%
Halton	1.0%	0.0%	10.3%	16.9%	20.5%	51.3%
Hyndburn	1.0%	0.0%	20.2%	8.8%	1.0%	68.9%
Knowsley	2.3%	0.0%	24.5%	4.2%	0.0%	69.0%
Lancaster	13.4%	0.0%	26.9%	5.1%	1.9%	52.8%
Liverpool	0.1%	0.0%	38.5%	11.1%	0.0%	50.4%
Manchester	1.6%	0.1%	36.4%	6.8%	23.7%	31.5%
Oldham	0.2%	0.2%	36.1%	11.5%	17.7%	34.2%
Pendle	0.5%	0.0%	32.1%	7.5%	0.5%	59.4%
Preston	4.2%	0.0%	27.0%	10.2%	6.9%	51.7%
Ribble Valley	0.0%	0.0%	29.3%	13.8%	0.0%	56.9%
Rochdale	3.1%	0.6%	39.8%	9.0%	12.0%	35.5%
Rossendale	0.0%	0.0%	50.0%	6.5%	0.9%	42.6%
Salford	8.1%	0.0%	41.1%	12.3%	9.9%	28.5%
Sefton	1.0%	0.0%	35.0%	7.8%	0.0%	56.1%
South Lakeland	8.4%	0.0%	60.1%	4.9%	0.7%	25.9%
South Ribble	13.8%	0.0%	21.5%	11.8%	0.5%	52.3%
St Helens	3.2%	0.0%	31.6%	6.9%	0.0%	58.3%
Stockport	2.3%	0.0%	30.5%	14.1%	15.4%	37.6%
Tameside	1.3%	0.0%	31.0%	12.5%	24.3%	31.0%
Trafford	2.8%	0.0%	30.0%	24.3%	19.4%	23.5%
Warrington	10.5%	0.0%	30.3%	3.3%	13.2%	42.8%
West Lancashire	0.5%	0.0%	40.7%	13.8%	0.5%	44.4%
Wigan	1.8%	0.0%	35.4%	14.0%	16.3%	32.5%
Wirral	1.9%	0.0%	27.4%	14.8%	0.0%	55.8%
Wyre	1.5%	0.0%	24.6%	14.9%	2.1%	56.9%
Cheshire and Merseyside	4.4%	0.0%	32.4%	9.7%	4.8%	48.7%
Cumbria	3.5%	0.0%	39.8%	8.9%	3.7%	44.0%
Greater Manchester	2.5%	0.1%	35.8%	11.9%	17.9%	31.8%
Lancashire	4.0%	0.0%	27.7%	9.5%	1.4%	57.4%
<b>North West</b>	3.5%	0.0%	32.9%	10.4%	8.7%	44.3%

Source: NWPHO from STATS19.

### 5.3.6 Urban and rural areas

In the North West, the severity of injury from road traffic collisions increased in rural areas. Of all those slightly injured, 70.4% were injured in urban areas and 29.6% in rural areas; 62.4% of those who seriously injured were injured in urban areas, 37.6% in rural areas; while of those killed, 45.7% were killed in urban areas, 54.3% in rural areas (Figure 39).<sup>9</sup>

**Figure 39: Proportion of casualties who were injured in urban and rural areas, by severity of injury. North West, 2008.**



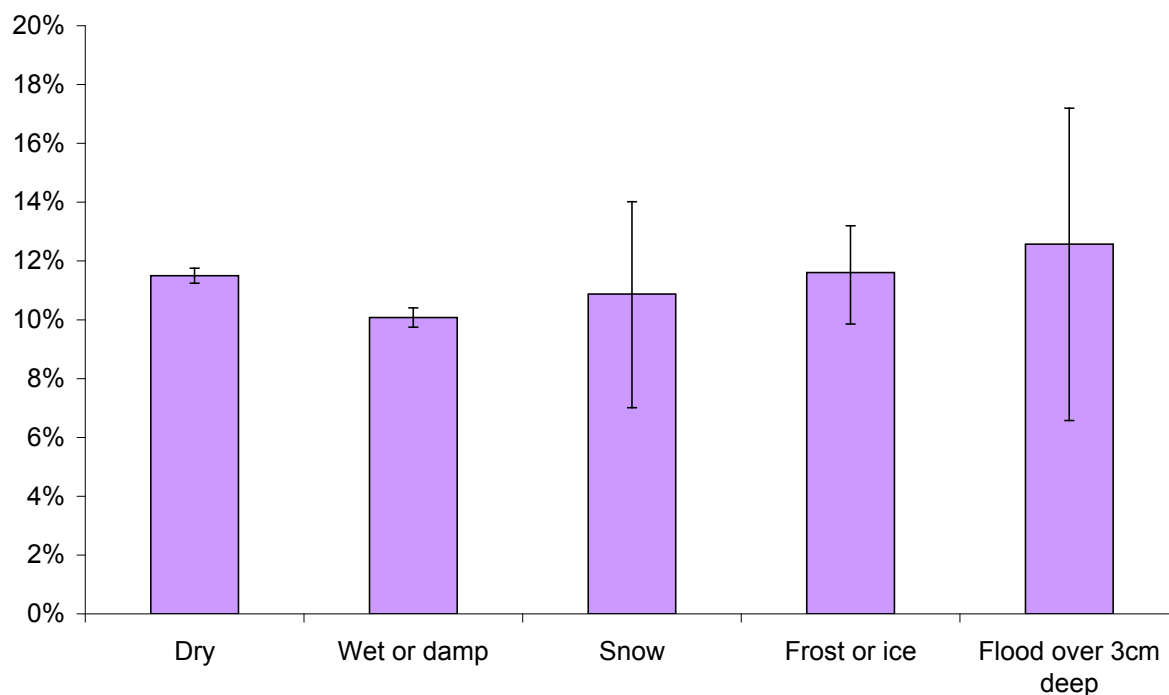
Source: NWPHO from STATS19.

### 5.3.7 Road surface and weather conditions

Between 2006 and 2008 in the North West, of all casualties who were injured while the road surface was dry, 11.5% were killed or seriously injured. This proportion is significantly higher than for wet or damp road surface conditions (10.1%). Confidence intervals for the proportions killed or seriously injured while there was snow or frost or ice on the road, and an over 3cm deep flood on the road, are too wide to draw any further conclusions about likelihood of injuries being severe in these conditions (Figure 40).

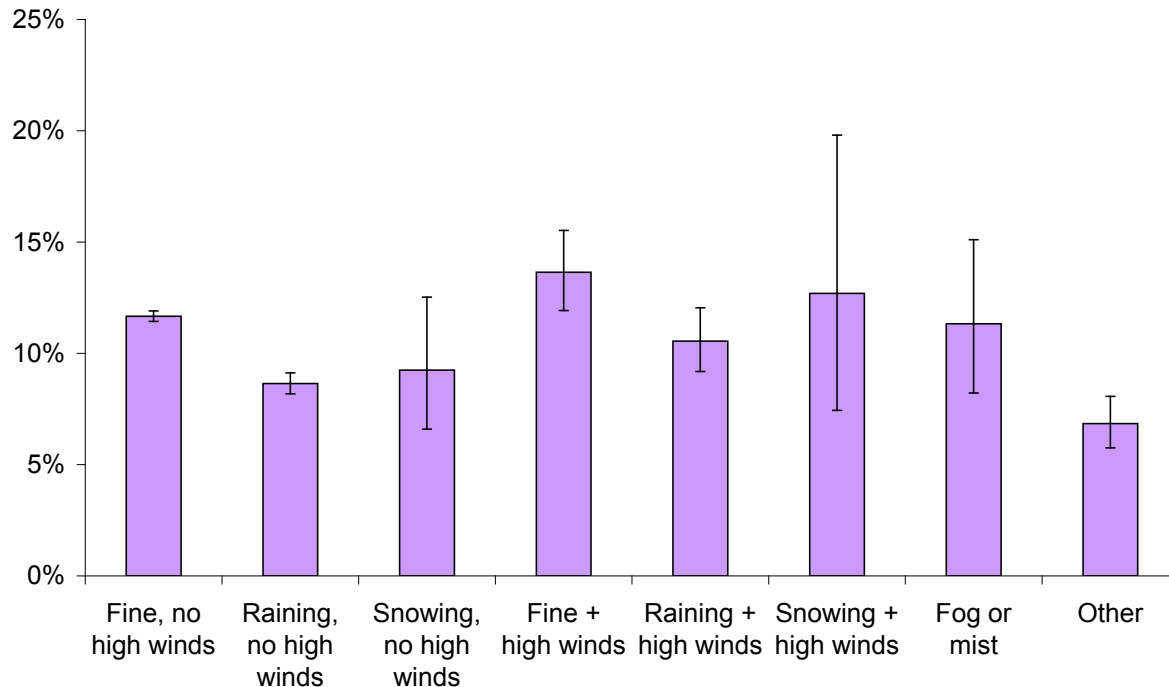
Data on weather conditions also support the evidence from the road surface data cited above that casualties are more likely to be killed or seriously injured in dry conditions than in other conditions. For example, 11.7% of casualties who were injured in fine weather with no high winds were killed or seriously injured, significantly higher than for casualties who were injured while there was rain with no high winds (8.6%) (Figure 41).

**Figure 40: Proportion of all casualties who were killed or seriously injured, by road surface conditions. North West, 2006-08.**



Source: NWPHO from STATS19.

**Figure 41: Proportion of all casualties who were killed or seriously injured, by weather conditions. North West, 2006-08.**



Source: NWPHO from STATS19.



## 5.4 Child casualties

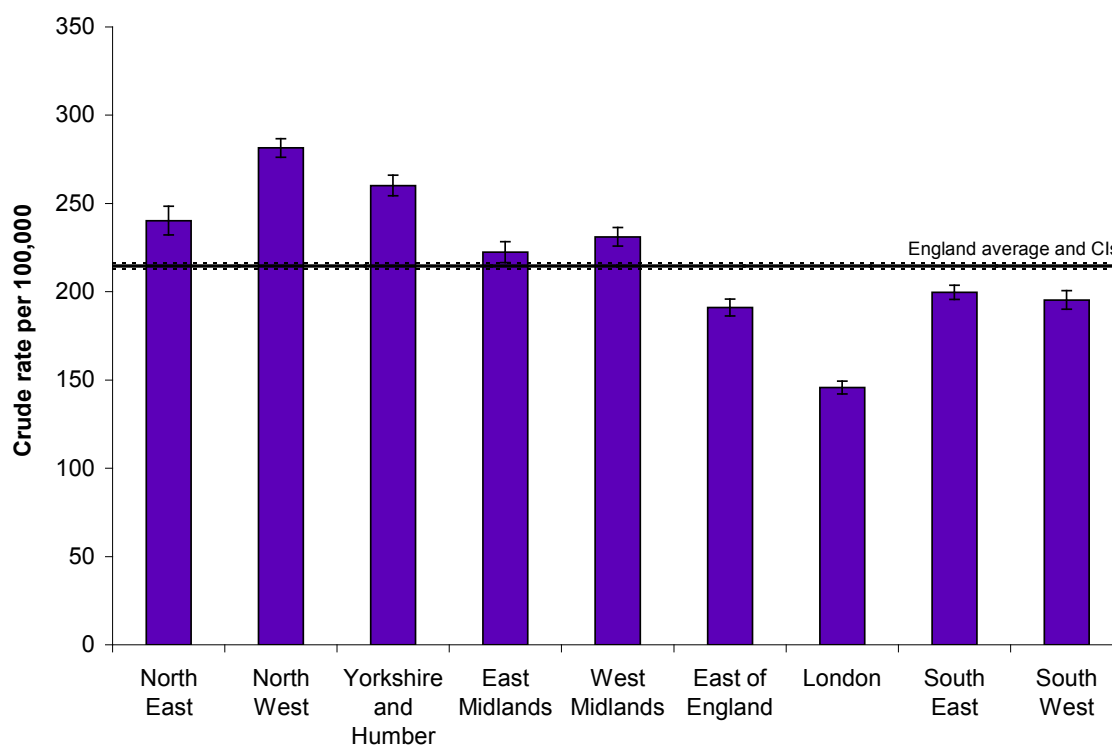
In the North West in 2008, there were 3,348 child casualties (aged 0-15 years) as a result of road traffic collisions. Children represented 11.4% of all casualties with a known age, compared with 9.8% across England.

Of the 3,348 casualties in 2008, 16 were fatally injured and 433 were seriously injured, equating to a fatality rate of 4.8 per 1,000 casualties and a killed or seriously injured rate of 13.4 per 1,000 casualties. Of the casualties of all ages killed or seriously injured in the North West, 13.5% were children, compared with 9.9% across England.<sup>11</sup>

Further information in this section relates to a three-year average time period (2006-08).

Compared with England and the English regions, the North West has an exceptionally high child casualty rate for road traffic collisions. The North West child casualty rate (281.48 per 100,000) is the highest regional rate in England, significantly above the England average (214.61) and all other English regions (Figure 42).

**Figure 42: Crude rate of child (0-15 years) casualties per 100,000 population by region, 2006-08.**

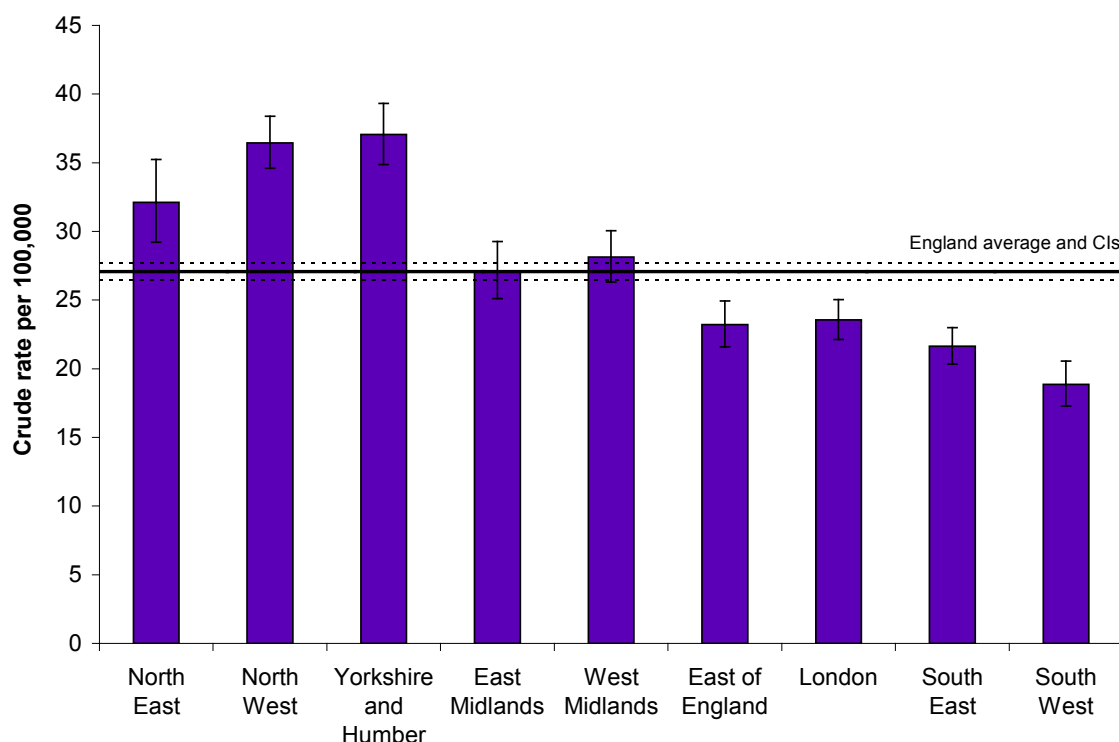


Source: NWPFO from STATS19 and Office for National Statistics mid-year population estimates.

The North West also has a high rate of killed or seriously injured child casualties from road traffic collisions compared with England and the English regions. The North West child KSI rate (36.45 per 100,000) is the second highest regional rate in England, significantly above all other regions except Yorkshire and Humber and the North East, and significantly above the England average (27.08) (Figure 43).

<sup>11</sup> NWPFO from STATS19.

**Figure 43: Crude rate of children (0-15 years) killed or seriously injured in road traffic collisions per 100,000 population by region, 2006-08.**



Source: NWPCHO from STATS19 and Office for National Statistics mid-year population estimates.

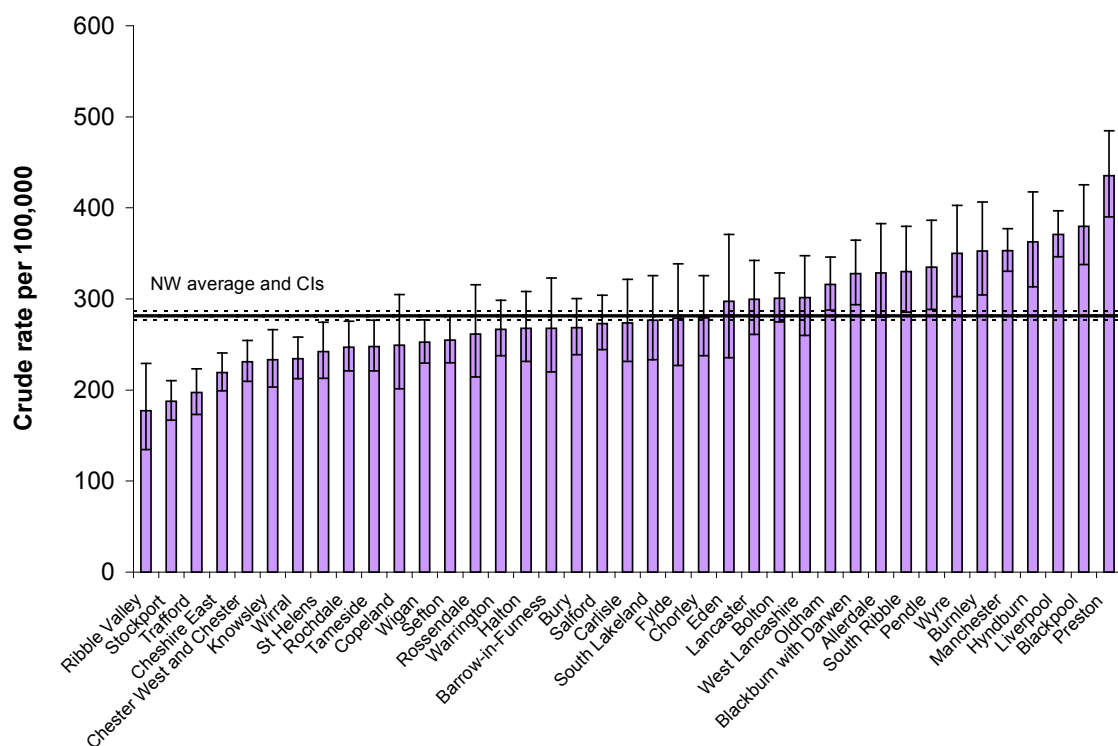
## 5.4.1 Local rates

### 5.4.1.1 All child casualties

Across the region in 2006-08, the child casualty rate was 281.48 per 100,000 population. The variation between local authority districts was large: from 177.30 per 100,000 in Ribble Valley to 435.36 in Preston, 2.5 times higher (Figure 44, Map 5). Ribble Valley, Stockport, Trafford, Cheshire East, Chester West and Chester, Knowsley, Wirral, St Helens and Rochdale had rates significantly better than the North West average, while Preston, Blackpool, Hyndburn, Manchester, Burnley, Wyre, Pendle, Blackburn with Darwen and Oldham had rates that were significantly worse.

However, with the North West regional child casualty rate falling so far above the England rate (Figure 42), it is important to acknowledge that child casualties are still very much an issue throughout the North West, not just in the localities that have casualty rates that are above the North West average. For example, the child casualty rate is significantly higher than the England average in 29 of the 39 local authority areas in the North West, and only Stockport has a child casualty rate significantly below the England average. Furthermore, while Rochdale has a child casualty rates that is significantly better the North West average, the rate is in fact significantly worse than the England average (214.61).

**Figure 44: Crude rate of child (0-15 years) casualties per 100,000 population. North West local authorities, 2006-08.**



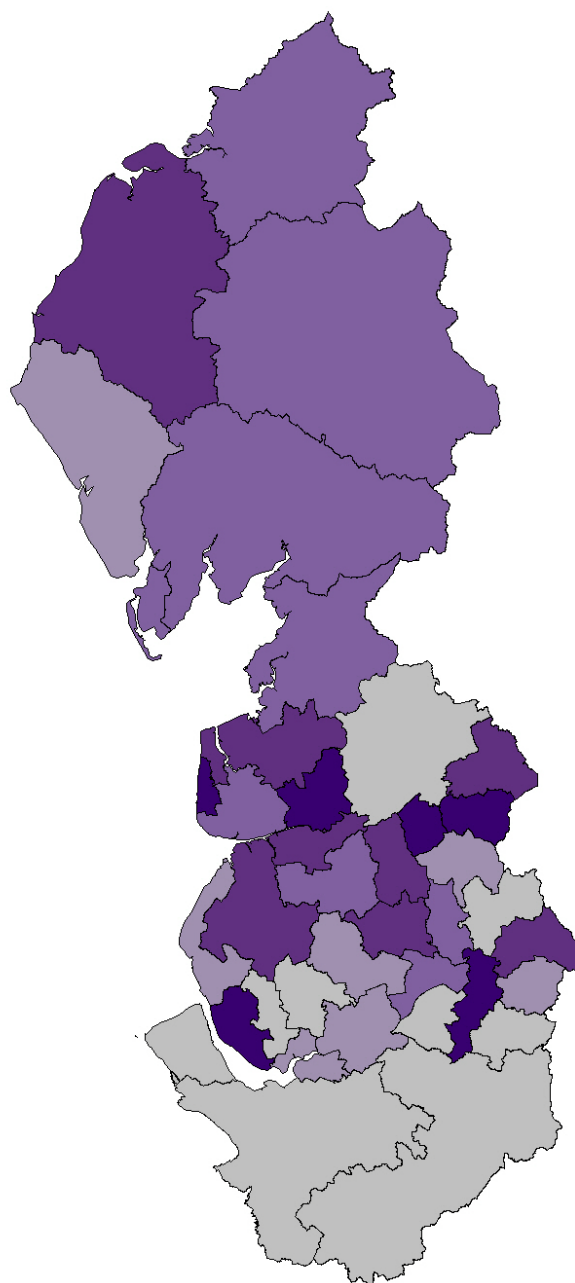
Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

**Map 5: Crude rate of child (0-15 years) casualties per 100,000 population. North West local authorities, 2006-08.**

Local authority	Rate
Allerdale	328.68
Barrow-in-Furness	267.77
Blackburn with Darwen	327.64
Blackpool	379.86
Bolton	300.74
Burnley	352.69
Bury	268.32
Carlisle	273.76
Cheshire East	219.16
Cheshire West and Chester	231.12
Chorley	279.07
Copeland	249.15
Eden	297.57
Fylde	278.76
Halton	267.74
Hyndburn	362.61
Knowsley	233.14
Lancaster	299.47
Liverpool	371.00
Manchester	353.15
Oldham	316.00
Pendle	334.87
Preston	435.46
Ribble Valley	177.30
Rochdale	246.98
Rossendale	261.43
Salford	272.99
Sefton	254.67
South Lakeland	276.52
South Ribble	330.14
St Helens	242.21
Stockport	187.70
Tameside	247.69
Trafford	197.12
Warrington	266.72
West Lancashire	301.49
Wigan	252.40
Wirral	234.45
Wyre	350.00
Cheshire and Merseyside	262.77
Cumbria	282.80
Lancashire	329.36
Greater Manchester	271.07
<b>North West</b>	<b>281.48</b>

Rate per 100,000

- 350.00 to 435.46
- 299.47 => 350.00
- 267.77 => 299.47
- 246.98 => 267.77
- 177.30 => 246.98



Source: NWPCHO from STATS19 and Office for National Statistics mid-year population estimates.

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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

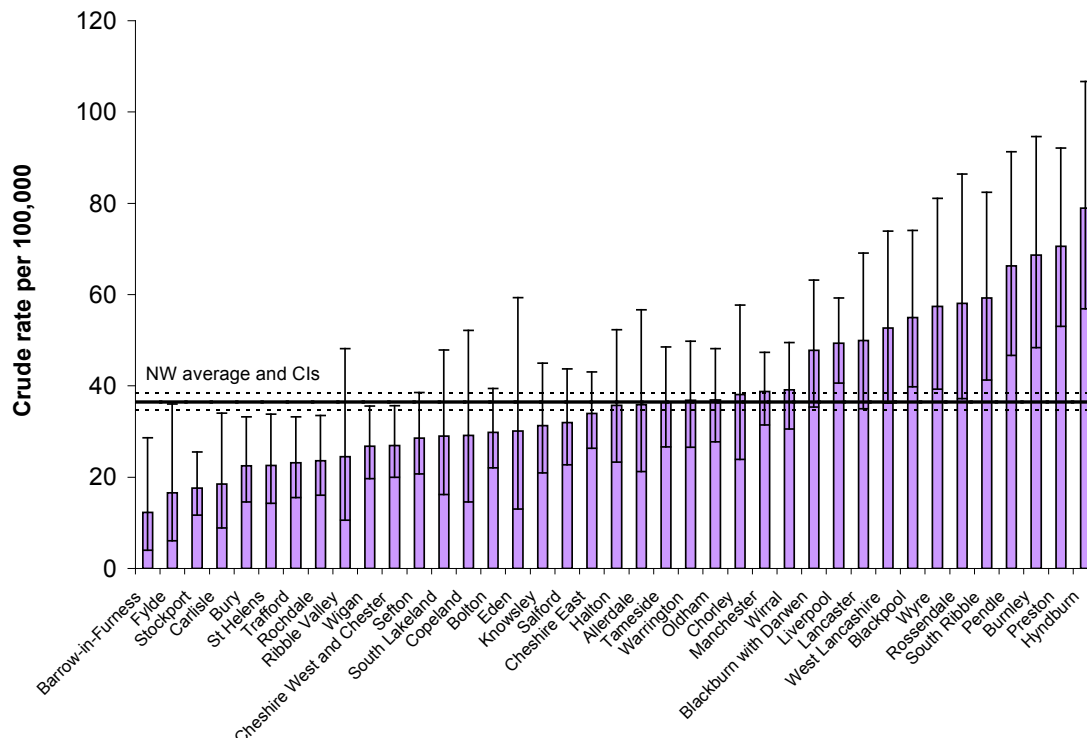
### 5.4.1.2 Killed or seriously injured child casualties

In 2006-08, 36.45 children per 100,000 in the North West were killed or seriously injured in road traffic collisions. There is a large variation in the rate of children killed or seriously injured within the region, from 12.28 per 100,000 population (Barrow-in-Furness) to 78.91 (Hyndburn). Areas in North and East Lancashire tend to have particularly high rates.

Child KSI rates are significantly better than the North West average in Barrow-in-Furness, Stockport, Carlisle, Bury, St Helens, Trafford and Rochdale. In Hyndburn, Preston, Burnley, Pendle, South Ribble, Wyre, Blackpool and Liverpool, child KSI rates are significantly worse than the regional average. However, as the North West has a higher rate of killed or seriously injured child casualties than the England average (Figure 43), in total 15 North West local authorities have child KSI rates that are significantly worse than the England average (27.08 per 100,000), while only Stockport has a KSI rate that is significantly better.

There are some large differences between all age and child regional rankings for killed or seriously injured rates. For example, the regional ranking for the rate of people of all ages killed or seriously injured in road traffic collisions was far higher in some local authorities than the regional ranking for the rate of children killed or seriously injured (e.g. South Lakeland all age rate was the 3<sup>rd</sup> highest in the region compared with the ranking for children which was 27<sup>th</sup> highest; Fylde: 12<sup>th</sup> highest all age KSI rate, 38<sup>th</sup> highest child KSI rate; Ribble Valley: 4<sup>th</sup> highest all age KSI rate, 31<sup>st</sup> highest child KSI rate). Conversely, there were also local authorities that had a far higher child KSI ranking than all age ranking (e.g. Oldham: 16<sup>th</sup> highest child KSI rate, 33<sup>rd</sup> highest all age KSI rate; Tameside: 18<sup>th</sup> highest child KSI rate, 35<sup>th</sup> highest all age KSI rate; Pendle: 4<sup>th</sup> highest child KSI rate, 20<sup>th</sup> highest all age KSI rate).

**Figure 45: Crude rate of children (0-15 years) killed or seriously injured per 100,000 population. North West local authorities, 2006-08.**

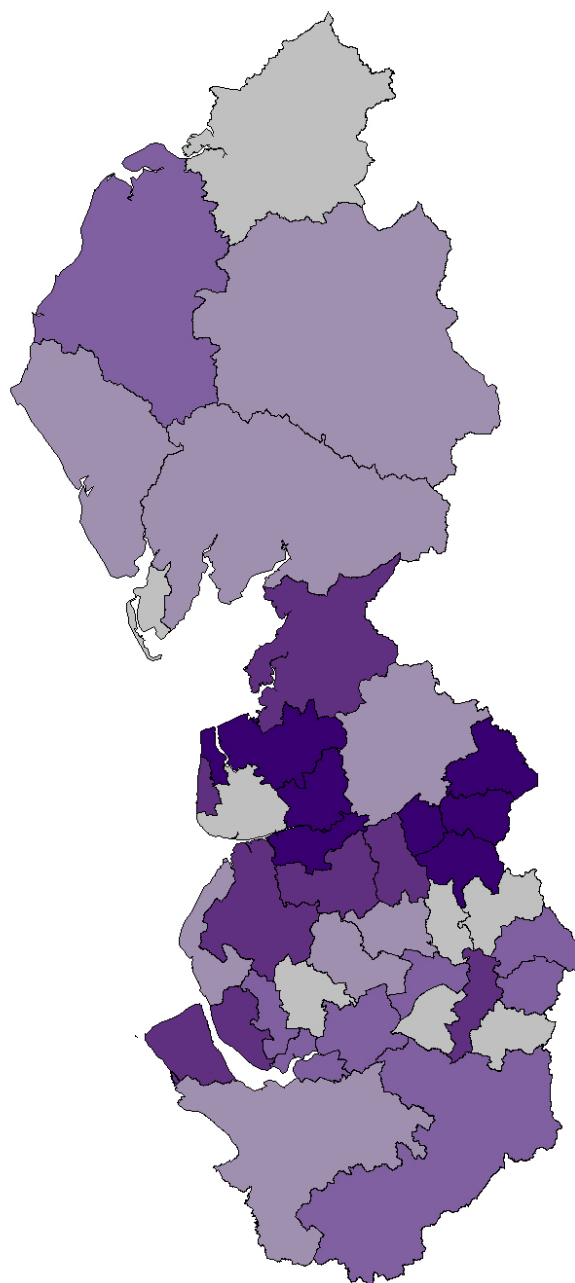
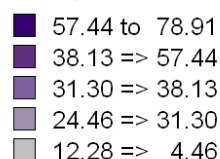


Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

**Map 6: Crude rate of children (0-15 years) killed or seriously injured per 100,000 population. North West local authorities, 2006-08.**

Local authority	Rate
Allerdale	35.86
Barrow-in-Furness	12.28
Blackburn with Darwen	47.78
Blackpool	55.00
Bolton	29.83
Burnley	68.68
Bury	22.51
Carlisle	18.50
Cheshire East	33.95
Cheshire West and Chester	26.96
Chorley	38.13
Copeland	29.16
Eden	30.13
Fylde	16.56
Halton	35.70
Hyndburn	78.91
Knowsley	31.30
Lancaster	49.91
Liverpool	49.32
Manchester	38.79
Oldham	36.94
Pendle	66.26
Preston	70.62
Ribble Valley	24.46
Rochdale	23.63
Rossendale	58.10
Salford	31.97
Sefton	28.59
South Lakeland	29.01
South Ribble	59.26
St Helens	22.55
Stockport	17.64
Tameside	36.40
Trafford	23.14
Warrington	36.85
West Lancashire	52.64
Wigan	26.78
Wirral	39.17
Wyre	57.44
Cheshire and Merseyside	35.03
Cumbria	25.67
Lancashire	54.67
Greater Manchester	29.46
<b>North West</b>	<b>36.45</b>

Rate per 100,000 population



Source: NWPHO from STATS19 and Office for National Statistics mid-year population estimates.

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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

### 5.4.2 Gender

More young males are injured in road traffic collisions than young females (Table 10). This is especially pronounced for fatal and serious injuries. Around two-thirds of those killed or seriously injured are males.

Although there is little difference in the number of males and females between the ages of 0 and 4 years injured (52.8% males, 47.2% females), the gap widens between 5 and 9 years (58.6% males, 41.4% females) and remains the same at 10-15 years (57.2% males, 42.7% females).

**Table 10: Child casualties by severity of injury and gender, 2006-08.**

	Fatal	Serious	Slight	All casualties
Males	65.3%	66.9%	55.5%	57.0%
Females	34.7%	33.1%	44.4%	43.0%

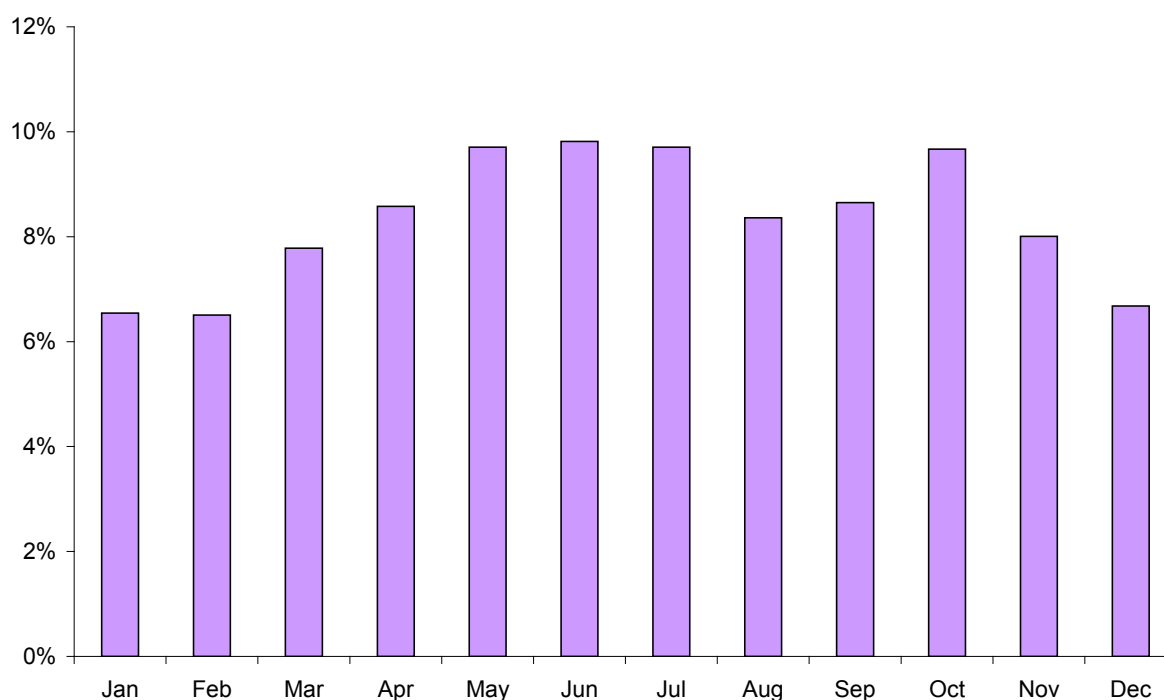
Source: NWPPO from STATS19.

### 5.4.3 Month of year

More children are injured in road traffic collisions in the late spring and summer months (May to July), and in October, than in other months (Figure 46). There are fewer casualties in January, February and December than in the rest of the year. Overall casualty numbers in June are 1.5 times higher than in January.

Children are most likely to be killed or seriously injured in June (of all children who are killed or seriously injured, 11.2% are injured in June) and October (10.9%). More than twice the number of children are killed or seriously injured in June than in December.<sup>12</sup>

**Figure 46: Distribution of all child casualties by month. North West, 2006-08.**



Source: NWPPO from STATS19.

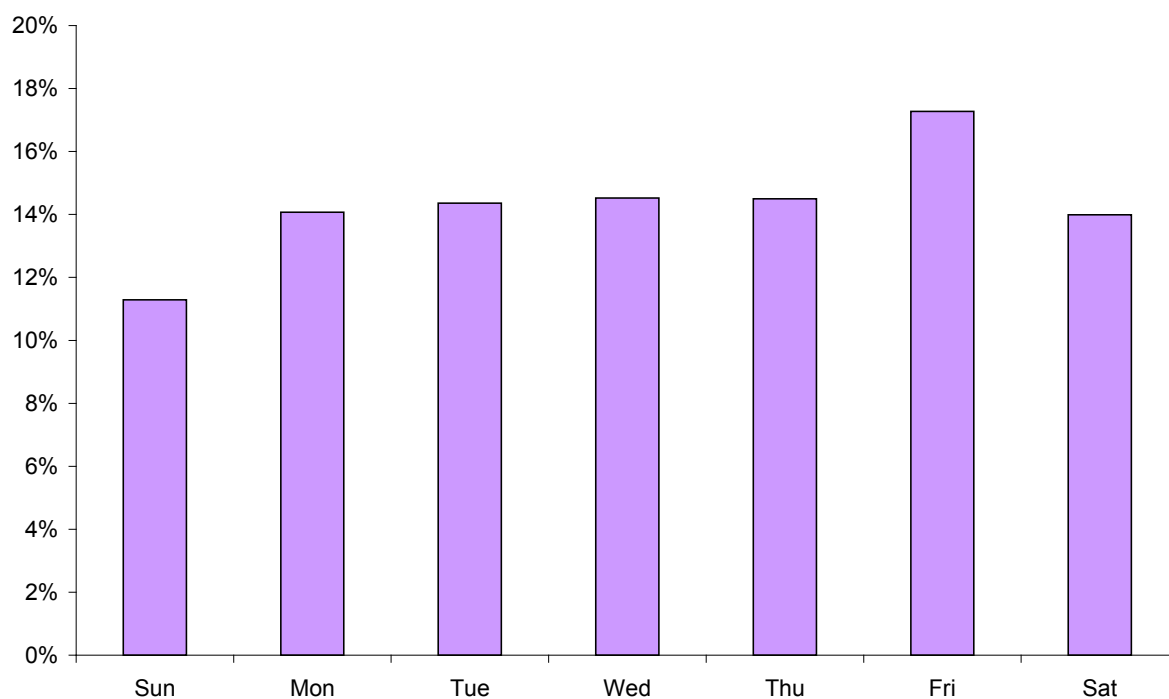
### 5.4.4 Day of week

More children are injured in collisions on Fridays (17.3% of all child casualties), and there are fewer casualties on Sundays (11.3%), than any other day of the week (Figure 47). For child

<sup>12</sup> NWPPO from STATS19.

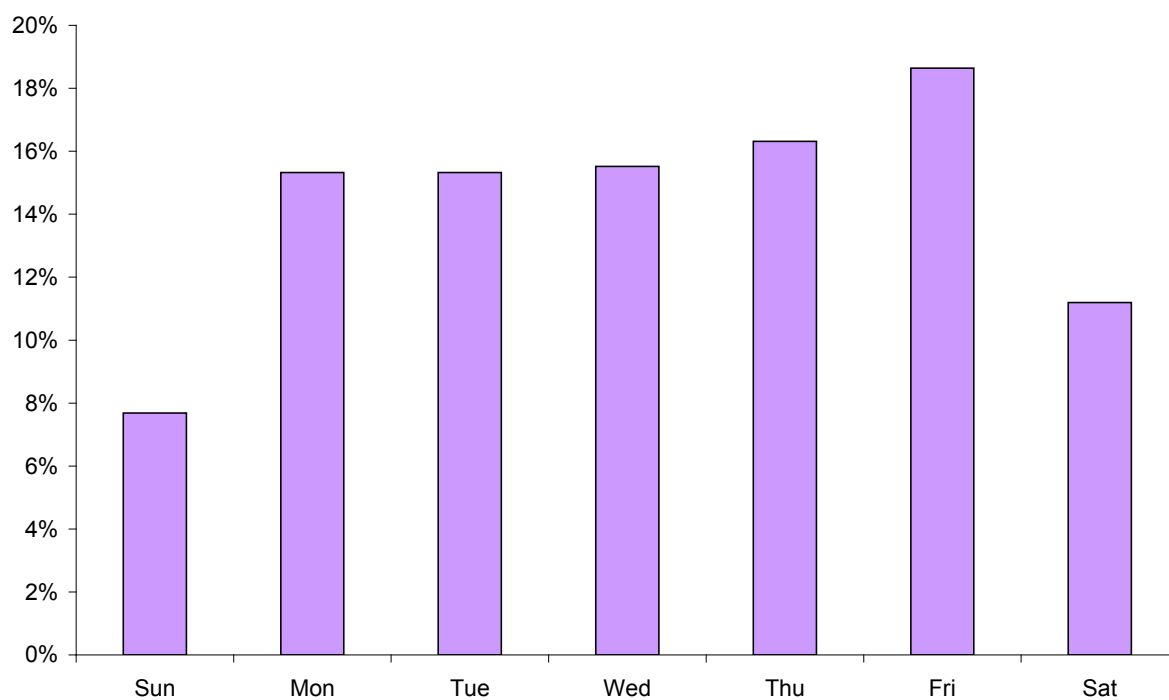
pedestrian casualties, this difference is more pronounced. There are 2.4 times more child pedestrian casualties on Fridays (18.6% of all child pedestrian casualties) than on Sundays (7.7%) (Figure 48).

**Figure 47: Distribution of all child casualties by day of the week. North West, 2006-08.**



Source: NWPHO from STATS19.

**Figure 48: Distribution of child pedestrian casualties by day of week. North West, 2006-08.**



Source: NWPHO from STATS19.



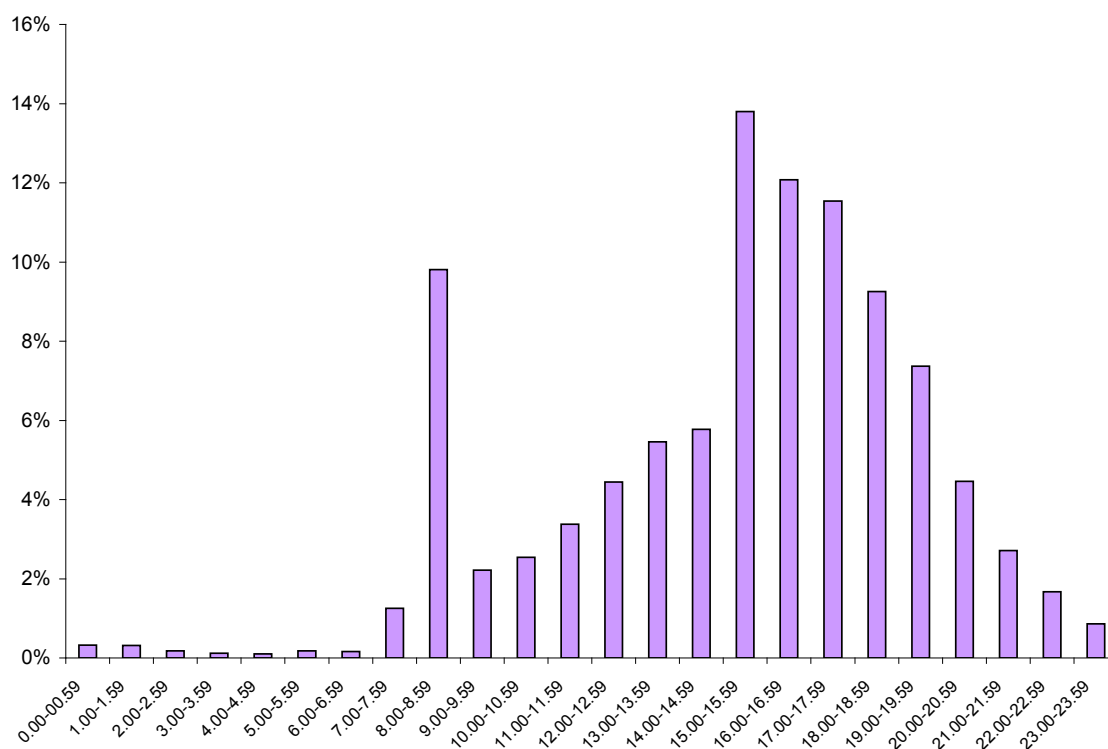
### 5.4.5 Time of day

Child casualties are highest between 3.00 to 4.00 p.m., and are also high between 4.00 and 6.00 p.m. (Figure 49). There is another clear peak in casualties between 8.00 and 9.00 a.m., during when many children are travelling to school, as there are far more casualties then than during the immediate preceding and following hours.

There are clear differences between the winter months and summertime, when children are on holiday from school. For example, there are six times more casualties between 8.00 and 9.00 a.m. in January than in August, while between 10 a.m. and 2 p.m. there are between 1.9 and 2.5 times more casualties in August than in January (Figure 50). There are also more casualties in during early evening (6.00 p.m. to 9.00 p.m.) in summer than in winter months.

The proportion of children who are injured in road traffic collisions that occurred during a school journey (usually taking place between 8.00 and 9.00 a.m. and between 3.00 and 4.00 p.m.) increases with age. Of all 5-7 year old casualties, 8.7% were injured travelling to or from school, compared with 10.9% of all 8-10 year old casualties and 18.9% of all 11-15 year old casualties.<sup>13</sup>

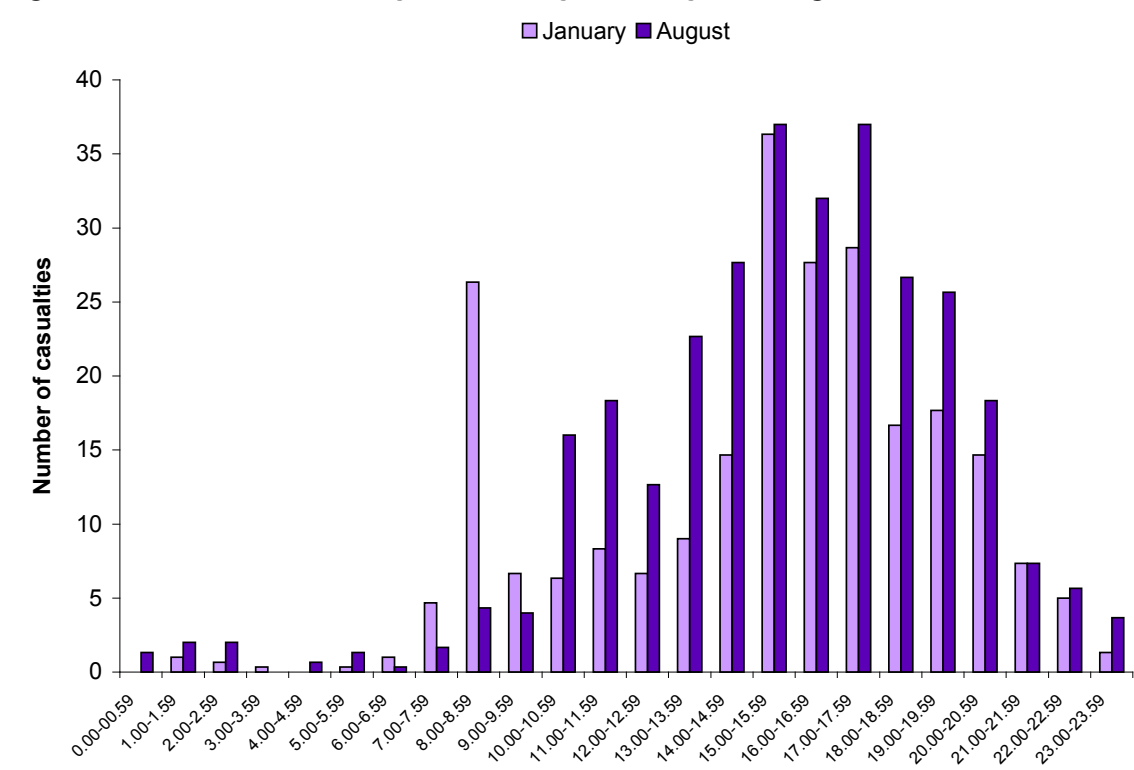
**Figure 49: Distribution of all child casualties by time of day. North West, 2006-08.**



Source: NWPFO from STATS19.

<sup>13</sup> NWPFO from STATS19.

Figure 50: Child casualties by time of day: January and August. North West, 2006-08.

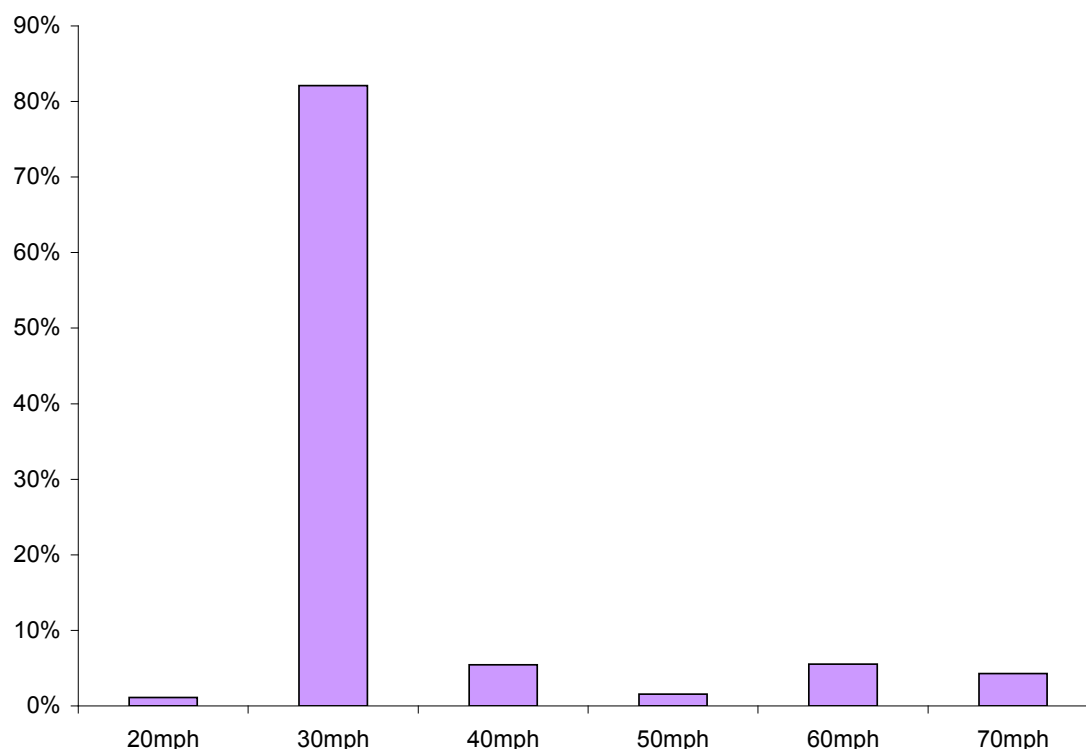


Source: NWPHO from STATS19.

### 5.4.6 Speed limit on road

Of all child casualties, 82.1% occur on roads that have a speed limit of 30 mph (Figure 51); and of all child casualties who are killed or seriously injured, 85.1% occur on roads that have a speed limit of 30 mph. There are relatively few fatal child casualties to validly report on in this context; however, the majority of fatalities (59.2%) occurred on roads where the speed limit was 30 mph, although roads with a 70 mph limit also present an increased risk (18.4%).

**Figure 51: Distribution of all child casualties by speed limit on road. North West, 2006-08.**



Source: NWPHO from STATS19.

### 5.4.7 Casualties by road user type

Of all child casualties, 45.3% are vehicle passengers/occupants, while 41.2% are pedestrians and 13.6% are pedal cyclists. This proportion varies with severity of injury. Of all children who were killed or seriously injured, 68.5% were pedestrians, 15.8% vehicle passengers/occupants and 15.7% pedal cyclists. Of all the child casualties who were slightly injured, 49.6% were vehicle passengers/occupants, while 37.1% were pedestrians and 13.2% pedal cyclists.

## **6. Ambulance Service data**

Data on the location ambulances went to, to respond to a call relating to a road traffic collision are collected by the North West Ambulance Service. Age and gender information of the injured are incomplete, so only overall information for the population of all ages can be presented. However, the location of the site ambulances went to is recorded by lower super output area (LSOA) and therefore call out rates can be calculated by level of deprivation and by geodemographic classification. It should be noted that the location of where the ambulance went to in response to a call may not be the exact location of the collision. As with previously cited information, casualties involved in the collision for which an ambulance is called to may not live in the locality that the ambulance went to, so the crude rate of ambulance call outs for road traffic collisions is not a full residence-based measure.

It should also be noted that additional notes were recorded in around three out of ten records. These provide further insight into the incident, and in these cases can indicate that the ambulance crew did not treat an injured casualty – the most common notes being that the patient refused treatment/to travel, there was no injury/the patient had recovered, a vehicle was not required, police were dealing with the incident or there was nothing found; and also cases including those when the patient had absconded, the call was cancelled and hoax calls.

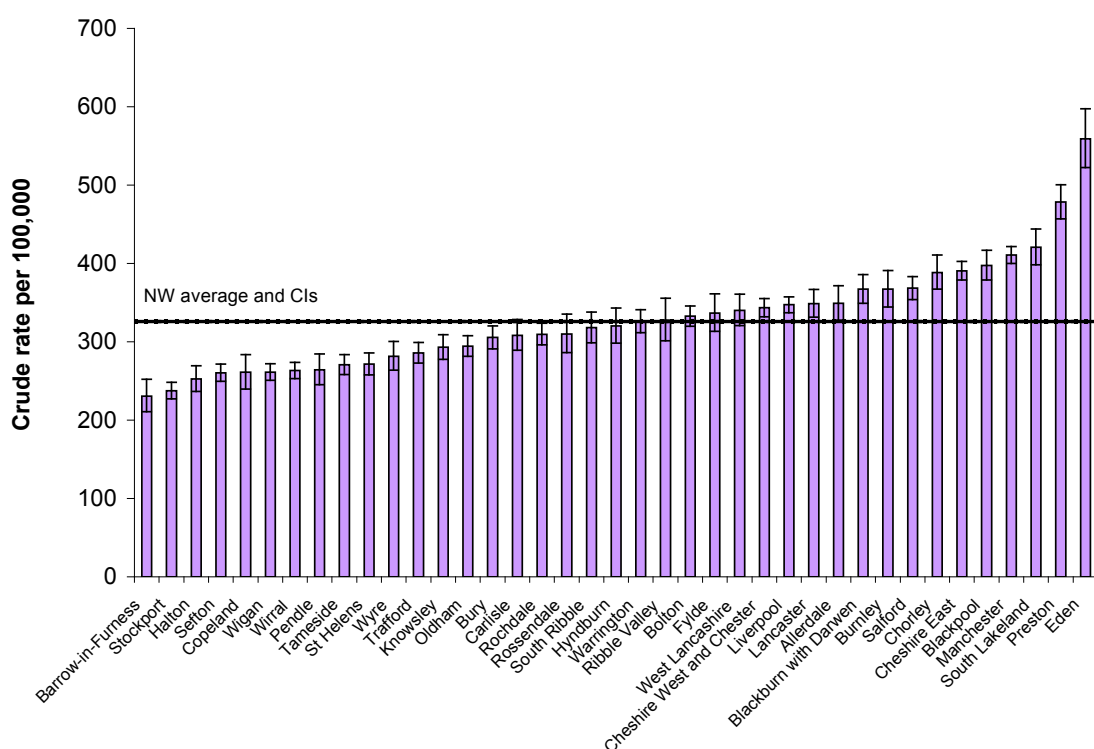
### **6.1 Ambulance call out rates**

#### **6.1.1 Local rates**

The crude rate of ambulance call outs per 100,000 population across the North West is 325.75 for 2007-09. Equivalent data for England is not available, so a comparison to the national average cannot be made. Within the region there is significant variation, however, and the rate in Eden (558.99 per 100,000) is 2.4 times the rate in Barrow-in-Furness (230.78) (Figure 52, Map 7).

Call out rates were significantly higher than the regional average in Eden, Preston, South Lakeland, Manchester, Blackpool, Cheshire East, Chorley, Salford, Burnley, Blackburn with Darwen, Lancaster, Liverpool and Cheshire West and Chester. Rates of ambulance call outs for road traffic collisions were lower than the North West average in Barrow-in-Furness, Stockport, Halton, Sefton, Copeland, Wigan, Wirral, Pendle, Tameside, St Helens, Wyre, Trafford, Knowsley, Oldham and Bury.

**Figure 52: Crude rate of ambulance call outs for road traffic collisions per 100,000 resident population. North West local authorities, 2007-09.**

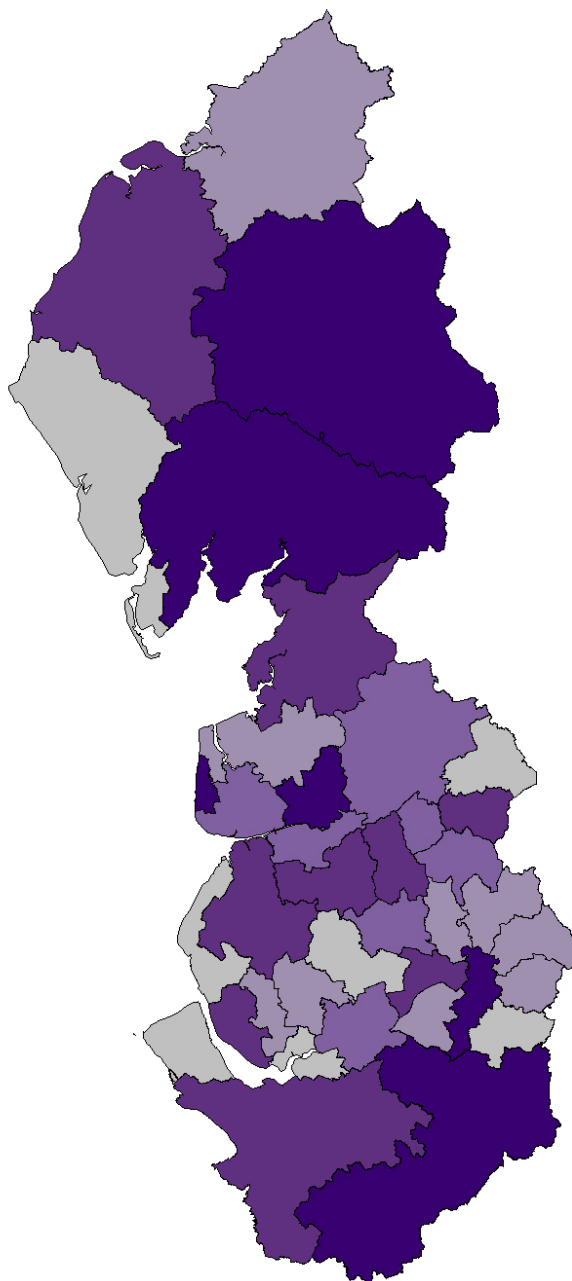
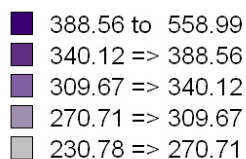


Source: NWPHO from North West Ambulance Service data and Office for National Statistics mid-year population estimates.

**Map 7: Crude rate of ambulance call outs for road traffic collisions per 100,000 population. North West local authorities, 2007-09.**

Local authority	Rate
Allerdale	348.96
Barrow-in-Furness	230.78
Blackburn with Darwen	367.13
Blackpool	397.35
Bolton	332.55
Burnley	367.13
Bury	305.49
Carlisle	308.38
Cheshire East	390.68
Cheshire West and Chester	343.36
Chorley	388.56
Copeland	261.01
Eden	558.99
Fylde	336.49
Halton	252.60
Hyndburn	320.07
Knowsley	292.99
Lancaster	348.81
Liverpool	347.30
Manchester	410.67
Oldham	294.27
Pendle	264.37
Preston	478.25
Ribble Valley	327.67
Rochdale	309.67
Rossendale	310.03
Salford	368.45
Sefton	260.38
South Lakeland	420.78
South Ribble	317.94
St Helens	271.34
Stockport	237.50
Tameside	270.71
Trafford	285.86
Warrington	326.21
West Lancashire	340.12
Wigan	261.32
Wirral	263.15
Wyre	281.64
Cheshire and Merseyside	316.38
Cumbria	348.01
Lancashire	352.86
Greater Manchester	314.72
<b>North West</b>	<b>325.75</b>

Rate per 100,000 population



Source: NWPFO from North West Ambulance Service data and Office for National Statistics mid-year population projections.

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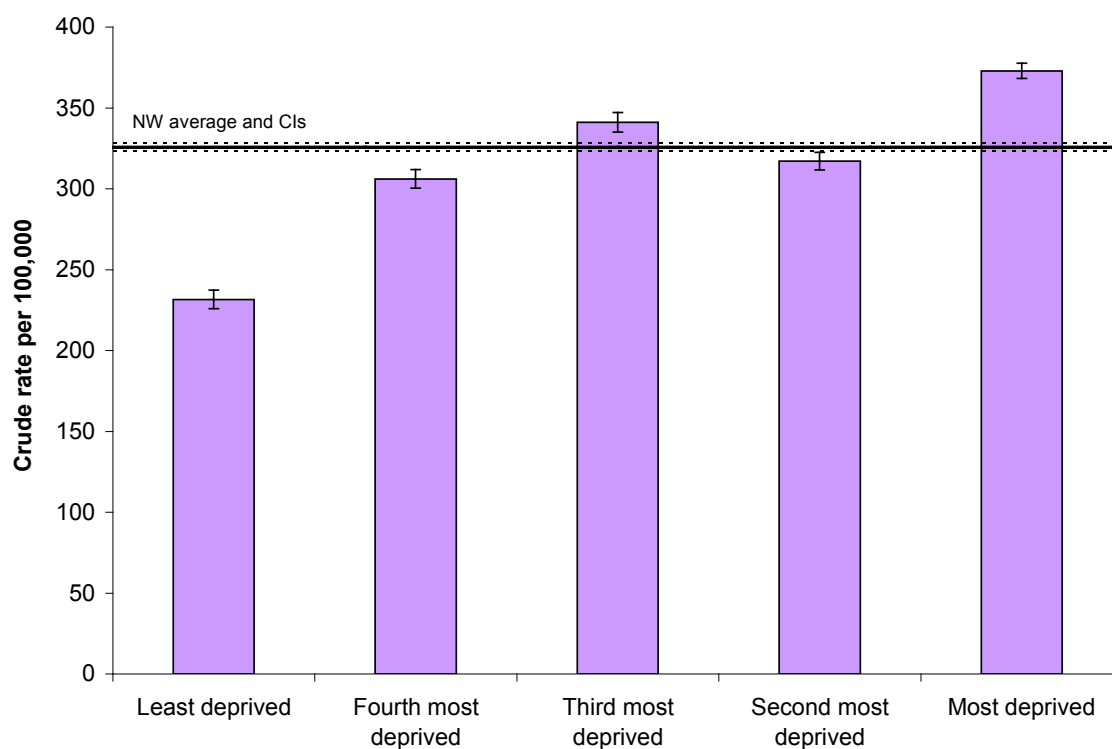
Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

### 6.1.2 By deprivation level

There is a significant increase in the rate of ambulance call outs as deprivation increases across the region, with the exception of the second most deprived fifth of areas, where the rate was below that of the third most deprived fifth of areas. The crude rate of ambulance call outs per 100,000 population was 1.6 times higher in the most deprived areas than in the least deprived (372.95 per 100,000 compared with 231.60) (Figure 53).

The rate of ambulance call outs is significantly higher than the regional average in the third most deprived and most deprived areas, and significantly lower than the regional average in the least deprived, fourth most deprived and second most deprived fifths of areas.

**Figure 53: Crude rate of ambulance call outs for road traffic collisions per 100,000 resident population by Index of Multiple Deprivation 2007 quintile. North West, 2007-09.**

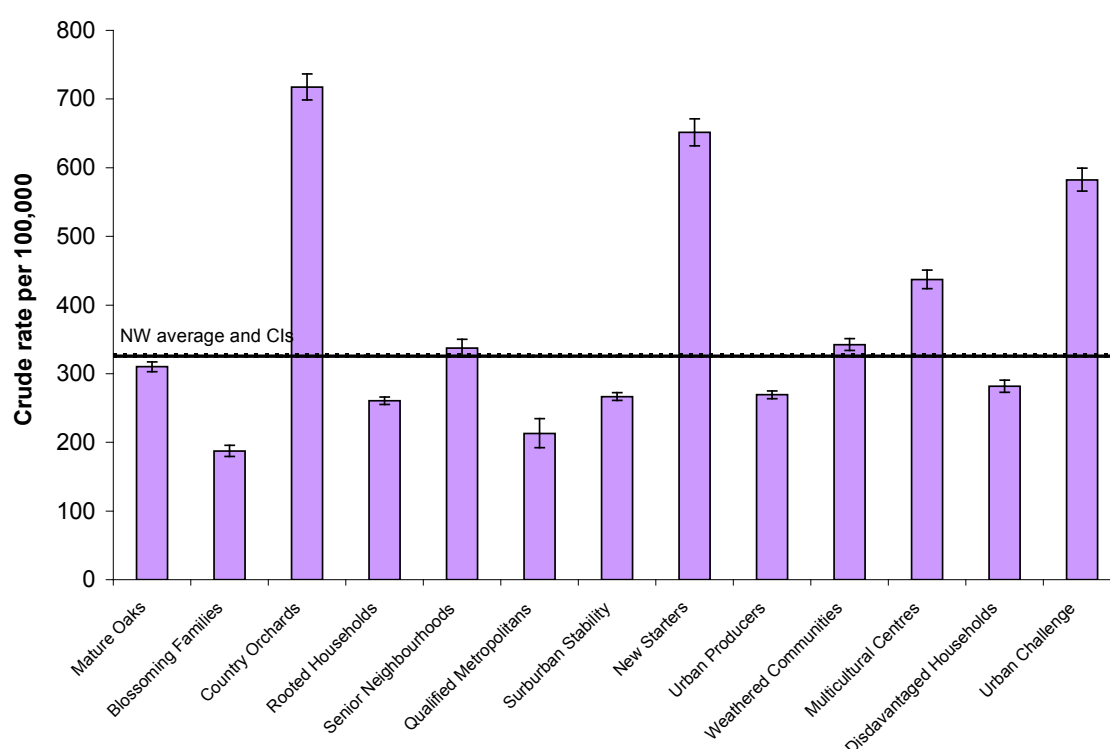


Source: NWPFO from North West Ambulance Service data, Office for National Statistics mid-year population estimates and Index of Multiple Deprivation 2007.

### 6.1.3 By geodemographic classification

Further analysis by geodemographic classification (P<sup>2</sup> People and Places ©) provides additional insight (Figure 54). There is a less obvious trend by deprivation, and three classifications in particular stand out as having high rates: Country Orchards (717.42 per 100,000), New Starters (651.28) and Urban Challenge (582.42), all significantly above the regional average, along with Multicultural Centres and Weathered Communities. The lowest rates are found among areas classified as Blossoming Families (187.28), Qualified Metropolitans (212.78, and a relatively small population segment in the North West) and Rooted Households (260.54). Blossoming Families, Rooted Households, Suburban Stability, Urban Producers, Disadvantaged Households and Mature Oaks have significantly lower rates of ambulance call outs than the North West average. For brief descriptions of the characteristics of P<sup>2</sup> People and Places classifications, please see the Appendix.

**Figure 54: Crude rate of ambulance call outs for road traffic collisions per 100,000 resident population by P<sup>2</sup> People and Places © classification. North West, 2007-09.**



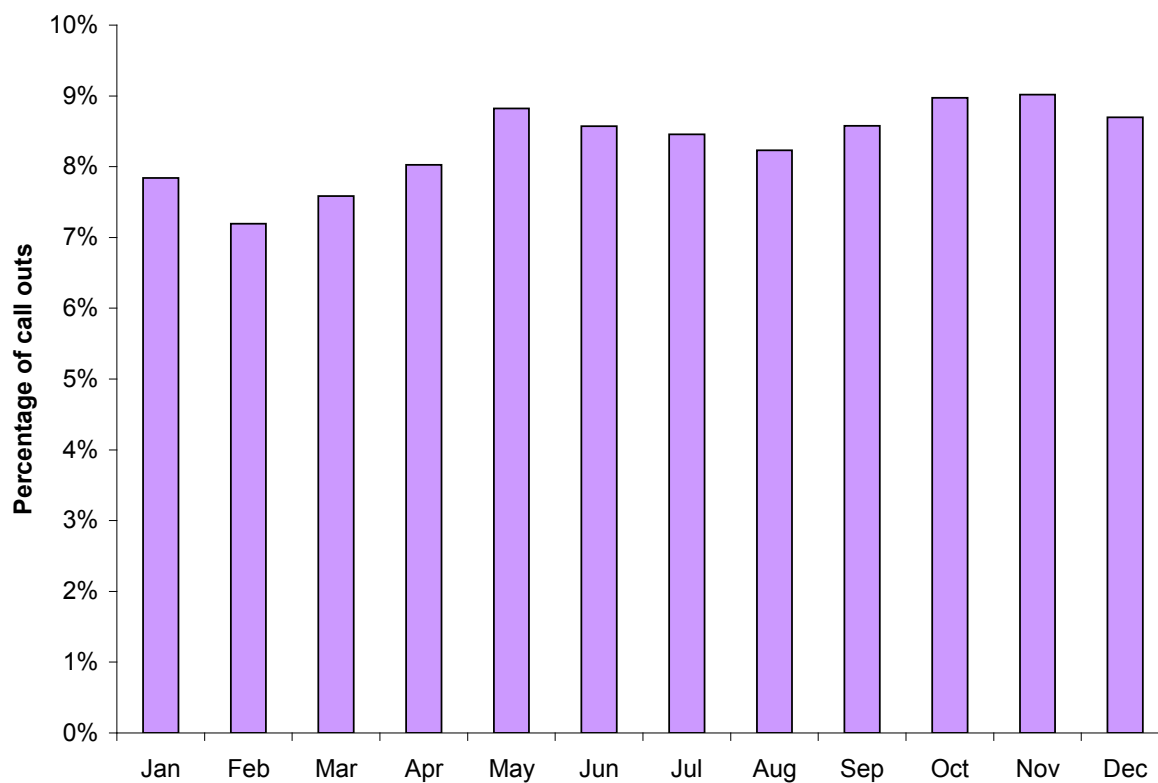
Source: NWPHO from North West Ambulance Service data, Office for National Statistics mid-year population estimates and Index of Multiple Deprivation 2007.



## 6.2 Month of year

The average number of ambulance call outs to respond to calls relating to road traffic collisions during the period 2007-09 varies from 55 a day across the region in March to 69 in November (Figure 55). The highest quarter of the year is October to December, followed by the lowest quarter, January to March.

**Figure 55: Call outs by month. North West, 2007-09.**

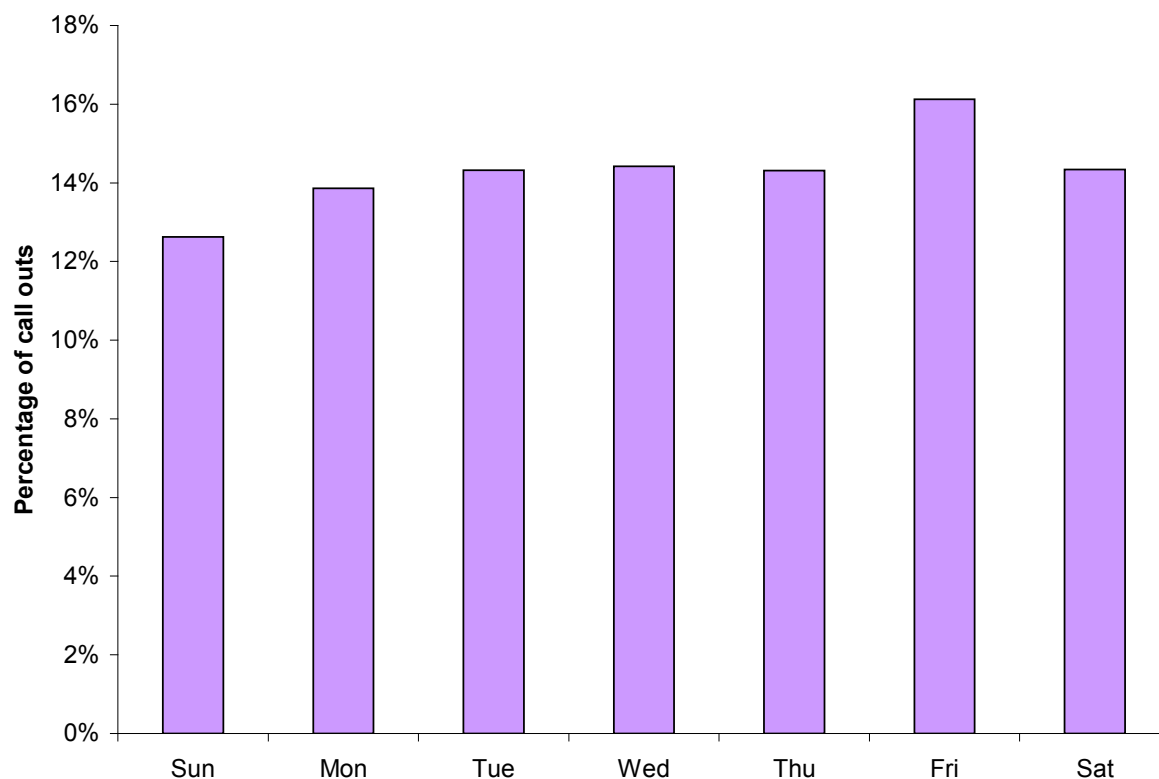


Source: NWPHO from North West Ambulance Service data.

### 6.3 Day of week

There is not a huge variation in the proportion of call outs by day of the week, although there are more call outs on Fridays and fewer on Sundays than on other days of the week (Figure 56).

**Figure 56: Call outs by day of week. North West, 2007-09.**

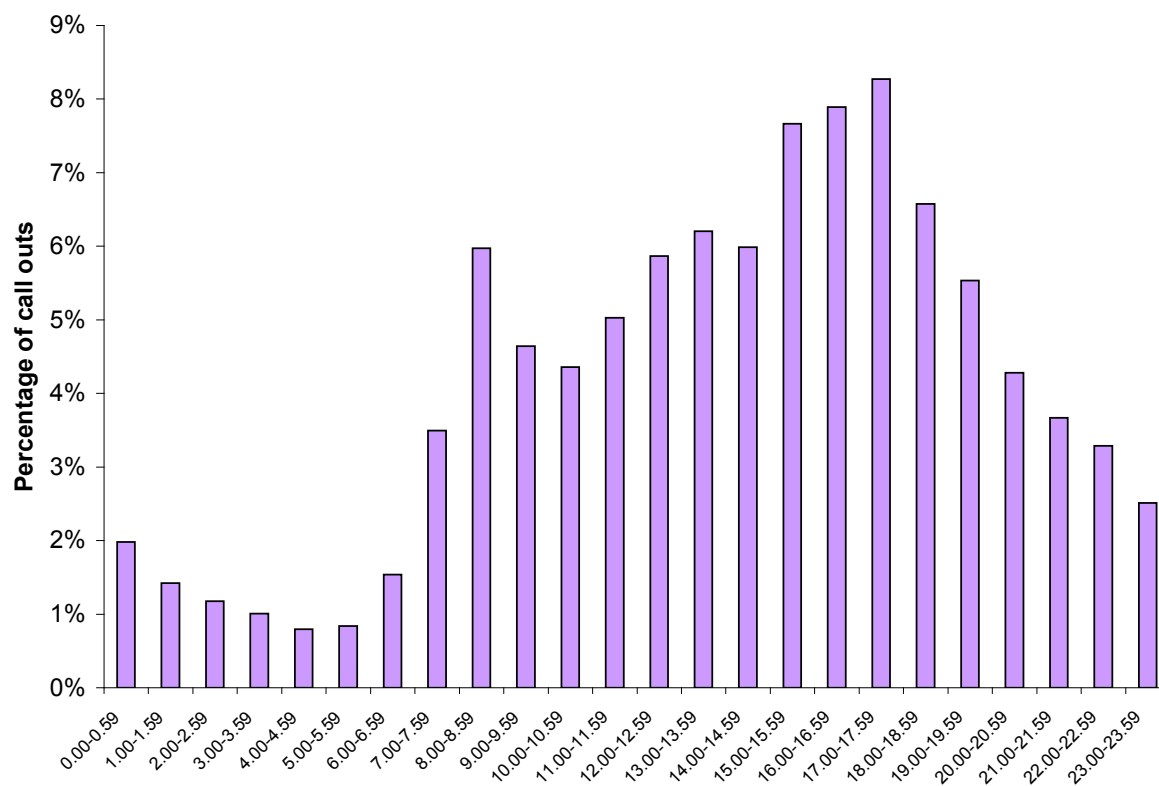


Source: NWPHO from North West Ambulance Service data.

## 6.4 Time of day

Ambulance call outs peak between 3.00 and 6.00 p.m. (Figure 57), and there are more call outs between 8.00 and 9.00 a.m. than in the hours immediately preceding and following.

**Figure 57: Call outs by hour of day. North West, 2007-09.**



Source: NWPHO from North West Ambulance Service data.

## 7. Accident and Emergency attendances

Data on attendances at accident and emergency departments as a result of a road traffic collision are available for hospitals in Cumbria, Merseyside and Lancashire between January 2007 and December 2009 (Table 11). The age and gender of the individual are recorded fully, as well as whether the attendance at A&E resulted in a full admission. Information on residence is also recorded (although is missing for 3.2% of attendances), but it would not be appropriate to produce local rates for comparison as these would cover only the location of attendance for part of the region. The location of the collision is not recorded.

Of the attendances at A&E departments for which data were available for 2007 to 2009, 55.3% were by males of all ages and 44.7% were by females of all ages. For 0-15 year olds, 53.6% of attendances were by males and 46.4% were by females.

Following attendance at A&E, 9.1% of attendees were admitted to hospital, 68.1% were discharged, 19.2% given a follow-up appointment and 3.7% had another outcome. This pattern was broadly similar for children, although a slightly higher percentage were discharged and a slightly lower percentage were given a follow-up appointment.

### 7.1 Attendances by hospital

**Table 11: Accident and Emergency attendance, 2007-09 (average number per year).**

	<b>0-15 years</b>	<b>All ages</b>
Alder Hey Children's Hospital	396	399
University Hospital Aintree	115	3,081
Arrowe Park Hospital	368	3,658
Burnley General Hospital	110	1,121
Blackpool Victoria Hospital	243	2,422
Chorley and South Ribble Hospital	174	2,033
Cumberland Infirmary	128	1,222
Furness General Hospital	89	854
Ormskirk and District General Hospital	187	735
Royal Preston Hospital	351	3,231
Royal Blackburn Hospital	260	2,107
Royal Lancaster Infirmary	133	1,381
Royal Liverpool University Hospital	41	1,883
Southport and Formby District General Hospital	30	1,849
West Cumberland Hospital	98	1,079
Westmorland General Hospital	21	308
Whiston Hospital	531	3,915
Total	3,274	31,279

Source: Trauma and Injury Intelligence Group (May 2010). Data extract 1050: Data from all emergency departments in Cumbria, Lancashire and Merseyside for the period of January 2007 to December 2009. Centre for Public Health, Liverpool John Moores University: Liverpool.

## **8. Hospital admission**

Data on hospital admission for road traffic collisions is contained within Hospital Episode Statistics. Admissions with an external cause ICD-10 code between V10 and V89 were included in the analysis in this section. Admission rates for the whole population are directly standardised rates, whereas rates for children (aged 0 to 15 years) are crude rates per 100,000 population (see 10.2.1 Measures and rates).

Hospital admission rates are residence-based, and therefore relate to the population in each area who are admitted to hospital as a result of a road traffic collision, no matter where the hospital is, or where the collision that caused injury occurred.

### **8.1 All ages**

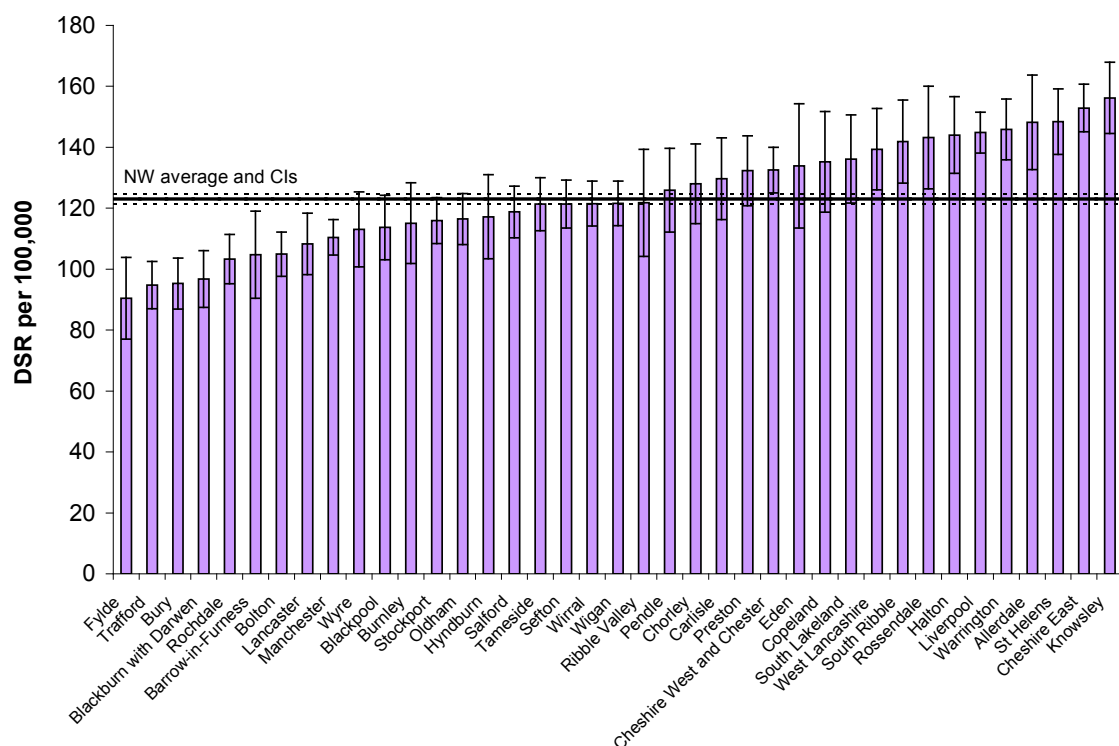
#### **8.1.1 Local rates**

The North West rate of hospital admission for road traffic collisions during 2006-08 was 123.05 per 100,000 population. Data were not extracted for England, so a comparison to the national average cannot be made.

Within the North West, the hospital admission rate for road traffic collisions ranges from 90.46 per 100,000 population in Fylde to 156.22 in Knowsley, a ratio of 1 to 1.7 (Figure 58, Map 8). Admission rates are significantly higher than the North West average in Knowsley, Cheshire East, St Helens, Allerdale, Warrington, Liverpool, Halton, Rossendale, South Ribble, West Lancashire and Cheshire West and Chester. Fylde, Trafford, Bury, Blackburn with Darwen, Rochdale, Barrow-in-Furness, Bolton, Lancaster and Manchester all have rates significantly lower than the North West average.

There are differences between the position of local authorities in relation to the North West average between rates of ambulance call outs for road traffic collisions, a non-residence based measure, and hospital admission rates for road traffic collisions, which is a residence-based measure. For example, rates of ambulance call outs are significantly worse than the North West average in Manchester and Blackburn with Darwen, yet rates of hospital admission are significantly better. Conversely, rates of ambulance callouts are significantly better than the North West average in Knowsley, St Helens and Halton, but hospital admission rates are significantly worse. This demonstrates the need to utilise all available information and measures on road traffic collisions and casualties together to fully understand the local position.

**Figure 58: Directly standardised rate of hospital admission for road traffic collisions. North West local authorities, 2006/07-2008/09.**



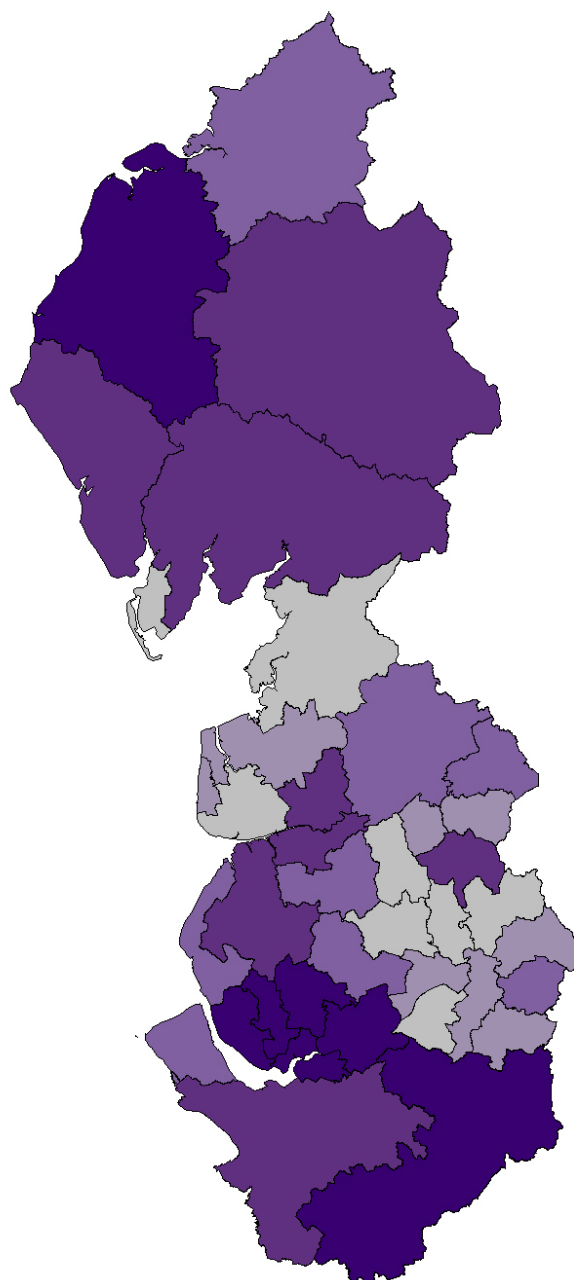
Source: NWPHO from Hospital Episode Statistics and Office for National Statistics mid-year population estimates.

**Map 8: Directly standardised rate of hospital admission for road traffic collisions per 100,000 population. North West local authorities, 2006/07-2008/09.**

Local authority	Rate
Allerdale	148.18
Barrow-in-Furness	104.76
Blackburn with Darwen	96.76
Blackpool	113.67
Bolton	104.92
Burnley	115.10
Bury	95.29
Carlisle	129.66
Cheshire East	152.89
Cheshire West and Chester	132.53
Chorley	127.97
Copeland	135.23
Eden	133.89
Fylde	90.46
Halton	144.03
Hyndburn	117.20
Knowsley	156.22
Lancaster	108.30
Liverpool	144.81
Manchester	110.44
Oldham	116.45
Pendle	125.91
Preston	132.29
Ribble Valley	121.76
Rochdale	103.28
Rossendale	143.22
Salford	118.80
Sefton	121.38
South Lakeland	136.14
South Ribble	141.89
St Helens	148.37
Stockport	115.92
Tameside	121.33
Trafford	94.78
Warrington	145.91
West Lancashire	139.36
Wigan	121.58
Wirral	121.53
Wyre	113.01
Cheshire and Merseyside	138.81
Cumbria	131.38
Lancashire	119.31
Greater Manchester	109.97
<b>North West</b>	<b>123.05</b>

Rate per 100,000 population

- 144.03 to 156.22
- 132.29 => 144.03
- 121.33 => 132.29
- 110.44 => 121.33
- 90.46 => 110.44



Source: NWPHO from Hospital Episode Statistics and Office for National Statistics mid-year population estimates.

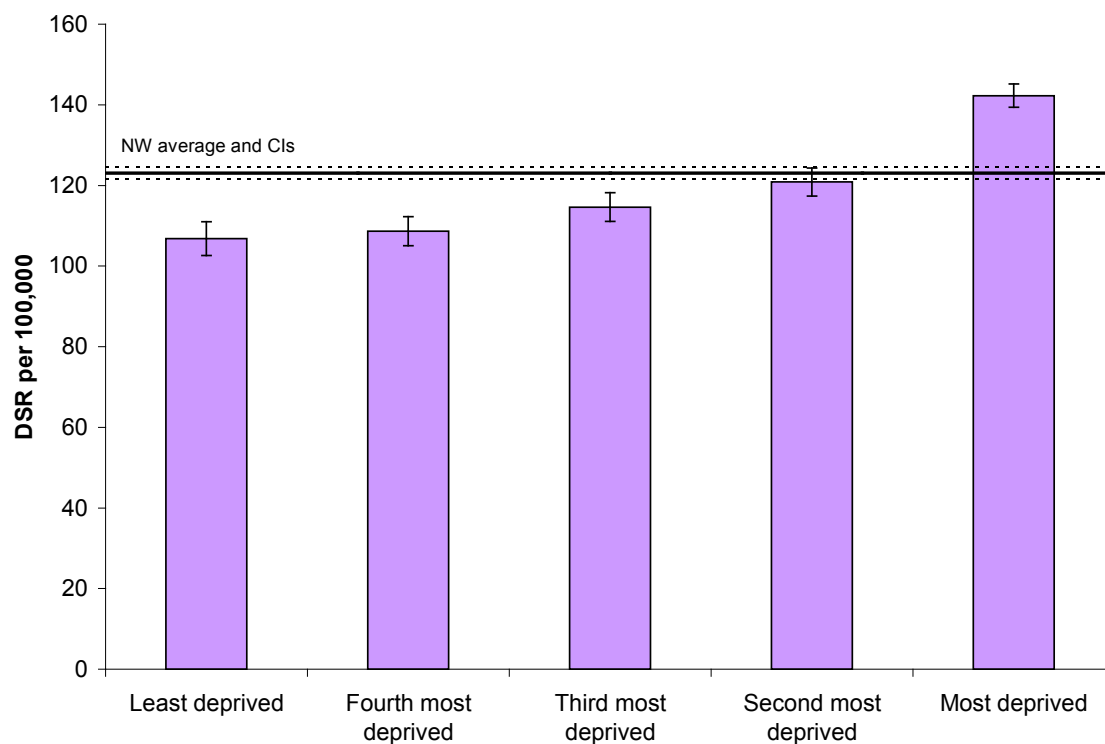
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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

### 8.1.2 By deprivation level

There is evidence of an increasing rate of hospital admission for road traffic collisions as deprivation increases (Figure 59). The admission rates in the three least deprived fifths of areas are significantly below the regional average, while the rate in the most deprived fifth of areas (142.28 per 100,000) is significantly higher.

**Figure 59: Directly standardised rate of hospital admission for road traffic collisions by Index of Multiple Deprivation 2007 quintile. North West, 2006/07-2008/09.**



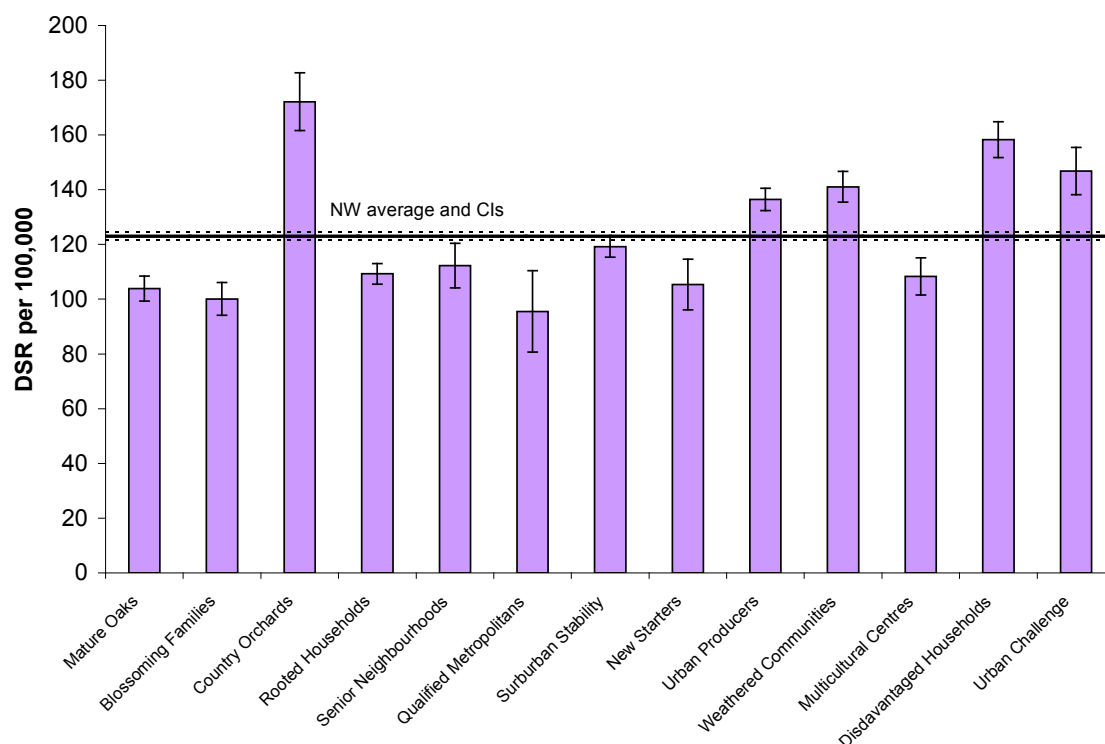
Source: NWPHO from Hospital Episode Statistics, Office for National Statistics mid-year population estimates and Communities and Local Government (Index of Multiple Deprivation 2007).



### 8.1.3 By geodemographic classification

There are some apparent variations by P<sup>2</sup> People and Places © geodemographic classification (Figure 60). Hospital admission rates range from 95.51 per 100,000 among Qualified Metropolitan areas to 172.16 for Country Orchards. Hospital admission for road traffic collisions is significantly worse than the regional average for Country Orchards, Disadvantaged Households, Urban Challenge, Weathered Communities and Urban Producers. Qualified Metropolitan, Blossoming Families, Mature Oaks, New Starters, Multicultural Centres, Rooted Households and Senior Neighbourhoods have hospital admission rates which are significantly better than the North West average.

**Figure 60: Directly standardised rate of hospital admission for road traffic collisions by P<sup>2</sup> People and Places © geodemographic classification. North West, 2006/07-2008/09.**



Source: NWPHO from Hospital Episode Statistics, Office for National Statistics mid-year population estimates and P<sup>2</sup> People and Places ©.

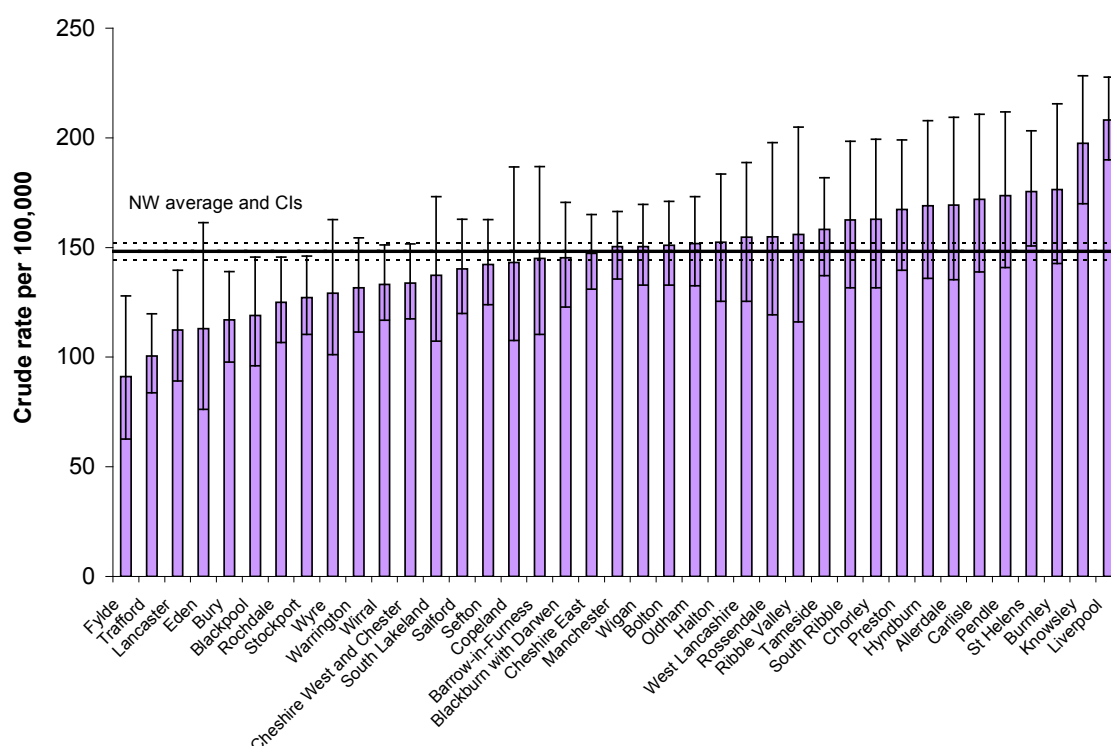
## 8.2 Children

### 8.2.1 Local rates

The crude rate of hospital admission for road traffic collisions for children aged 0 to 15 years in the North West is 148.18 per 100,000 for 2006/07-2008/09. Within the region the rate ranges from 91.08 in Fylde to 208.20 in Liverpool, a ratio of 1 to 2.3 (Figure 61, Map 9). Liverpool and Knowsley have significantly worse admission rates than the regional average, while Fylde, Trafford, Lancaster and Bury have significantly better hospital admission rates than the North West average.

There are differences in rankings within the region between the rates of hospital admission for road traffic collisions for people of all ages and for children. For example, Burnley's hospital admission rate for children is the third highest in the region, yet the rate for all ages is 28<sup>th</sup> highest; similarly, Hyndburn has the eighth highest admission rate for children, but the 25<sup>th</sup> highest rate for people of all ages. Conversely, Warrington's hospital admission rate for children is 30<sup>th</sup> highest in the region, but the rate for all ages is 5<sup>th</sup> highest; and likewise, Eden and Cheshire East's rates for children are 36<sup>th</sup> and 21<sup>st</sup> highest respectively, but the hospital admission rates for people of all ages are 3<sup>rd</sup> and 2<sup>nd</sup> highest in the region.

**Figure 61: Crude rate of hospital admission for road traffic collisions, 0-15 years. North West local authorities, 2006/07-2008/09.**



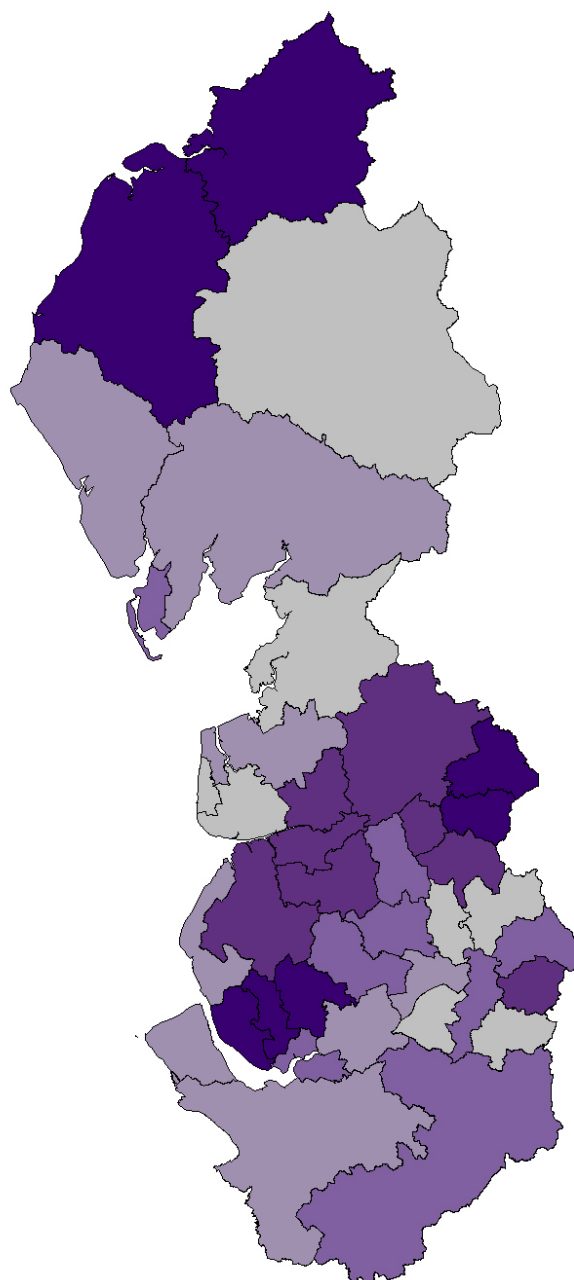
Source: NWPHO from Hospital Episode Statistics and Office for National Statistics mid-year population estimates.

**Map 9: Crude rate of hospital admission for road traffic collisions for children (0-15 years) per 100,000 population. North West local authorities, 2006/07-2008/09.**

Local authority	Rate
Allerdale	169.32
Barrow-in-Furness	144.94
Blackburn with Darwen	145.29
Blackpool	118.95
Bolton	150.98
Burnley	176.34
Bury	117.05
Carlisle	172.03
Cheshire East	147.27
Cheshire West and Chester	133.72
Chorley	162.93
Copeland	143.13
Eden	113.00
Fylde	91.08
Halton	152.41
Hyndburn	169.09
Knowsley	197.52
Lancaster	112.30
Liverpool	208.20
Manchester	150.38
Oldham	151.84
Pendle	173.70
Preston	167.38
Ribble Valley	155.91
Rochdale	125.01
Rossendale	154.92
Salford	140.19
Sefton	142.30
South Lakeland	137.29
South Ribble	162.53
St Helens	175.53
Stockport	127.23
Tameside	158.27
Trafford	100.55
Warrington	131.60
West Lancashire	154.73
Wigan	150.41
Wirral	133.17
Wyre	129.23
Cheshire and Merseyside	146.63
Cumbria	156.35
Lancashire	148.69
Greater Manchester	148.07
<b>North West</b>	<b>148.18</b>

Rate per 100,000 population

- 169.32 to 208.20
- 154.73 => 169.32
- 144.94 => 154.73
- 129.23 => 144.94
- 91.08 => 129.23



Source: NWPHO from Hospital Episode Statistics and Office for National Statistics mid-year population estimates.

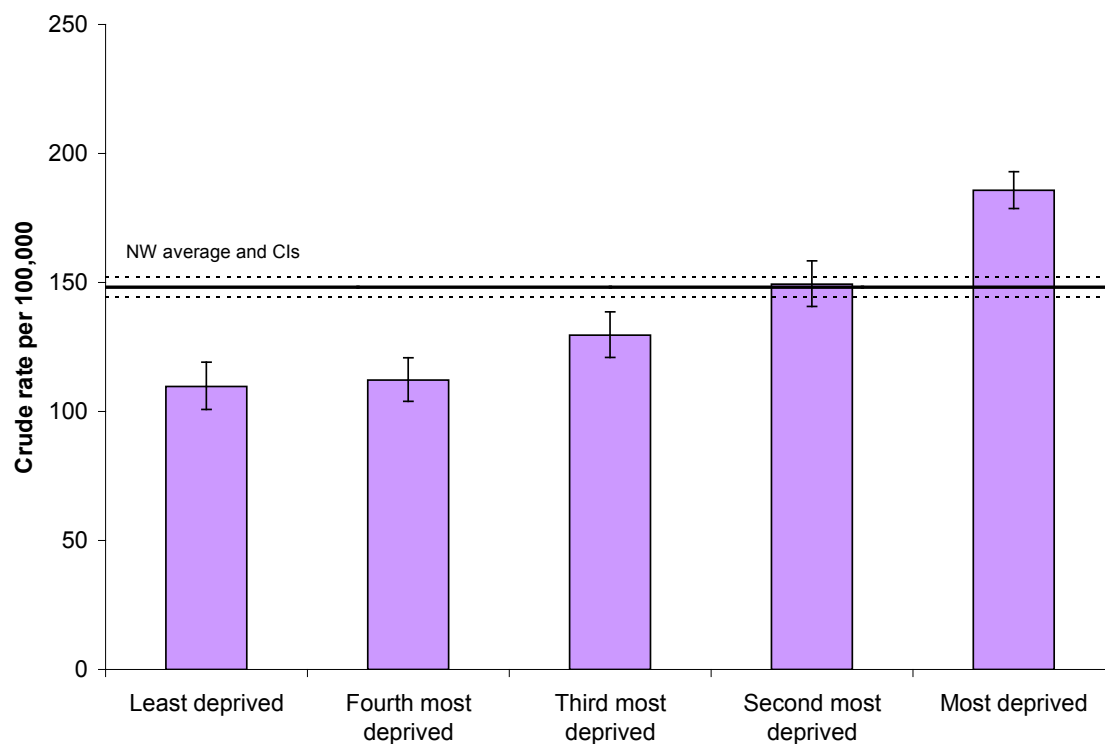
Crown copyright. All rights reserved. NWPHO/DH (licence 100020290). November 2010.

Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

### 8.2.2 By deprivation level

Hospital admission for road traffic collisions for children aged 0-15 years significantly increases as deprivation increases, after the fourth most deprived fifth of areas (Figure 62). The admission rate in the most deprived areas is 1.7 times higher than the admission rate in the least deprived areas (185.67 per 100,000 population compared with 109.67). This difference is far more pronounced for children than it is for people of all ages (Figure 59).

**Figure 62: Crude rate of hospital admission for road traffic collisions, 0-15 years, by Index of Multiple Deprivation 2007 quintile. North West, 2006/07-2008/09.**

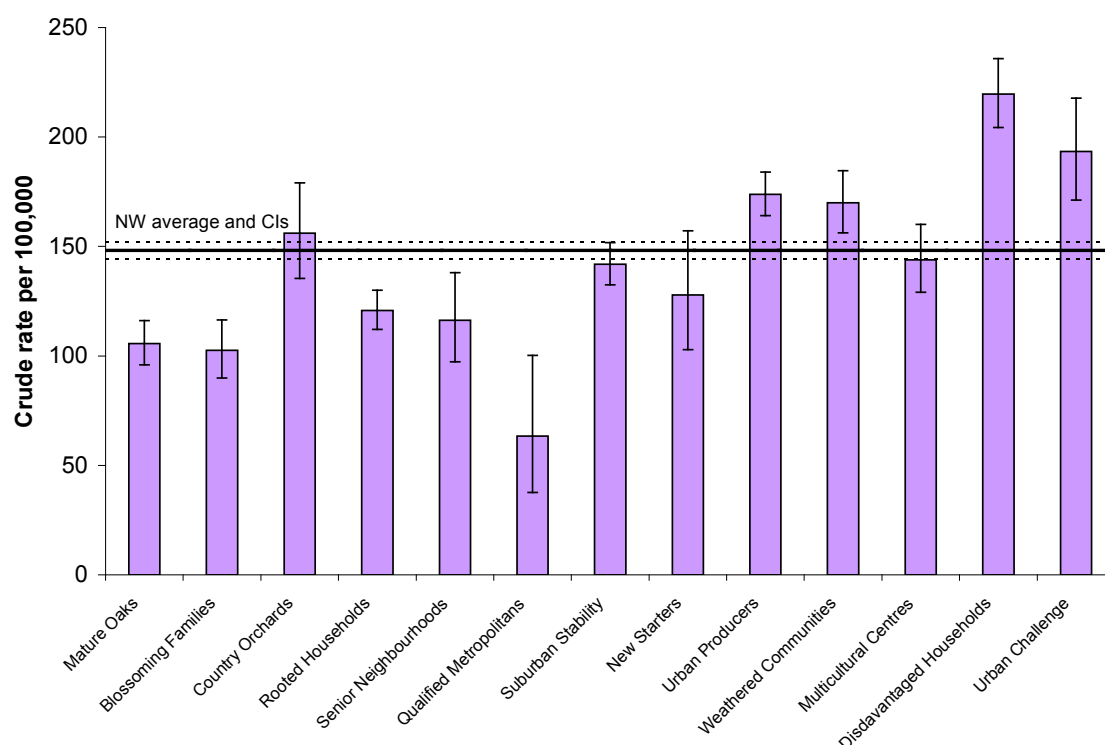


Source: NWPHO from Hospital Episode Statistics, Office for National Statistics mid-year population estimates and Communities and Local Government (Index of Multiple Deprivation 2007).

### 8.2.3 By geodemographic classification

By P<sup>2</sup> People and Places © classification, there is more of an apparent trend with hospital admission rates by deprivation for children than for people of all ages, but there are still exceptions (Figure 63). Admission rates range from 63.45 per 100,000 for Qualified Metropolitans (but note the large confidence interval) to 219.64 for Disadvantaged Households. Hospital admission rates are significantly higher than the regional average in areas classified as Disadvantaged Households, Urban Challenge, Urban Producers and Weathered Communities. Classifications with significantly lower admission rates than the North West average are Qualified Metropolitans, Blossoming Families, Mature Oaks, Senior Neighbourhoods and Rooted Households.

**Figure 63: Crude rate of hospital admission for road traffic collisions, 0-15 years, by P<sup>2</sup> People and Places © geodemographic classification. North West, 2006/07-2008/09.**



Source: NWPHO from Hospital Episode Statistics, Office for National Statistics mid-year population estimates and P<sup>2</sup> People and Places ©.

## **9. Mortality**

The mortality and years of life lost measures used in this section include all resident deaths from land transport accidents,<sup>14</sup> regardless of where they occur.

The data in this section has been taken from the National Centre for Health Outcomes Development (NCHOD) Compendium of Clinical and Health Indicators. It does not include information at North West public health network geographies.

Overall, there were 277 deaths from land transport accidents in the North West in 2008 (73.3% male and 26.7% female). This represented 0.4% of all deaths occurring in the region (one in 255 deaths): 0.6% of all male deaths (one in 164 male deaths) and 0.2% of all female deaths (one in 505 female deaths).

### **9.1 Mortality rates**

In 2006-08,<sup>15</sup> the North West's rate of mortality from land transport accidents (4.34 per 100,000 population) was significantly below the England rate (4.80 per 100,000), and was the third lowest among English regions (Figure 64).

Since 1996, the annual directly standardised rate (DSR) of mortality from land transport accidents has fallen by 26.3% across England and by 30.1% in the North West (Figure 65).

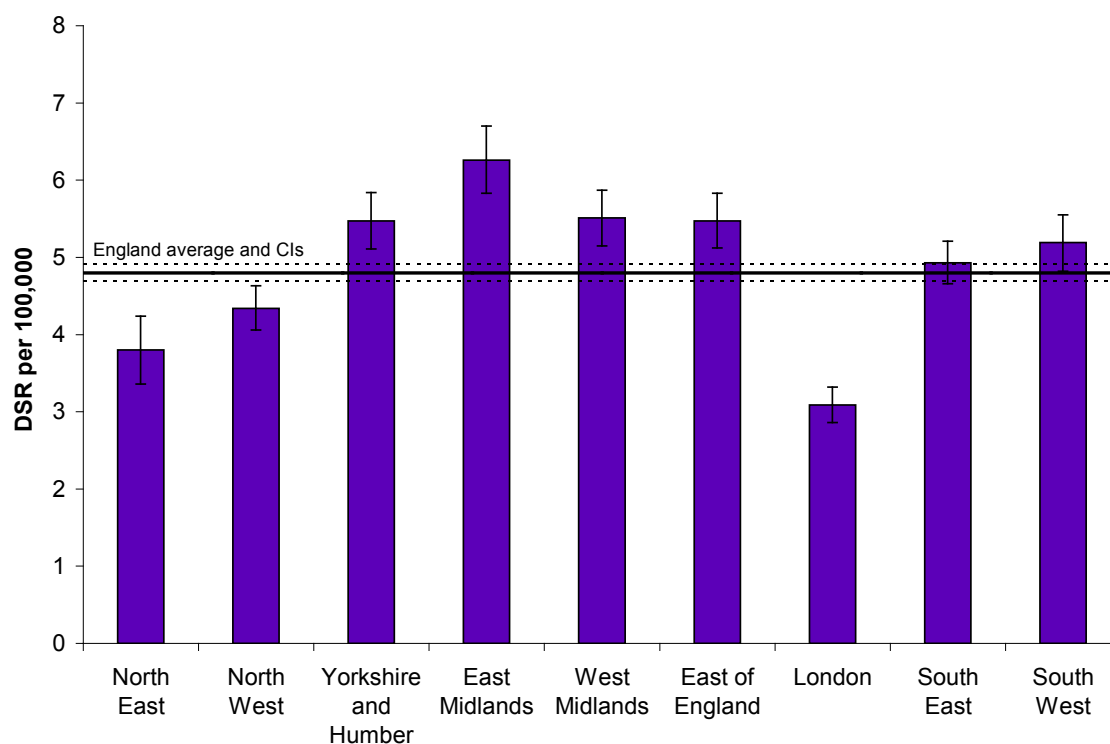
Across the North West, age-specific death rates from land transport accidents are highest among the 75+ and 15-34 years populations (8.2 and 7.1 per 100,000 population in 2006-08 respectively) and lowest in the 5-14 and 1-4 years groups (1.3 and 1.4 per 100,000 respectively) (Figure 66). Men aged 15-34 and 75+ years have the highest death rates of all gender and age groups (11.8 per 100,000 for both groups).

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<sup>14</sup> ICD-10 codes V01-V89. 'Land transport accidents' is the terminology used by NCHOD, the originator of the data presented in this section.

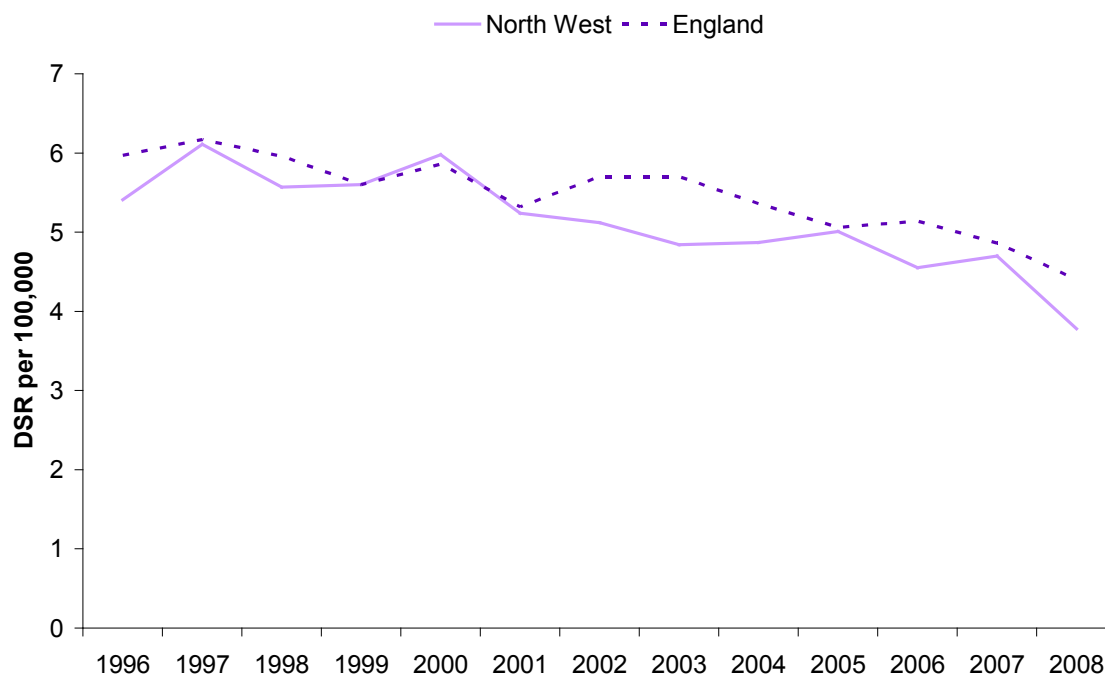
<sup>15</sup> Confidence intervals are only supplied by NCHOD for 2006-08, not 2008 as a single year.

**Figure 64: Directly standardised rate of mortality from land transport accidents. English regions, 2006-08.**



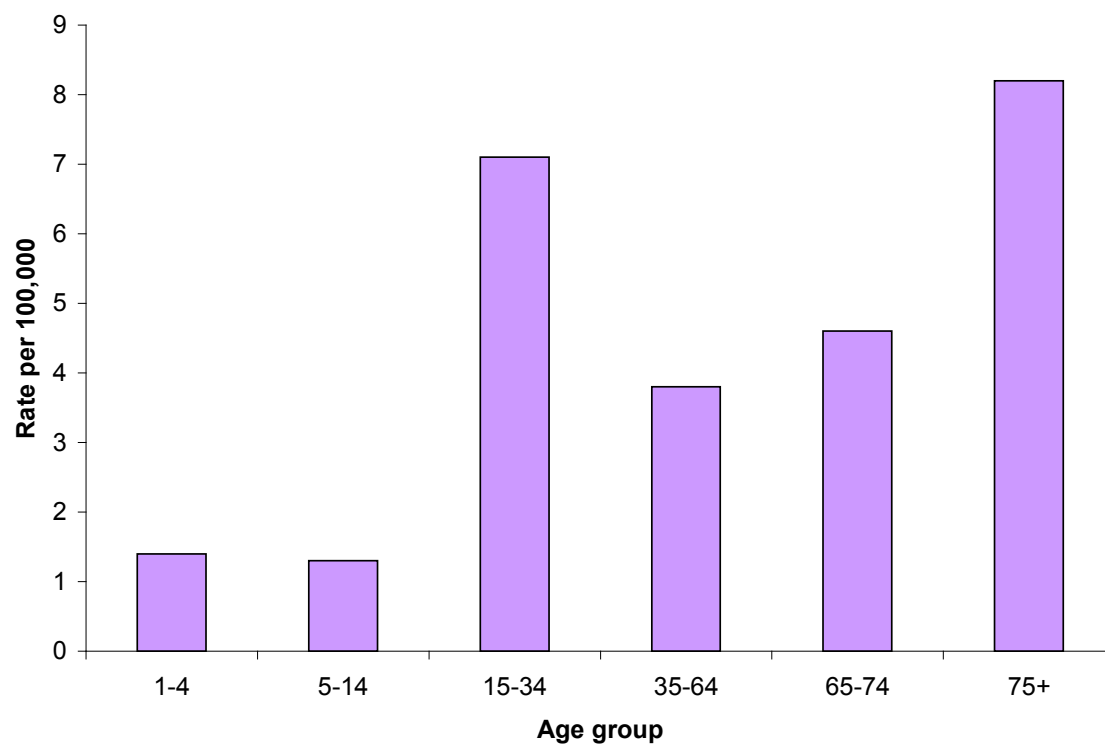
Source: National Statistics via NCHOD.

**Figure 65: Directly age standardised rate of mortality from land transport accidents. North West and England, 1996 to 2008.**



Source: National Statistics via NCHOD.

**Figure 66: Age-specific death rates from land transport accidents. North West, 2006-08.**



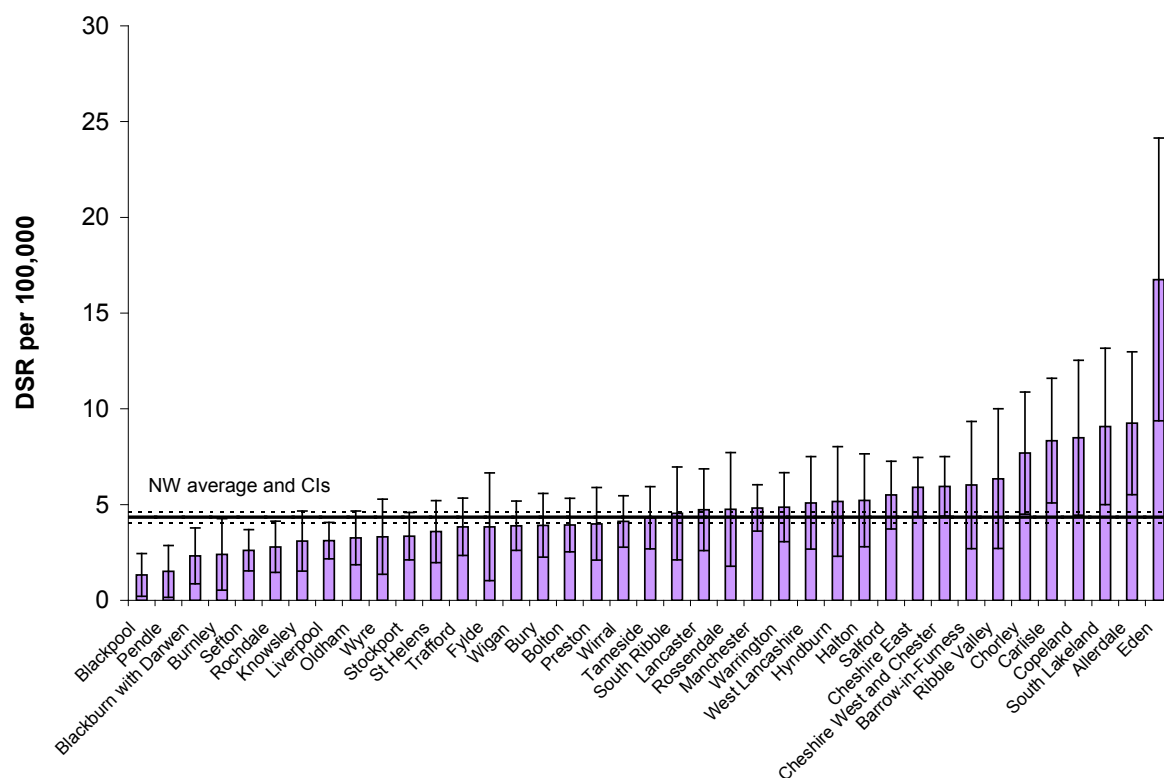
Source: National Statistics via NCHOD.



### 9.1.1 Local rates

Within the region, there is a large variation in the directly standardised rate of mortality from land transport accidents: from 1.33 per 100,000 population in Blackpool to 16.75 per 100,000 in Eden in 2006-08 (Figure 67, Map 10). Allerdale, Carlisle, Eden and South Lakeland have mortality rates significantly above the North West average, while Blackburn with Darwen, Blackpool, Pendle and Sefton have DSRs significantly below the regional average.

**Figure 67: Directly standardised rate of mortality from land transport accidents. North West local authorities, 2006-08.**

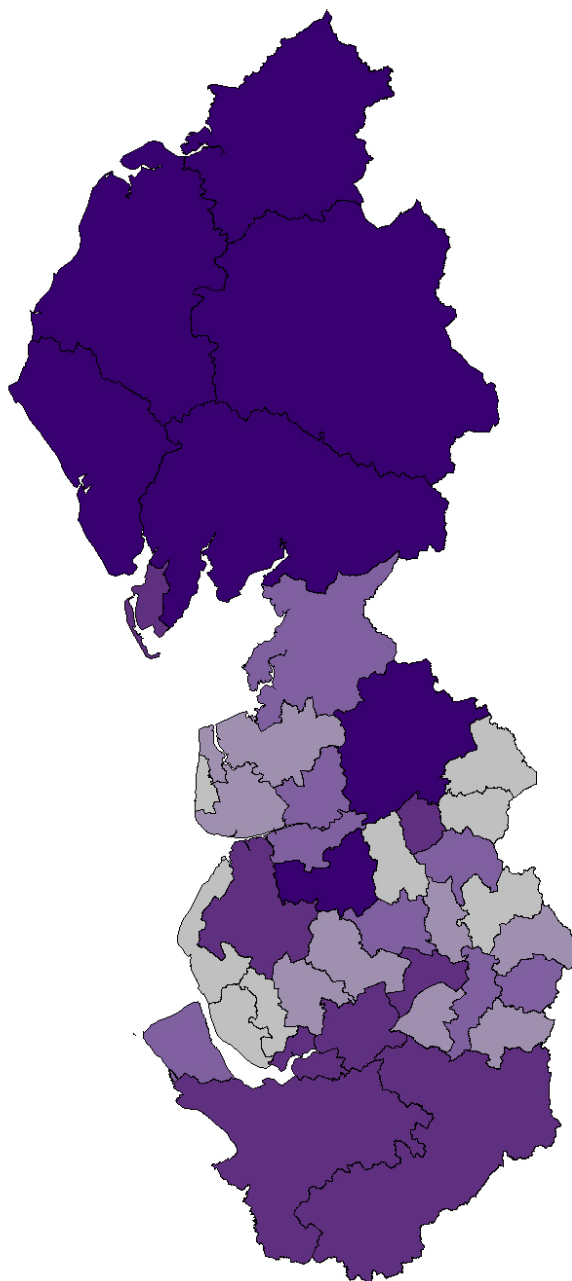
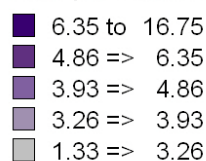


Source: National Statistics via NCHOD.

**Map 10: Directly standardised rate of mortality from land transport accidents. North West local authorities, 2006-08.**

Local authority	Rate
Allerdale	9.25
Barrow-in-Furness	6.02
Blackburn with Darwen	2.32
Blackpool	1.33
Bolton	3.93
Burnley	2.40
Bury	3.91
Carlisle	8.34
Cheshire East	5.90
Cheshire West and Chester	5.95
Chorley	7.69
Copeland	8.49
Eden	16.75
Fylde	3.84
Halton	5.22
Hyndburn	5.16
Knowsley	3.09
Lancaster	4.73
Liverpool	3.12
Manchester	4.82
Oldham	3.26
Pendle	1.51
Preston	3.99
Ribble Valley	6.35
Rochdale	2.79
Rossendale	4.75
Salford	5.50
Sefton	2.61
South Lakeland	9.08
South Ribble	4.54
St Helens	3.59
Stockport	3.35
Tameside	4.31
Trafford	3.84
Warrington	4.86
West Lancashire	5.09
Wigan	3.89
Wirral	4.12
Wyre	3.32
<b>North West</b>	<b>4.34</b>

Rate per 100,000 population



Source: National Statistics via NCHOD.

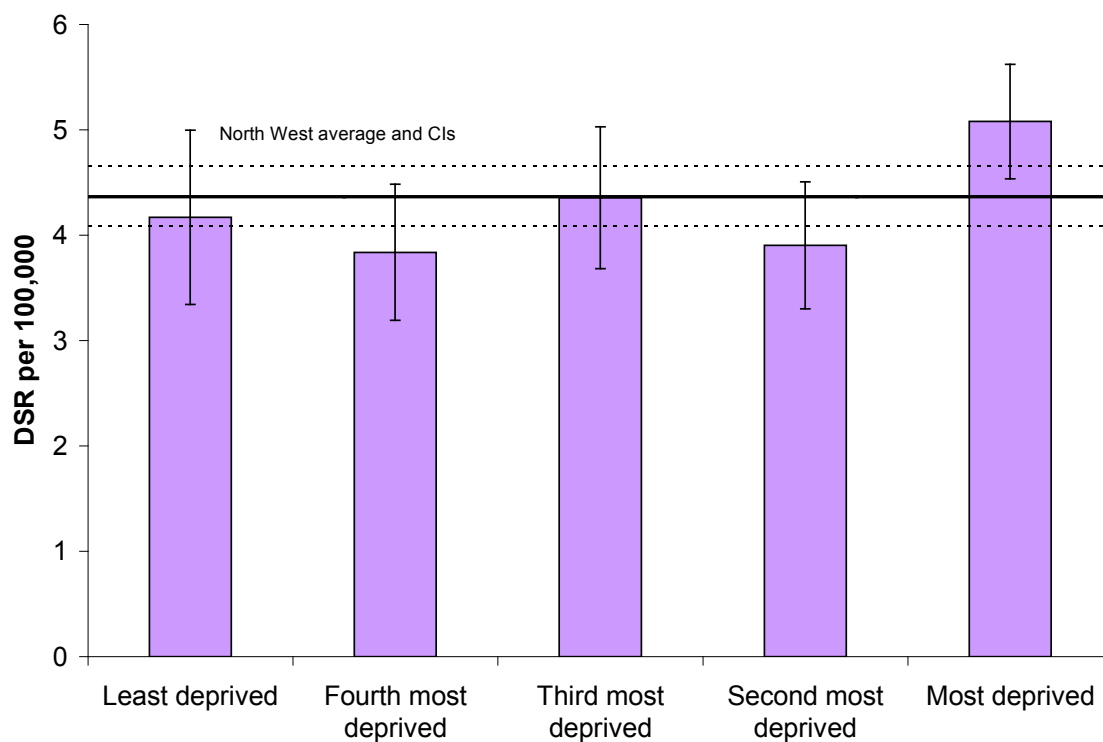
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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

### 9.1.2 By deprivation level

There is relatively little variation in the mortality rate from land transport accidents by deprivation level across the North West (Figure 68). The mortality rate is significantly higher in the most deprived fifth of areas than in the second and fourth most deprived fifth of areas, but no quintile of deprivation has a rate of mortality from land transport accidents significantly above or below the North West average.

**Figure 68: Directly standardised rate of mortality from land transport accidents by Index of Multiple Deprivation 2007 quintile. North West, 2006-08.**

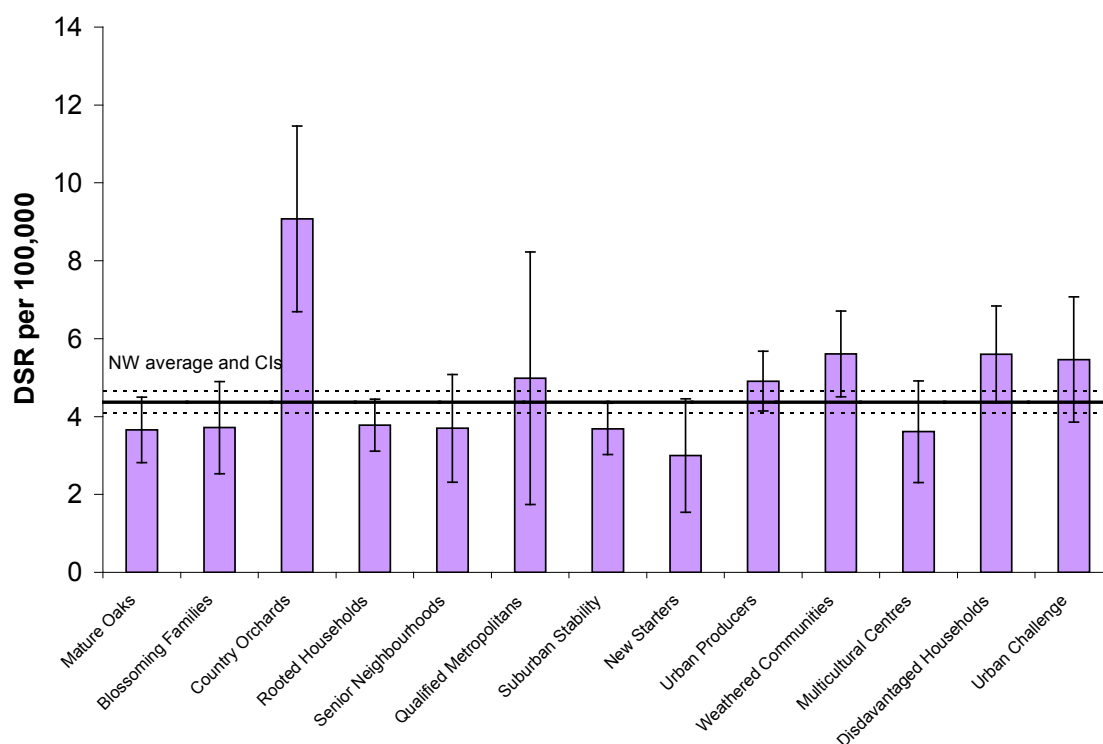


Source: NWPHO from Office for National Statistics mortality datasets and mid-year population estimates.

### 9.1.3 By geodemographic classification

Analysis by P<sup>2</sup> People and Places © classification reveals an exceptionally high rate of mortality from land transport accidents among Country Orchards, who are found solely in rural areas (9.08 per 100,000 population in 2006-08, significantly higher than the North West average) (Figure 69). Many of the region's Country Orchard communities live in Cheshire East and Cheshire West and Chester, and in Cumbria (Eden, South Lakeland, Carlisle and Allerdale). In addition, areas classified as Weathered Communities and Disadvantaged Households had mortality rates significantly above that found among Suburban Stability neighbourhoods.

**Figure 69: Directly standardised rate of mortality from land transport accidents by P<sup>2</sup> People and Places © classification. North West, 2006-08.**



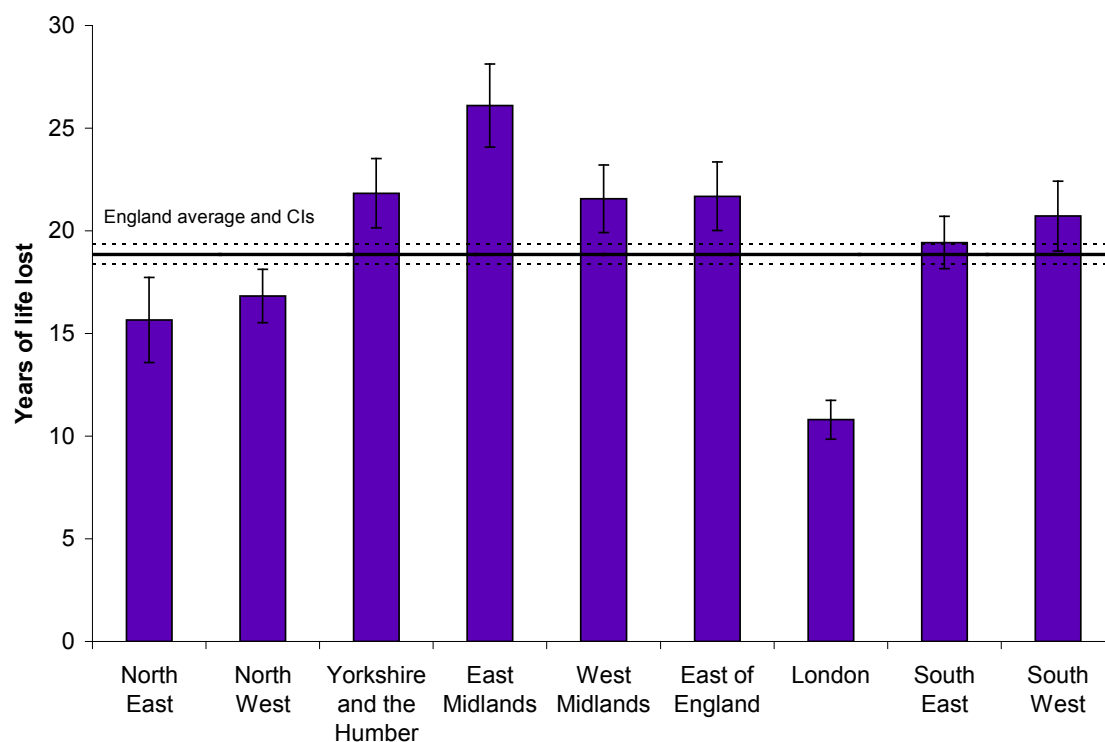
Source: NWPHO from Office for National Statistics mortality datasets and mid-year population estimates.

## 9.2 Years of life lost

Years of life lost represent the contribution of land transport accident deaths to premature death rates, and is defined as the potential number of years which people could have lived if they had not been killed in a land transport accident.

Across the North West, 16.82 years of life are lost per 10,000 population under 75 years due to land transport accidents, 26.76 years for men and 6.71 years for women (2006-08). Overall, the number of years of life lost due to land transport accidents in the North West is significantly below England average, and is the third lowest regional figure in England (Figure 70).

**Figure 70: Years of life lost (directly standardised rate per 10,000 population) due to mortality from land transport accidents. English regions, 2006-08.**

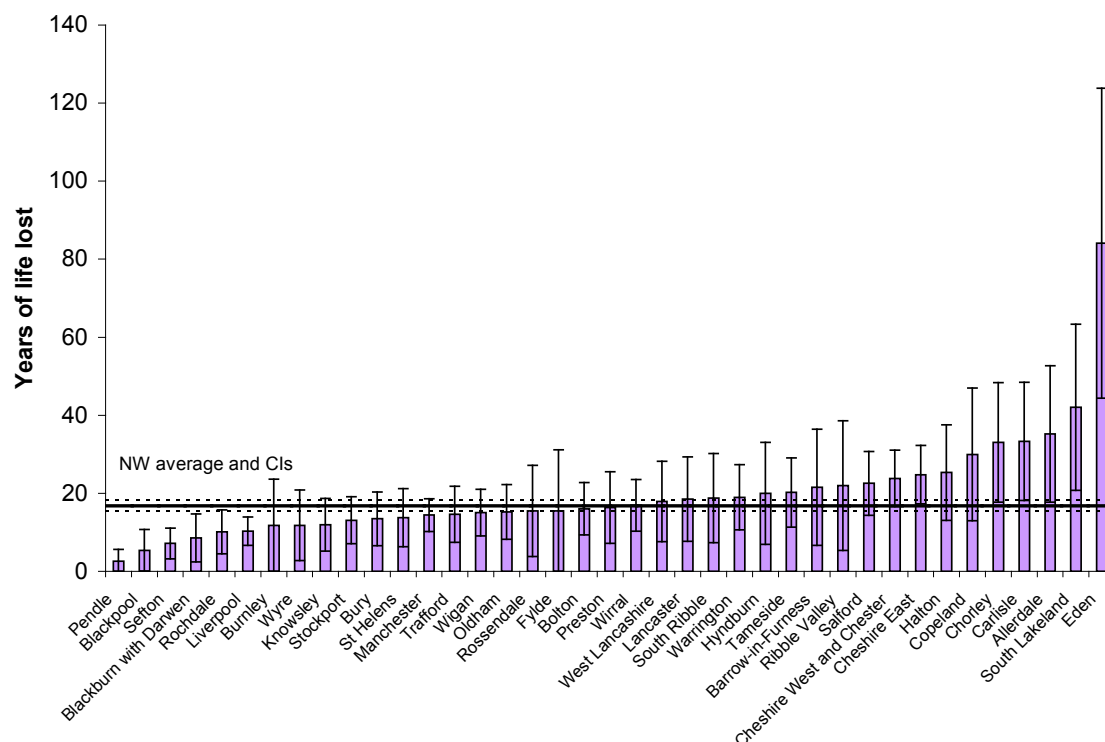


Source: National Statistics via NCHOD.

### 9.2.1 Local data

Within the North West, the number of years of life lost due to land transport accidents ranges from 2.58 years per 10,000 population under 75 years in Pendle to 84.10 years in Eden in 2006-08 (Figure 71, Map 11). However, the associated confidence intervals are large, particularly in Eden, and so care should be taken when interpreting these figures. Even so, the differences are sufficient to identify that the number of years of life lost are significantly higher than the North West average in Eden and South Lakeland and significantly lower than the regional average in Pendle, Blackpool, Blackburn with Darwen, Sefton and Liverpool.

**Figure 71: Years of life lost (directly standardised rate per 10,000 population) due to mortality from land transport accidents. North West local authorities, 2006-08.**

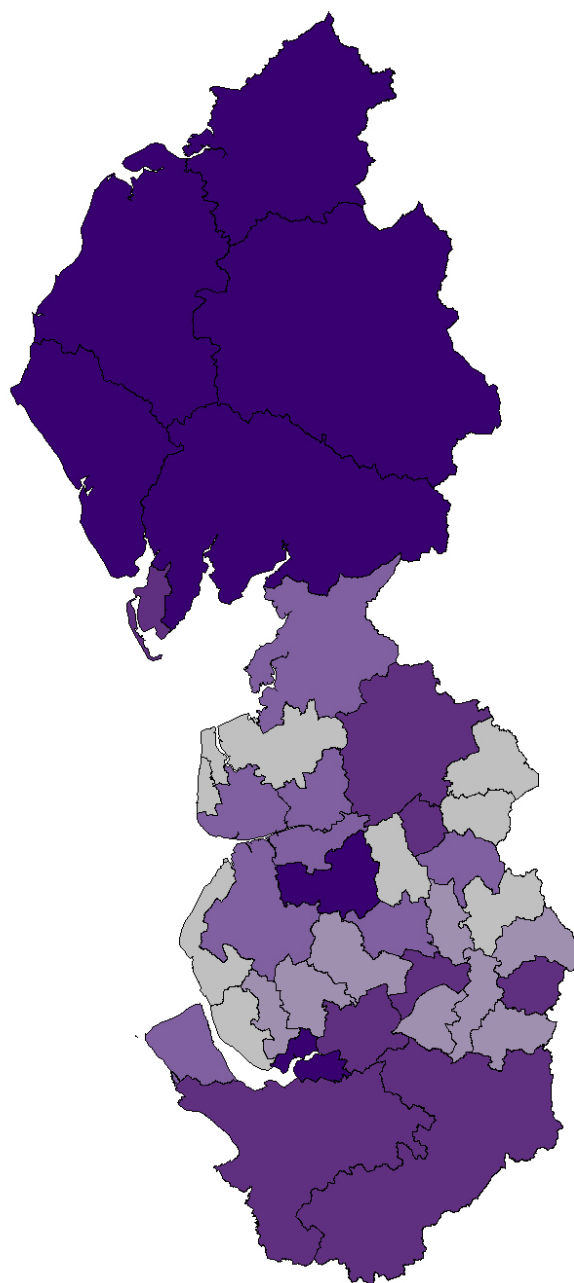
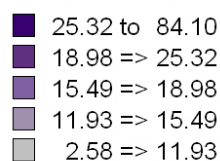


Source: National Statistics via NCHOD.

**Map 11: Years of life lost (directly standardised rate per 10,000 population) due to mortality from land transport accidents. North West local authorities, 2006-08.**

Local authority	Years
Allerdale	35.23
Barrow-in-Furness	21.52
Blackburn with Darwen	8.56
Blackpool	5.39
Bolton	16.05
Burnley	11.81
Bury	13.47
Carlisle	33.30
Cheshire East	24.77
Cheshire West and Chester	23.82
Chorley	33.06
Copeland	29.98
Eden	84.10
Fylde	15.52
Halton	25.32
Hyndburn	19.99
Knowsley	11.93
Lancaster	18.50
Liverpool	10.29
Manchester	14.41
Oldham	15.24
Pendle	2.58
Preston	16.36
Ribble Valley	21.99
Rochdale	10.11
Rossendale	15.49
Salford	22.57
Sefton	7.14
South Lakeland	42.05
South Ribble	18.79
St Helens	13.79
Stockport	13.09
Tameside	20.24
Trafford	14.61
Warrington	18.98
West Lancashire	17.92
Wigan	15.07
Wirral	16.92
Wyre	11.81
<b>North West</b>	<b>16.82</b>

**Years of life lost**



Source: National Statistics via NCHOD.

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Colour coding in the table represents the significance of the local rate compared with the North West average. Red = significantly worse; yellow = no significant difference; green = significantly better.

## **10. Appendices**

### **10.1 Modelling potential for reducing casualties through the adoption of 20 mph zones**

#### **10.1.1 Introduction**

A modelling exercise has been undertaken to estimate the potential for reducing the numbers of casualties on the North West's roads if 20 mph zones were introduced. As previously identified (section 5.4.6), the majority of children who are killed or seriously injured are injured on roads where the speed limit is 30 mph. However, it should be noted that the introduction of 20 mph zones is only one possible intervention to reduce the number of killed or seriously injured child casualties.

This exercise utilised factors presented in a paper in the BMJ,<sup>16</sup> from a study in London on the effect of 20 mph speed zones between 1986 and 2006.

#### **10.1.2 Method**

##### **10.1.2.1 Historic model**

- For each (pre-2009) top tier local authority in the North West, the average annual number of children who were killed or seriously injured (KSI) for 1994-98 was derived (Table 12, column a).
- The percentage of child casualties that were killed or seriously injured on main roads (column b) and the percentage who were injured on residential roads (column c) were estimated from 1996-98 data for each local authority. Main roads were classified as those having a speed limit higher than 30 mph, or were classified as 'A' roads or above or dual carriageways. The remainder were assumed to be residential, and therefore potentially roads that could have 20 mph limits applied.<sup>17</sup>
- The number of casualties as a result of road traffic collisions has improved substantially since 1994-98 (see sections 5.1 and 5.2). Grundy et al. estimated the annual average decline in casualties and collisions (underlying trend) to be 5.2% for children who were killed or seriously injured (outside 20 mph zones). Over ten years, in total this decrease would equate to casualty figures reducing to 58.6% of what they previously were. By applying this decrease to the number of children killed or seriously injured on main roads (average number of children killed or seriously injured in 1994-98 multiplied by the percentage injured on main roads in 1996-98), an estimate for the average number of children killed or seriously injured on main roads in 2004-08 is derived (column d).
- For child casualties in residential areas, the reduction is estimated to be the underlying trend, together with an additional factor (50.2%) due to the positive impact of 20 mph zones. This means that casualty numbers would reduce to 29.2% of what they previously were. This decrease was applied to the number of child casualties in residential areas (average number of children killed or seriously injured in 1994-98 multiplied by the percentage injured on residential roads in 1996-98) to derive an estimate for the average number of children killed or seriously injured on residential roads (column e).
- Both figures for the estimated number of children killed or seriously injured were added together to give a total average for 2004-08 (column f). The actual average annual number of children killed or seriously injured during 2004-08 (column g) is then presented along with

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<sup>16</sup> Grundy et al. (2009). *Effect of 20 mph traffic speed zones on road injuries in London, 1986-2006: controlled interrupted time series analysis*. BMJ 2009;339:b4469doi:10.1136/bmj.b4469.

<sup>17</sup> There were only three child KSIs noted in the North West in the years in question for a speed limit below 30 mph.



the actual rate for this period (column h). The difference between the estimated figures for 2004-08 and the actual numbers for 2004-08 is then shown (a negative number indicating that there would have been a greater reduction in the number of children killed or seriously injured had 20 mph zones been introduced) (column i). A percentage figure for this difference was also calculated (column j).

- A similar exercise was repeated for pedestrians of all ages who were killed or seriously injured (Table 13) and for pedal cyclists of all ages who were killed or seriously injured (Table 14). For pedestrians, the ten year underlying trend (applied to casualties on main roads) was a reduction to 56.8% and trend for those injured in residential areas was a reduction to 37.0% of previous numbers of casualties. For pedal cyclists, the ten year underlying trend was a reduction to 73.0% and the trend for those injured in residential areas was a reduction to 45.5%. The numbers involved restricted the presentation of geographies to former county areas.

#### **10.1.2.2 Forward model**

- A forward model was also created to estimate numbers of casualties between 2008 and 2010 by using some of the same principles as the historic model. For killed or seriously injured child casualties, the actual number of children who were killed or seriously injured in 2008 in each local authority was listed, split by the proportion injured on main roads, residential roads with a speed limit of 30 mph and residential roads with a speed limit of 20 mph (Table 15, columns a), b) and c), with the total figure shown in column d) and rate per 100,000 given in column e)).
- The improvement factors presented in the BMJ paper<sup>16</sup> were applied to the 2008 data to project it forward to 2010. The annual underlying decrease of 5.2% equated to decrease by 2010 to 89.9% of what the 2008 figures were (for main roads and residential roads that already have a 20 mph limit, shown in column f)). The reduction for casualties in residential roads was to 44.8% of 2010 figures (that is, the reduction to 89.9%, together with the additional reduction that would occur as a result of the introduction of 20 mph zones, shown in column g)). These figures were added together to give a total estimate for killed or seriously injured child casualties (column h)).
- The total potential gain that could be attributed to the introduction of 20 mph zones is then calculated (column i) for numbers and column j) for percentages).
- The exercise was repeated for pedestrians of all ages (Table 16) and for cyclists of all ages (Table 17).

#### **10.1.3 Conclusions**

- The model indicates that an average of 140 killed or seriously injured child casualties could have been prevented across the region each year (based on 2004-08 averages) if all residential areas (other than main roads) had been designated as 20 mph zones: an improvement of 26% on actual figures.
- Counterpart additional reductions might have been expected of 26% in the number of pedestrians of all ages killed or seriously injured and of 14% in the number of cyclists of all ages killed or seriously injured.
- Taking 2008 counts as a base, it is suggested that by 2010, introduction of 20 mph zones in all residential neighbourhoods could have reduced the number of children killed or seriously injured by 31% above the improvement achieved as underlying trend, with the corresponding decreases for the number of pedestrians of all ages killed or seriously injured

being 17%, and the number of pedal cyclists of all ages killed or seriously injured being 18%.

**Table 12: Modelling the impact of 20 mph zones: historic model for children killed or seriously injured.**

	a)	b)	c)	d)	e)	f)	g)	h)	i)	j)
	Children KSI (average 1994-98)	% children KSI injured on main roads (average 1996-98)	% children KSI injured on residential roads (average 1996-98)	Estimate of children KSI on main roads (average 2004-08)	Estimate of children KSI on residential roads (average 2004-08)	Total estimate of children KSI (average 2004-08)	Actual children KSI (average 2004-08)	Rate of children KSI per 100,000 (average 2004-08)	Difference between estimate and actual (no.s)	Difference between estimate and actual (%)
Blackburn with Darwen	37	23	77	5	8	13	17	49	-4	-21%
Blackpool	37	21	79	4	9	13	13	52	0	-3%
Bolton	36	29	71	6	7	14	20	36	-6	-32%
Bury	15	37	63	3	3	6	10	27	-4	-40%
Cheshire	81	46	54	22	13	35	43	33	-8	-19%
Cumbria	69	55	45	22	9	31	31	36	0	1%
Halton	33	40	60	8	6	14	10	43	3	30%
Knowsley	29	28	72	5	6	11	12	38	-1	-8%
Lancashire	200	38	62	45	36	81	121	55	-40	-33%
Liverpool	89	34	66	18	17	35	48	63	-13	-27%
Manchester	71	25	75	10	16	26	36	43	-10	-28%
Oldham	29	29	71	5	6	11	21	43	-10	-48%
Rochdale	28	38	62	6	5	11	14	32	-3	-19%
Salford	25	41	59	6	4	10	12	30	-2	-14%
Sefton	24	43	57	6	4	10	16	32	-6	-36%
St Helens	20	49	51	6	3	9	10	30	-1	-14%
Stockport	16	39	61	4	3	6	10	19	-4	-35%
Tameside	31	29	71	5	6	12	18	43	-6	-35%
Trafford	18	28	72	3	4	7	10	24	-3	-33%
Warrington	24	29	71	4	5	9	15	41	-6	-41%
Wigan	37	42	58	9	6	15	20	34	-5	-23%
Wirral	38	33	67	7	7	15	27	45	-12	-45%
<b>North West</b>	<b>984</b>	<b>36</b>	<b>64</b>	<b>209</b>	<b>183</b>	<b>392</b>	<b>532</b>	<b>41</b>	<b>-140</b>	<b>-26%</b>

Note: Figures for the North West may not sum due to rounding.

**Table 13: Modelling the impact of 20 mph zones: historic model for all pedestrians killed or seriously injured.**

	a)	b)	c)	d)	e)	f)	g)	h)	i)	j)
	Pedestrians KSI (average 1994-98)	% pedestrians KSI injured on main roads (average 1996-98)	% pedestrians KSI injured on residential roads (average 1996-98)	Estimate of pedestrians KSI on main roads (average 2004-08)	Estimate of pedestrians KSI on residential roads (average 2004-08)	Total estimate of pedestrians KSI (average 2004-08)	Actual pedestrians KSI (average 2004-08)	Rate of pedestrians KSI per 100,000 (average 2004-08)	Difference between estimate and actual (no.s)	Difference between estimate and actual (%)
Cheshire	180	42	58	43	38	82	116	12	-34	-30%
Cumbria	92	54	46	28	16	44	49	10	-5	-11%
Greater Manchester	587	50	50	165	109	275	382	15	-108	-28%
Lancashire	411	40	60	94	91	185	241	17	-56	-23%
Merseyside	351	50	50	99	66	164	220	16	-56	-25%
<b>North West</b>	<b>1,621</b>	<b>47</b>	<b>53</b>	<b>429</b>	<b>320</b>	<b>749</b>	<b>1,008</b>	<b>15</b>	<b>-259</b>	<b>-26%</b>

Note: Figures for the North West may not sum due to rounding.

**Table 14: Modelling the impact of 20 mph zones: historic model for all pedal cyclists killed or seriously injured.**

	a)	b)	c)	d)	e)	f)	g)	h)	i)	j)
	Cyclists KSI (average 1994-98)	% cyclists KSI injured on main roads (average 1996-98)	% cyclists KSI injured on residential roads (average 1996-98)	Estimate of cyclists KSI on main roads (average 2004-08)	Estimate of cyclists KSI on residential roads (average 2004-08)	Total estimate of cyclists KSI (average 2004-08)	Actual cyclists KSI (average 2004-08)	Rate of cyclists KSI per 100,000 (average 2004-08)	Difference between estimate and actual (no.s)	Difference between estimate and actual (%)
Cheshire	89	53	47	34	19	53	59	6	-5	-9%
Cumbria	36	65	35	17	6	23	19	4	4	20%
Greater Manchester	108	44	56	35	28	62	86	3	-24	-28%
Lancashire	133	45	55	44	33	77	87	6	-10	-11%
Merseyside	75	41	59	22	20	43	51	4	-8	-16%
<b>North West</b>	<b>441</b>	<b>47</b>	<b>53</b>	<b>152</b>	<b>106</b>	<b>258</b>	<b>301</b>	<b>4</b>	<b>-43</b>	<b>-14%</b>

Note: Figures for the North West may not sum due to rounding.

**Table 15: Modelling the impact of 20 mph zones: forward model for children killed or seriously injured.**

	a)	b)	c)	d)	e)	f)	g)	h)	i)	j)
	Children KSI - injured on main roads (2008)	Children KSI - injured on residential roads with 30 mph limits (2008)	Children KSI - injured on residential roads with 20 mph limits (2008)	Total children KSI (2008)	Rate per 100,000 (2008)	Projection to 2010 (outside 20 mph limits)	Projection to 2010 (within 20 mph limits)	Total 2010	Potential gain	Potential gain (%)
Blackburn with Darwen	5	8	2	15	44	6	4	10	-4	-27%
Blackpool	4	5	0	9	35	4	2	6	-2	-28%
Bolton	6	11	0	17	31	5	5	10	-5	-32%
Bury	1	5	0	6	16	1	2	3	-2	-42%
Cheshire	24	22	0	46	36	22	10	31	-10	-24%
Cumbria	10	12	0	22	25	9	5	14	-5	-27%
Halton	1	10	0	11	45	1	4	5	-5	-46%
Knowsley	0	8	0	8	26	0	4	4	-4	-50%
Lancashire	44	60	3	107	49	42	27	69	-27	-28%
Liverpool	12	18	1	31	41	12	8	20	-8	-29%
Manchester	8	20	0	28	34	7	9	16	-9	-36%
Oldham	5	8	0	13	27	4	4	8	-4	-31%
Rochdale	7	5	0	12	28	6	2	9	-2	-21%
Salford	4	9	0	13	32	4	4	8	-4	-35%
Sefton	6	11	0	17	34	5	5	10	-5	-32%
St Helens	2	9	0	11	32	2	4	6	-4	-41%
Stockport	4	6	0	10	19	4	3	6	-3	-30%
Tameside	5	11	0	16	38	4	5	9	-5	-34%
Trafford	6	2	0	8	19	5	1	6	-1	-13%
Warrington	7	12	0	19	50	6	5	12	-5	-32%
Wigan	6	9	1	16	27	6	4	10	-4	-28%
Wirral	2	12	0	14	24	2	5	7	-5	-43%
<b>North West</b>	<b>169</b>	<b>273</b>	<b>7</b>	<b>449</b>	<b>34</b>	<b>158</b>	<b>122</b>	<b>281</b>	<b>-123</b>	<b>-31%</b>

Note: Figures for the North West may not sum due to rounding.

**Table 16: Modelling the impact of 20 mph zones: forward model for all pedestrians killed or seriously injured.**

	a)	b)	c)	d)	e)	f)	g)	h)	i)	j)
	Pedestrians KSI - injured on main roads (2008)	Pedestrians KSI - injured on residential roads with 30 mph limits (2008)	Pedestrians KSI - injured on residential roads with 20 mph limits (2008)	Total pedestrians KSI (2008)	Rate per 100,000 (2008)	Projection to 2010 (outside 20 mph limits)	Projection to 2010 (within 20 mph limits)	Total 2010	Potential gain	Potential gain (%)
Cheshire	13	18	0	31	6	12	10	22	-6	-18%
Cumbria	45	75	2	122	12	42	44	86	-23	-19%
Greater Manchester	83	86	6	175	13	79	50	130	-27	-15%
Lancashire	90	147	5	242	17	85	86	170	-46	-19%
Merseyside	169	173	4	346	13	154	101	255	-54	-16%
<b>North West</b>	<b>400</b>	<b>499</b>	<b>17</b>	<b>916</b>	<b>13</b>	<b>372</b>	<b>290</b>	<b>663</b>	<b>-155</b>	<b>-17%</b>

Note: Figures for the North West may not sum due to rounding.

**Table 17: Modelling the impact of 20 mph zones: forward model for all cyclists killed or seriously injured.**

	a)	b)	c)	d)	e)	f)	g)	h)	i)	j)
	Cyclists KSI - injured on main roads (2008)	Cyclists KSI - injured on residential roads with 30 mph limits (2008)	Cyclists KSI - injured on residential roads with 20 mph limits (2008)	Total cyclists KSI (2008)	Rate per 100,000 (2008)	Projection to 2010 (outside 20 mph limits)	Projection to 2010 (within 20 mph limits)	Total 2010	Potential gain	Potential gain (%)
Cheshire	36	34	0	70	14	34	20	54	-12	-17%
Cumbria	5	6	2	13	1	7	4	10	-2	-16%
Greater Manchester	53	37	2	92	7	52	22	73	-13	-14%
Lancashire	41	51	0	92	6	38	30	68	-18	-20%
Merseyside	15	30	2	47	2	16	18	34	-11	-23%
<b>North West</b>	<b>150</b>	<b>158</b>	<b>6</b>	<b>314</b>	<b>5</b>	<b>146</b>	<b>93</b>	<b>239</b>	<b>-56</b>	<b>-18%</b>

Note: Figures for the North West may not sum due to rounding.



## 10.2 Glossary and definitions

### 10.2.1 Measures and rates

#### Crude rate

A crude rate is a rate that applies to the population as a whole, and that has not been adjusted to account for differences in population structures such as age and sex. It is calculated using this formula: *Crude rate = Number of events / Total number of people in a population*

#### Directly standardised rate

Directly standardised rates give an indication of the number of events that would occur in a standard population, if the population had the same age-specific rates of the local area. The standard population that is used within this report is the European Standard population. The rates are calculated per 100,000 and because rates are applied to the same population, rates across areas can be compared.

### 10.2.2 STATS19

'Fatal' injury includes only those cases where death occurs in less than 30 days as a result of the collision. 'Fatal' does not include death from **natural causes or suicide**.

#### Examples of 'serious' injury are:

Fracture  
Internal injury  
Severe cuts  
Crushing  
Burns (excluding friction burns)  
Concussion  
Severe general shock requiring hospital treatment  
Detention in hospital as an in-patient, either immediately or later  
Injuries to casualties who die 30 or more days after the collision from injuries sustained in that collision.

#### Examples of 'slight' injury are:

Sprains, not necessarily requiring medical treatment  
Neck whiplash injury  
Bruises  
Slight cuts  
Slight shock requiring roadside attention.  
(Persons who are merely shaken and who have no other injury should not be included unless they receive or appear to need medical treatment).

### 10.2.3 P<sup>2</sup> People and Places ©: brief descriptions of classifications

For fuller definitions, please see the full brochure available at [www.beacondodsworth.co.uk/uploads/files/p2-brochure.pdf](http://www.beacondodsworth.co.uk/uploads/files/p2-brochure.pdf)

#### Mature Oaks

Comprising wealthy, older people in management and professional occupations, living in large detached houses, with two or more cars, shopping at Sainsbury's and reading broadsheets.

#### Blossoming Families

Generally well qualified, and well paid, young professional families with infants buying their detached houses, tending to work for utility companies, mostly with two cars, reading black top newspapers and shopping at Sainsbury's and Tesco.

**Country Orchards**

Predominantly well-educated, high income, often self-employed, agricultural workers in rural areas, with at least two cars, reading broadsheets and shopping at Tesco.

**Rooted Households**

Largely an older group of skilled manual, often manufacturing workers, with quite high incomes and two cars, buying their semi-detached houses, reading black top newspapers and shopping at Tesco.

**Senior Neighbourhoods**

Mostly retired, quite affluent adults living in their owner occupied detached houses, quite likely to own a second home, reading broadsheets and shopping at a wide variety of supermarkets.

**Qualified Metropolitans**

Largely highly qualified professional young commuters living in small single households concentrated in city centres, with little need for a car, reading broadsheet newspapers and shopping at Sainsbury's.

**Suburban Stability**

Unqualified adults, of varying ages, working in routine or skilled manual jobs, living in semi-detached and terraced housing, with one car, some are smokers, reading red top newspapers and mainly shopping at Asda.

**New Starters**

Mainly students and highly qualified, but low income young adults living in mostly private rented single or cohabiting bedsits or flats, with no car, reading broadsheets and shopping at Aldi and Lidl.

**Urban Producers**

Many lone parent, low income families, living in terraced council housing, with few qualifications and working in routine, unskilled, semi-skilled or skilled jobs in manufacturing, reading tabloids, very likely to smoke and shopping at Asda.

**Weathered Communities**

Mostly adults past retirement age who often smoke, living in council or housing association homes, with high levels of unemployment, reading tabloids, rarely with a car, shopping at Asda, Aldi and Lidl.

**Multicultural Centres**

Usually low income, large families mainly originating from India, Pakistan, Bangladesh and Africa living in terraces with high rates of long-term unemployment, reading tabloids and shopping by affluence in Aldi and Lidl on the one hand, but also Sainsbury's.

**Disadvantaged Households**

Low income, poorly qualified, usually unemployed, young families or lone parent smokers, living in council or housing association homes, with no car, reading tabloids and shopping at Asda.

**Urban Challenge**

Most elderly, often retired, low income smokers, with high levels of unemployment, living in small council or housing association homes, reading tabloids and shopping at Asda.

## 10.3 Summary tables

**Table 18: Summary of local level measures for road traffic collisions and casualties.**

	Road traffic casualties (DSR)	Killed or seriously injured casualties (DSR)	Pedestrian casualties (DSR)	Road traffic collisions (crude rate)	Child road traffic casualties (crude rate)	Killed or seriously injured child casualties (crude rate)	Ambulance call outs (crude rate)	Hospital admission (DSR)	Hospital admission for children (crude rate)	Mortality from land transport accidents (DSR)	Years of life lost from land transport accidents
Allerdale	552.98	76.11	51.83	328.01	328.68	35.86	348.96	148.18	169.32	9.25	35.23
Barrow-in-Furness	348.11	28.44	52.43	256.80	267.77	12.28	230.78	104.76	144.94	6.02	21.52
Blackburn with Darwen	499.64	49.87	79.66	352.44	327.64	47.78	367.13	96.76	145.29	2.32	8.56
Blackpool	501.68	56.49	101.03	351.18	379.86	55.00	397.35	113.67	118.95	1.33	5.39
Bolton	464.25	34.74	83.69	330.53	300.74	29.83	332.55	104.92	150.98	3.93	16.05
Burnley	570.82	70.00	79.85	370.35	352.69	68.68	367.13	115.10	176.34	2.40	11.81
Bury	437.17	31.14	59.35	297.24	268.32	22.51	305.49	95.29	117.05	3.91	13.47
Carlisle	440.94	42.04	56.32	304.28	273.76	18.50	308.38	129.66	172.03	8.34	33.30
Cheshire East	529.55	80.54	37.32	342.90	219.16	33.95	390.68	152.89	147.27	5.90	24.77
Cheshire West and Chester	513.07	73.85	37.67	350.56	231.12	26.96	343.36	132.53	133.72	5.95	23.82
Chorley	554.42	89.17	38.89	323.11	279.07	38.13	388.56	127.97	162.93	7.69	33.06
Copeland	438.41	58.26	56.51	304.64	249.15	29.16	261.01	135.23	143.13	8.49	29.98
Eden	793.09	121.40	44.20	465.09	297.57	30.13	558.99	133.89	113.00	16.75	84.10
Fylde	586.50	71.33	39.58	339.91	278.76	16.56	336.49	90.46	91.08	3.84	15.52
Halton	435.33	42.88	41.04	299.04	267.74	35.70	252.60	144.03	152.41	5.22	25.32
Hyndburn	470.53	58.42	78.43	326.60	362.61	78.91	320.07	117.20	169.09	5.16	19.99
Knowsley	400.61	36.80	44.02	260.03	233.14	31.30	292.99	156.22	197.52	3.09	11.93
Lancaster	477.80	79.83	50.44	331.67	299.47	49.91	348.81	108.30	112.30	4.73	18.50
Liverpool	541.15	45.47	89.23	359.30	371.00	49.32	347.30	144.81	208.20	3.12	10.29
Manchester	553.09	44.27	102.68	407.99	353.15	38.79	410.67	110.44	150.38	4.82	14.41
Oldham	436.04	34.44	76.68	291.30	316.00	36.94	294.27	116.45	151.84	3.26	15.24
Pendle	450.35	54.53	70.32	298.58	334.87	66.26	264.37	125.91	173.70	1.51	2.58
Preston	751.08	85.37	106.28	541.82	435.46	70.62	478.25	132.29	167.38	3.99	16.36
Ribble Valley	510.39	94.79	31.50	305.41	177.30	24.46	327.67	121.76	155.91	6.35	21.99
Rochdale	420.84	36.31	67.07	291.31	246.98	23.63	309.67	103.28	125.01	2.79	10.11
Rossendale	520.15	68.21	53.89	336.31	261.43	58.10	310.03	143.22	154.92	4.75	15.49
Salford	433.31	41.67	66.82	310.88	272.99	31.97	368.45	118.80	140.19	5.50	22.57
Sefton	379.98	35.28	45.06	242.41	254.67	28.59	260.38	121.38	142.30	2.61	7.14
South Lakeland	662.04	98.16	47.44	391.65	276.52	29.01	420.78	136.14	137.29	9.08	42.05
South Ribble	627.77	78.87	44.53	393.71	330.14	59.26	317.94	141.89	162.53	4.54	18.79
St Helens	418.24	36.95	46.09	270.76	242.21	22.55	271.34	148.37	175.53	3.59	13.79
Stockport	342.26	28.27	52.25	246.03	187.70	17.64	237.50	115.92	127.23	3.35	13.09
Tameside	344.91	32.24	62.04	244.93	247.69	36.40	270.71	121.33	158.27	4.31	20.24
Trafford	365.66	30.06	43.08	248.80	197.12	23.14	285.86	94.78	100.55	3.84	14.61
Warrington	563.55	57.43	50.34	396.42	266.72	36.85	326.21	145.91	131.60	4.86	18.98
West Lancashire	594.56	100.48	37.53	348.29	301.49	52.64	340.12	139.36	154.73	5.09	17.92
Wigan	364.84	32.76	61.99	257.55	252.40	26.78	261.32	121.58	150.41	3.89	15.07
Wirral	396.31	51.47	48.84	252.13	234.45	39.17	263.15	121.53	133.17	4.12	16.92
Wyre	456.21	59.62	47.77	294.15	350.00	57.44	281.64	113.01	129.23	3.32	11.81
Cheshire and Merseyside	472.08	53.25	51.84	314.69	262.77	35.03	316.38	138.81	146.63		
Cumbria	521.47	66.76	51.84	337.18	282.80	25.67	348.01	131.38	156.35		
Lancashire	540.41	71.33	65.24	356.65	329.36	54.67	352.86	119.31	148.69		
Greater Manchester	420.55	34.90	70.59	301.88	271.07	29.46	314.72	109.97	148.07		
<b>North West</b>	<b>469.36</b>	<b>50.89</b>	<b>61.84</b>	<b>320.40</b>	<b>281.48</b>	<b>36.45</b>	<b>325.75</b>	<b>123.05</b>	<b>148.18</b>	<b>4.34</b>	<b>16.82</b>

**Table 19: Summary of local level measures for road traffic collisions and casualties (average numbers per year).**

	All casualties	Killed or seriously injured casualties	Pedestrian casualties	Road traffic collisions	All child casualties	Killed or seriously injured child casualties	Ambulance call outs	Hospital admission – all ages	Hospital admission - children	Deaths
Allerdale	466	65	46	310	55	6	330	125	28	9
Barrow-in-Furness	237	21	35	184	36	2	166	72	20	5
Blackburn with Darwen	705	71	115	497	112	16	517	139	50	3
Blackpool	676	77	135	500	99	14	565	155	31	2
Bolton	1,182	90	214	868	165	16	873	270	83	11
Burnley	490	60	67	324	63	12	321	99	32	2
Bury	770	57	104	544	99	8	560	172	43	7
Carlisle	428	42	53	315	49	3	320	125	31	9
Cheshire East	1,778	275	131	1,236	146	23	1,411	526	98	20
Cheshire West and Chester	1,625	238	118	1,150	140	16	1,128	419	81	20
Chorley	551	88	38	337	54	7	406	127	31	8
Copeland	291	40	38	214	31	4	184	90	18	6
Eden	351	57	21	241	26	3	290	60	10	7
Fylde	399	52	28	259	34	2	257	66	11	3
Halton	519	51	48	358	65	9	302	171	37	6
Hyndburn	375	48	64	268	64	14	262	95	30	4
Knowsley	593	56	66	393	72	10	442	236	61	5
Lancaster	697	116	71	476	72	12	501	157	27	7
Liverpool	2,404	201	382	1,565	283	38	1,511	626	159	14
Manchester	2,638	212	463	1,869	294	32	1,898	512	125	23
Oldham	933	74	167	640	154	18	646	254	74	7
Pendle	393	48	61	269	62	12	238	110	32	2
Preston	1,019	117	141	715	111	18	631	176	43	6
Ribble Valley	268	51	19	178	19	3	191	67	17	4
Rochdale	850	74	136	601	108	10	639	212	55	6
Rossendale	334	44	36	225	36	8	208	95	21	3
Salford	961	92	138	682	111	13	813	262	57	13
Sefton	991	96	120	670	128	14	717	330	71	9
South Lakeland	587	88	46	410	48	5	440	132	24	8
South Ribble	634	81	44	420	65	12	340	145	32	5
St Helens	715	64	77	481	82	8	482	253	60	7
Stockport	912	79	143	691	99	9	667	320	67	10
Tameside	720	66	127	526	104	15	582	254	67	9
Trafford	746	61	88	529	82	10	608	201	42	9
Warrington	1,072	109	97	774	101	14	639	283	50	10
West Lancashire	617	106	40	382	63	11	373	146	32	6
Wigan	1,080	97	180	788	148	16	801	363	88	12
Wirral	1,165	156	148	782	140	23	815	375	79	14
Wyre	469	64	51	326	65	11	312	120	24	4
Cheshire and Merseyside	10,862	1,246	1,187	7,409	1,157	155	7,447	3,219	696	105
Cumbria	2,360	313	239	1,674	245	23	1,730	604	131	44
Lancashire	7,627	1,023	910	5,176	919	152	5,122	1,697	413	59
Greater Manchester	10,792	902	1,760	7,738	1,364	147	8,087	2,820	701	107
<b>North West</b>	<b>31,642</b>	<b>3,485</b>	<b>4,096</b>	<b>21,994</b>	<b>3,688</b>	<b>478</b>	<b>22,385</b>	<b>8,342</b>	<b>1,942</b>	<b>316</b>

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# ROAD TRAFFIC COLLISIONS AND CASUALTIES IN THE NORTH WEST OF ENGLAND



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