

NORTH EAST Regional Road Safety Resource

Project Report: 21

Cleveland Overview

**Produced May 2010
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Introduction

This report has been produced by the NE Regional Road Safety Resource as an overview of road traffic collisions in the area policed by the Cleveland authority. The area of Cleveland consists of 4 local authorities – Hartlepool Borough Council, Middlesbrough Council, Stockton-on-Tees Borough Council, and Redcar & Cleveland Borough Council.

The data used to produce this report is based on the project database of Stats 19 provided by Cleveland, Durham, and Northumbria police forces. This data, and analysis, will hopefully provide the basis for much of the road safety education, training and publicity (ETP) activity in the area in future years.

Casualty Reduction Targets 2010

In 2000, the Department for Transport (DfT) set casualty reduction targets for all local authorities in the country. These targets are to be achieved by the end of 2010 and they are based upon a baseline period of 1994-98. The main targets set by DfT are:

- A 40% reduction in the number of people killed or seriously injured (KSI) in road accidents.
- A 50% reduction in the number of children killed or seriously injured (KSI) in road accidents.
- A 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres.

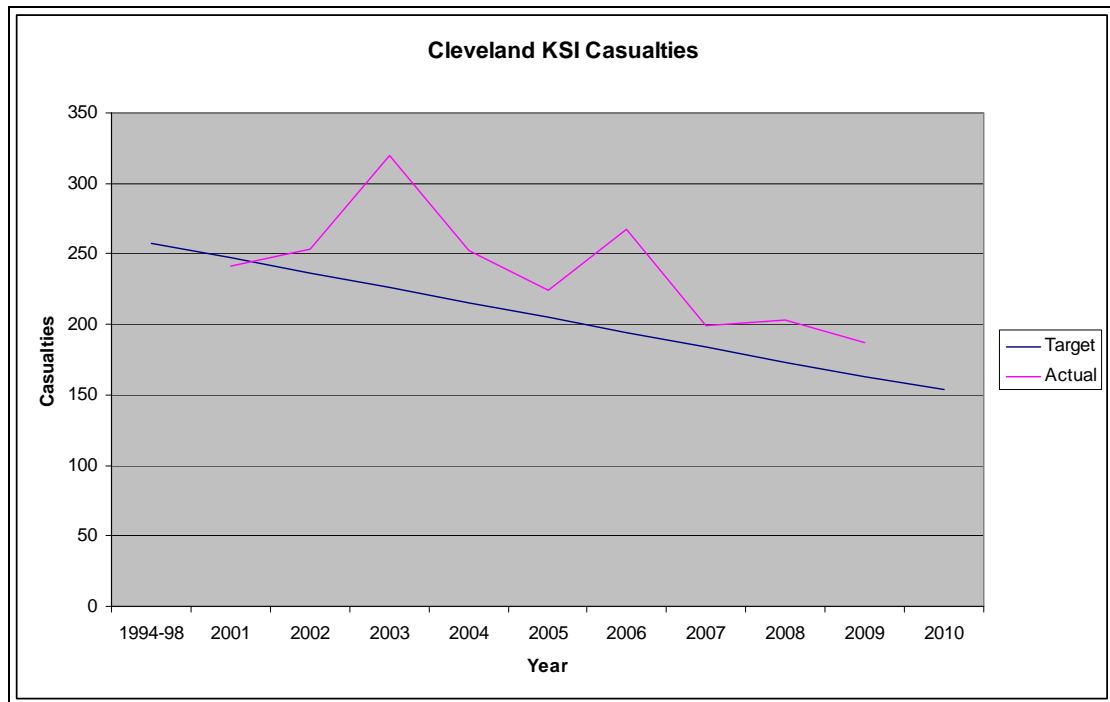
All local authorities monitor their casualty reduction figures against these targets year on year with the ultimate aim to have achieved each of these reduction levels by the end of 2010 at the latest. Although the Cleveland police area is not a single local authority area these casualty reduction targets still apply since it consists of four local authorities that are accountable to them.

KSI Casualty Reduction

Figure 1 shows the levels of KSI casualties over the past nine years compared to the 1994-98 average baseline. Cleveland is showing a positive reduction in KSI casualties. At the end of 2009 a reduction of around 27% had been achieved compared to the baseline period.

However, whilst Cleveland has made a positive reduction in KSI casualties this reduction is not at a level needed to meet the 2010 target of 40%. With only 1 year of data still remaining, based on the current trend, it is unlikely that Cleveland will meet the required KSI casualty reduction level.

Figure 1: KSI Casualty Levels (Baseline to 2009)



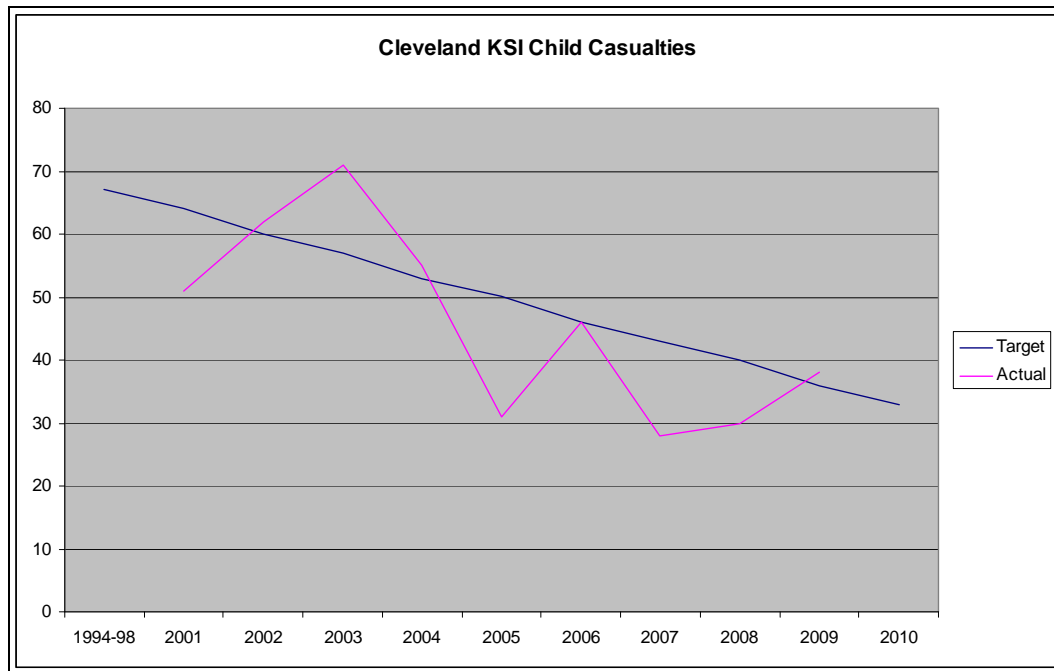
KSI Child Casualties

Figure 2 shows the level of KSI child casualties over the past nine years compared to the DfT reduction target. Cleveland is showing a positive reduction in KSI child casualties. At the end of 2009 a reduction of around 43% had been achieved compared to the baseline period.

However, whilst Cleveland has made a positive reduction in KSI child casualties this reduction is not at a level needed to meet the 2010 target of 50%. With only 1 year of data still remaining, based on the current trend, it is uncertain whether Cleveland will meet the required KSI child casualty reduction level. The casualty numbers, in statistical terms, are very low and susceptible to fluctuations either way. Targeted ETP campaigning will be essential if this reduction target is to be met in Cleveland.

Please note a 'child' casualty is one aged under 16 years old.

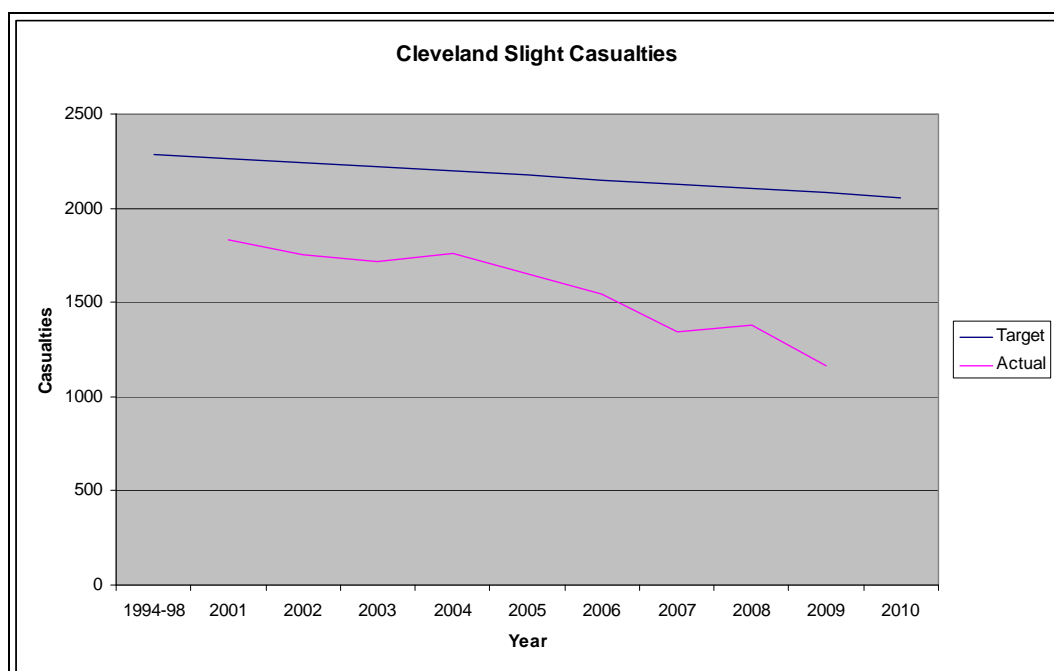
Figure 2: KSI Child Casualty Levels (Baseline to 2009)



Slight Casualty Reduction

Figure 3 shows the levels of slight casualties over the past nine years compared to the 1994-98 baseline average. Cleveland is showing a positive reduction in slight casualties. At the end of 2009 a reduction of around 49% had been achieved compared to the baseline period. This is excellent progress as the 2010 target has been achieved. It is important that work continues in the remaining year to further exceed the DfT target.

Figure 3: Slight Casualty Levels (Baseline to 2009)



Profile of All Cleveland Casualties (2007-09)

Casualty Age

Figure 4 and Figure 5 shows the breakdown of Cleveland casualties (both KSI and slight) by age.

Almost a quarter of all casualties are aged between 17-24 years old. This group is often labelled the 'Young Driver' group and highlighted as a significant problem in many areas around the country. In the Cleveland area this age group accounts for about 9% of driver licence holdings and fewer than 14% of the total population meaning there is a definite over representation in the casualty data.

Another significant feature of the casualty age breakdown is within the 60+ age range. The data shows that this group features more heavily in the KSI data as opposed to the slight. Therefore there is an increased chance that a KSI casualty will be aged 60+ compared to a slight casualty. This is probably unsurprising as elderly people tend to be more susceptible to serious injury and have longer recovery time frames.

Figure 4: KSI Casualties by Age (2007-09)

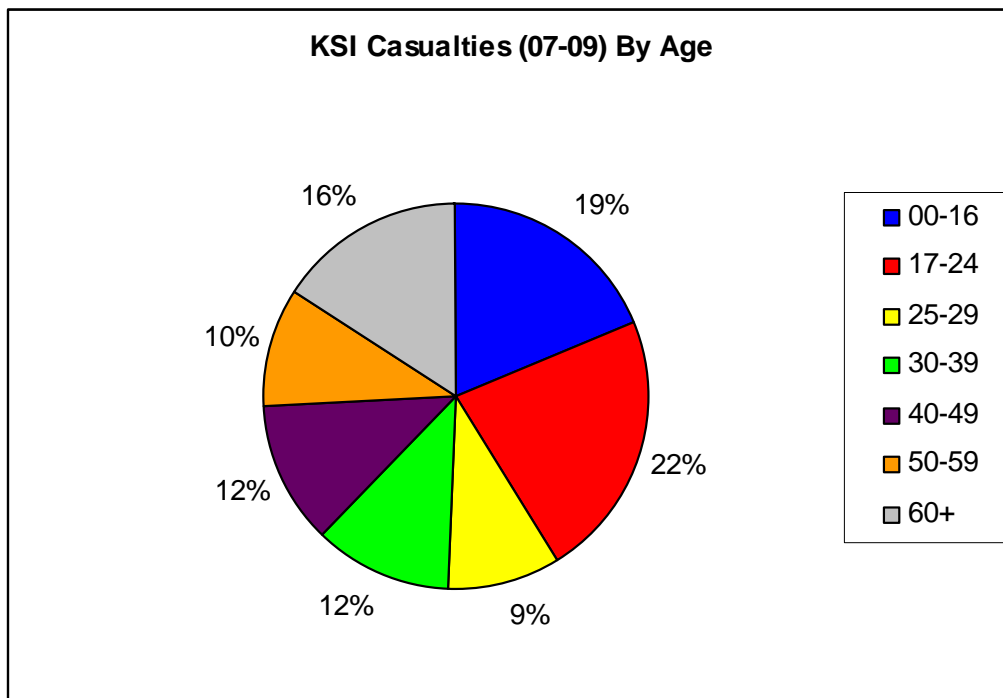
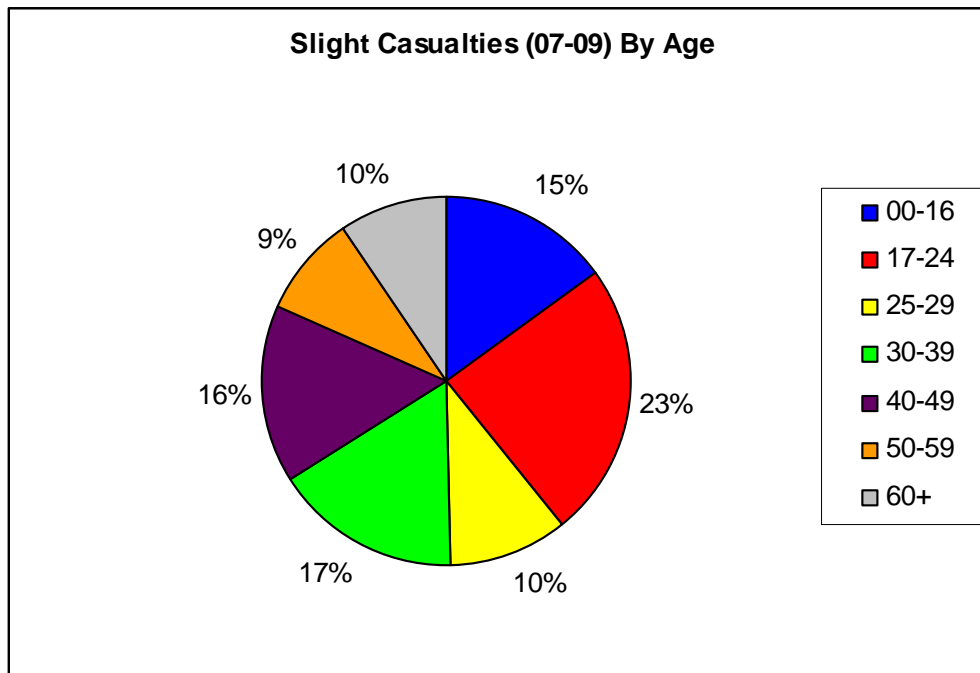


Figure 5: Slight Casualties by Age (2007-09)



Since Cleveland has already met the 2010 target for the reduction of slight casualties, and currently is NOT on target to meet the two KSI casualties, then road safety practitioners should target campaigns at the key age groups that feature in this category (i.e. under 16's, 17-24's, and over 60's).

Casualty Class

Analysis of casualties by class shows that the majority of people are injured as car occupants (i.e. driver/passenger). This is not surprising since the majority of traffic on the roads are cars. Figures 6 and 7 show the full breakdown of casualties by class.

What becomes apparent from the analysis is that some road user groups are far more vulnerable to death or serious injury than others. Pedestrians, pedal cyclists, and motorcyclists in particular feature more heavily as KSI casualties than slight which shows how little protection either group has when involved in a collision. Pedal cyclists and motorcyclists account for a very small proportion of road traffic and so there is a definite over-representation in the KSI casualties for these groups

Figure 6: KSI Casualties By Class (07-09)

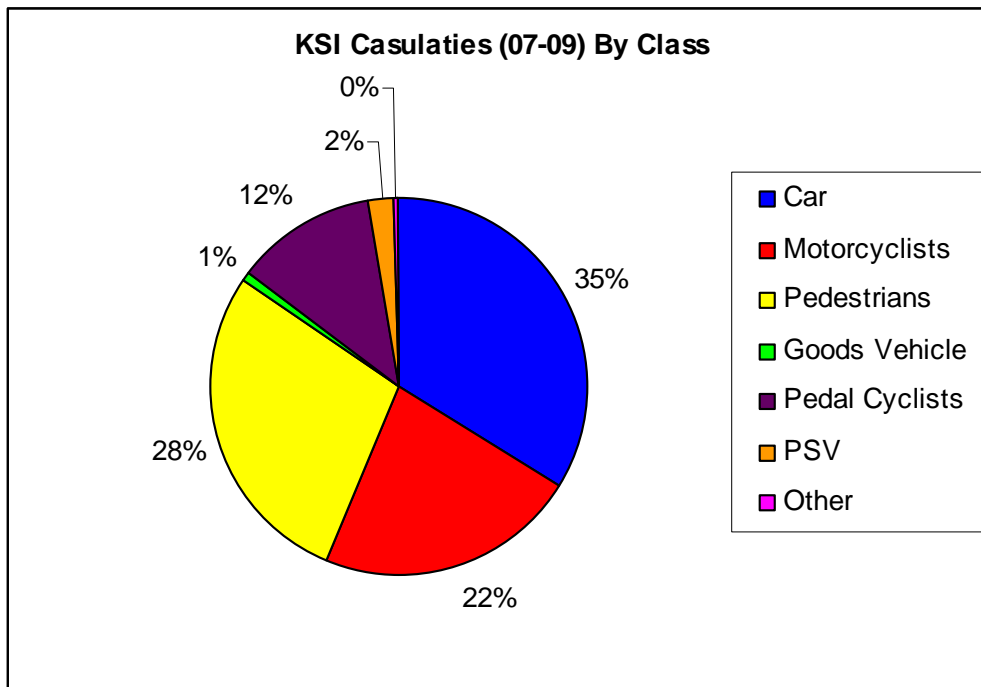
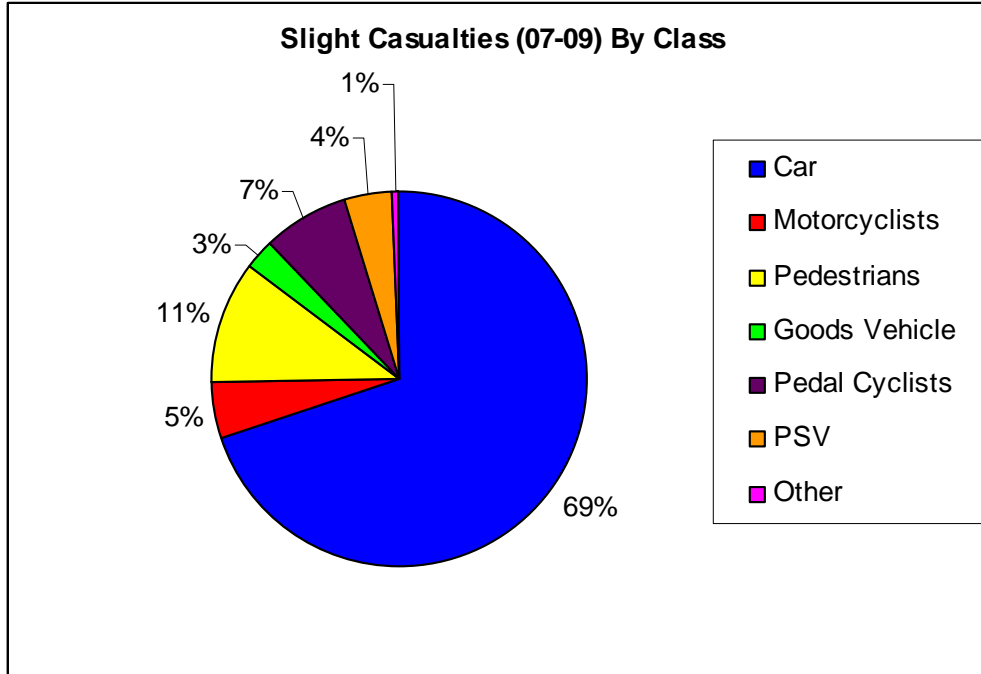


Figure 7: Slight Casualties By Class (07-09)



Time of Day

Figures 8 and 9 show KSI and slight casualties by time of day, and also split by weekend and weekday. Traffic patterns tend to be different at different points in the week but the general trends show that on weekdays flows are highest at key commuting times and at weekends flows are highest between late morning and early afternoon. It has been proven that traffic flow and collision rates are linked.

KSI casualties both at weekends and weekdays peak in the afternoon, particularly between the hours of 3pm and 6pm. A significant number at these times are young children and teenagers. Slight casualties peak at key commuting times during the week (i.e. 8am and 4pm) and at weekends show the highest levels in the afternoon, when traffic flows are higher.

Figure 8: KSI Casualties By Time (07-09)

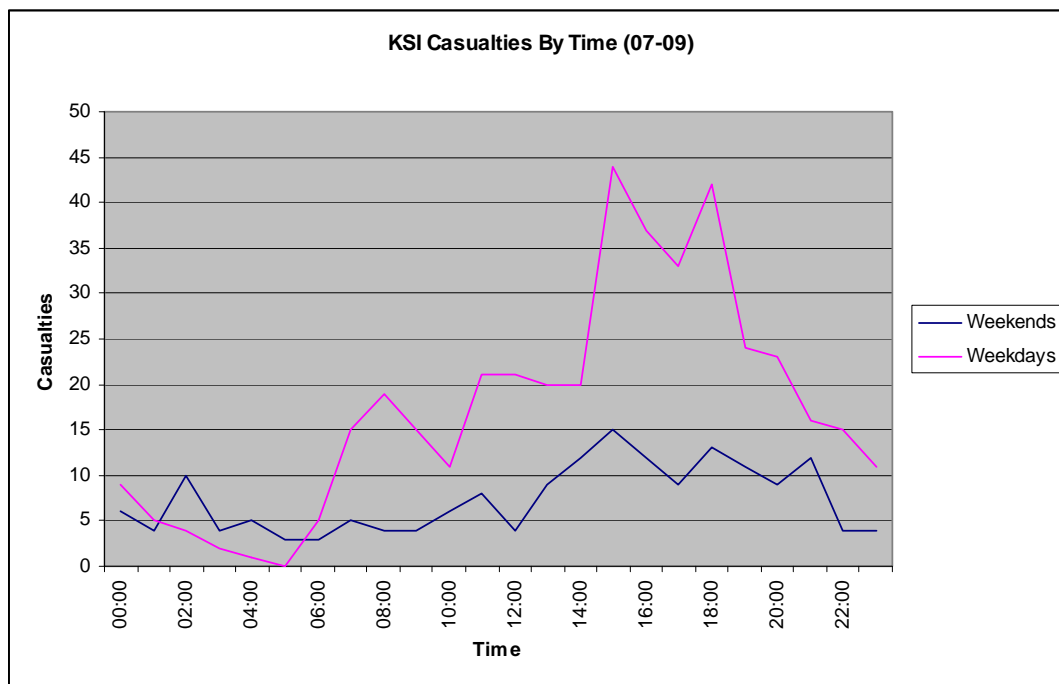
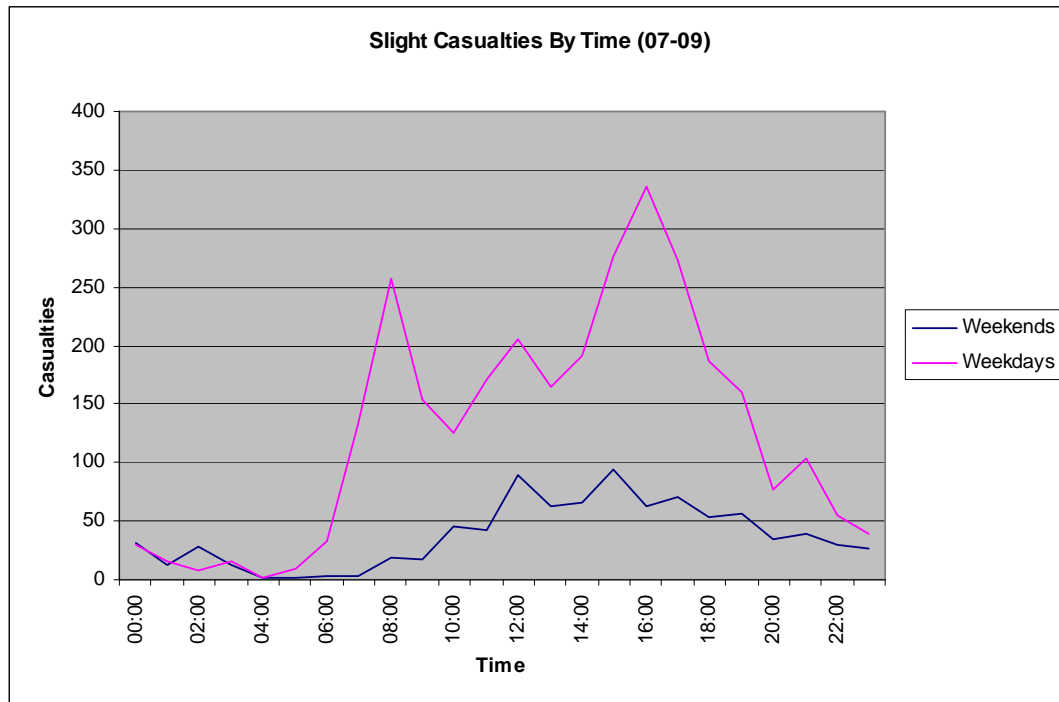


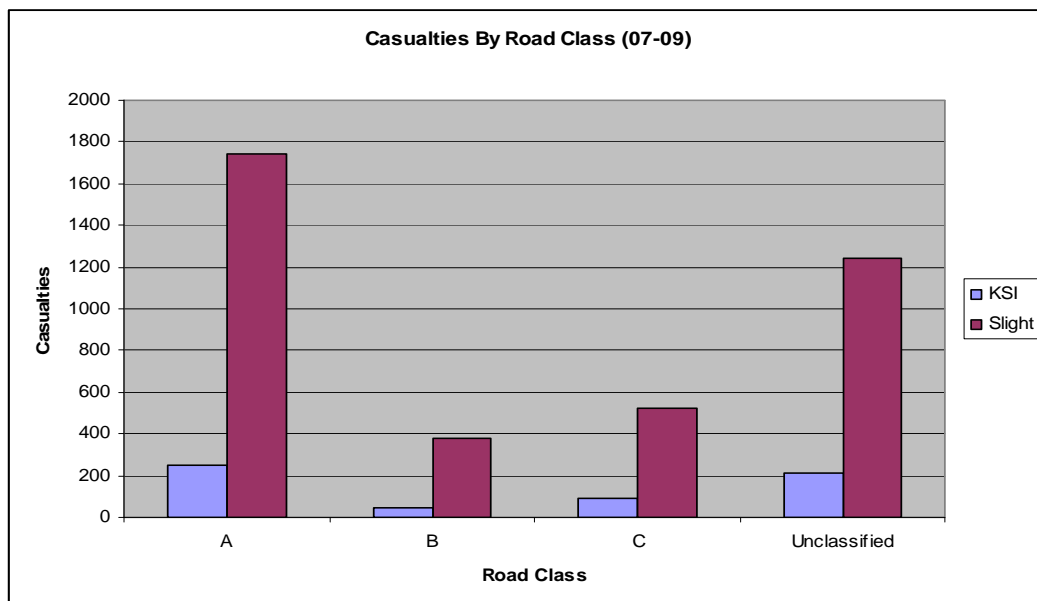
Figure 9: Slight Casualties by Time (07-09)



Road Type

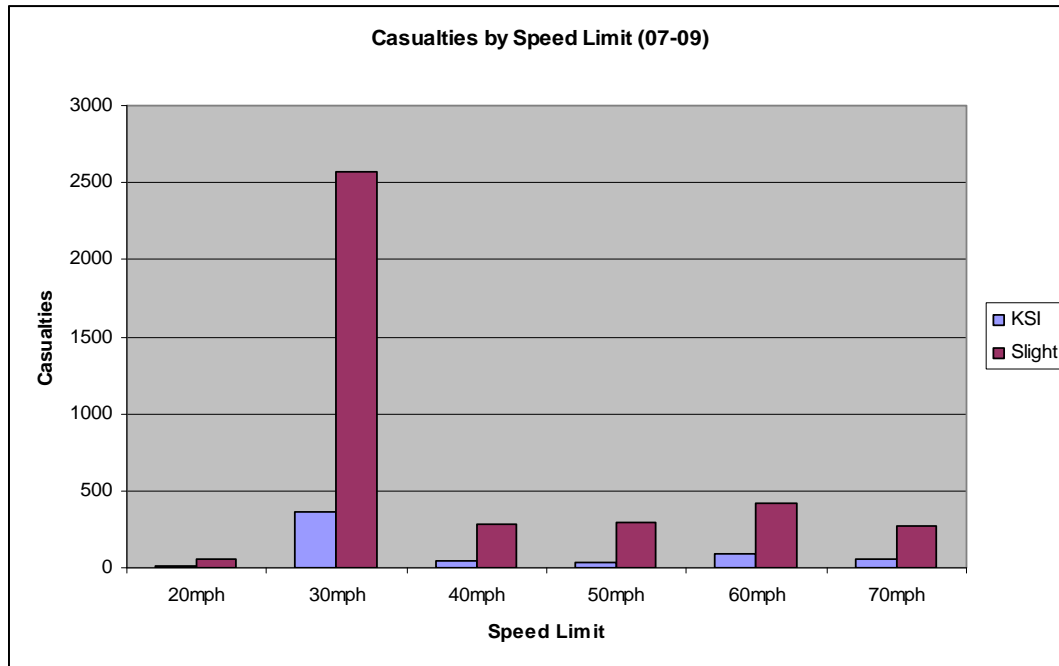
Casualty levels are highest on 'A' class roads, with significant levels also observed on Unclassified roads. This follows the regional trend and is unsurprising since 'A' class roads carry the highest levels of traffic and Unclassified roads make up most of the road network, including residential roads. Both KSI's and slight casualties follow the same trend with similar proportions of casualty levels across the various road classes.

Figure 10: Cleveland Casualties by Road Class (07-09)



Further analysis of the road type shows that the majority of casualties occur within 30mph speed limits, with 74% on limits of 40mph and less. This shows that casualties are highest in more urbanised and residential areas of Cleveland. A significant number of KSI casualties also occur in these areas too.

Figure 11: Cleveland Casualties by Speed Limit (07-09)



Contributory Factors

It is a requirement of Stats 19 that a police officer who attends a road traffic collision to record contributory factors as a means of reasoning why a collision may have occurred. Analysis of the contributory factors associated with Cleveland collisions shows that driver/rider error is the most recorded factor. The top ten most recorded contributory factors are:

1. Driver/rider failed to look properly **(43%)**
2. Driver/rider failed to judge other persons path or speed **(27%)**
3. Careless/reckless/in a hurry **(18%)**
4. Poor turn or manoeuvre **(12%)**
5. Pedestrian failed to look properly **(12%)**
6. Loss of control **(11%)**
7. Slippery road (due to weather) **(11%)**
8. Sudden braking **(8%)**
9. Following too closely **(7%)**
10. Travelling too fast for conditions **(7%)**

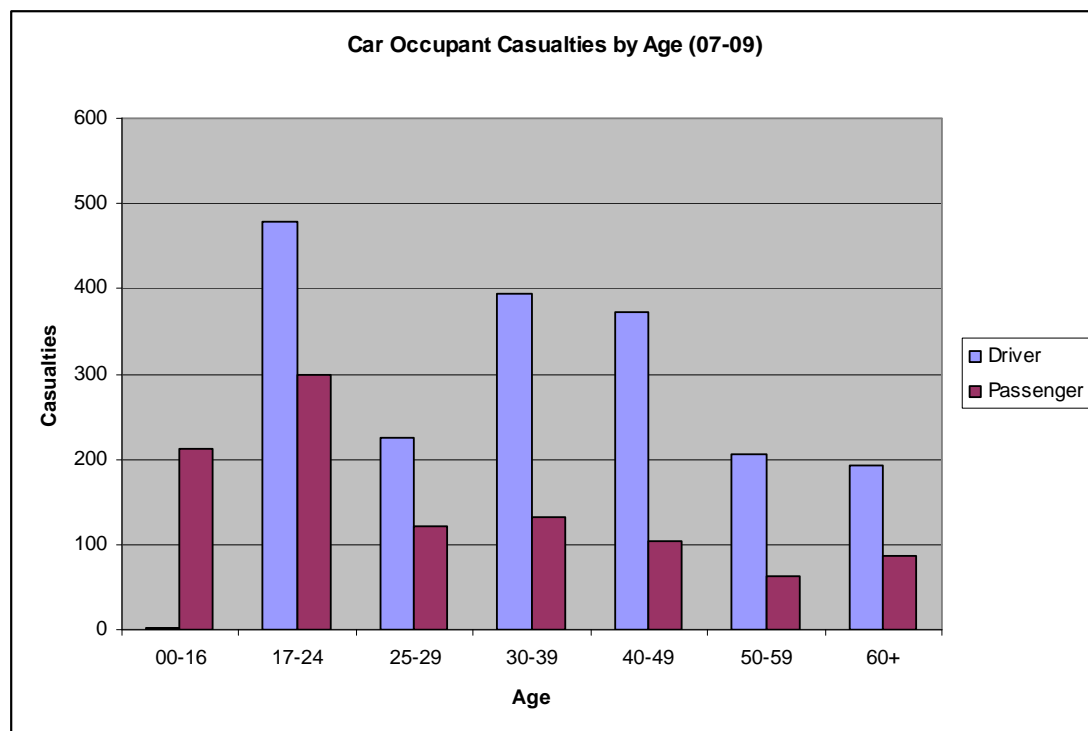
It should be noted that contributory factors are the opinions of the attending police officer and not all collisions in Cleveland have contributory factors recorded. However, some conclusions can still be drawn from this data.

Car Occupants

In Cleveland, car occupants account for around 35% of KSI casualties and 69% of slight casualties. They are the highest proportion of casualties in the area, however, cars also account for the highest proportion of traffic on the roads. Looking at occupant type shows that two thirds are injured as drivers.

Analysis of casualty age shows that 17-24 year olds account for the highest number of driver and passenger casualties, 27%. This is an over representation in the driver casualties as 17-24 years olds only account for 9% of driver licence holdings in the region. Another significant feature in this data is the proportion of 00-16 year olds injured as passengers in the car. This proportion is quite high and may highlight a potential road safety need for higher use of child restraints; with any such campaign aimed at adults/parents.

Figure 12: Car Occupant Casualties by Age (07-09)

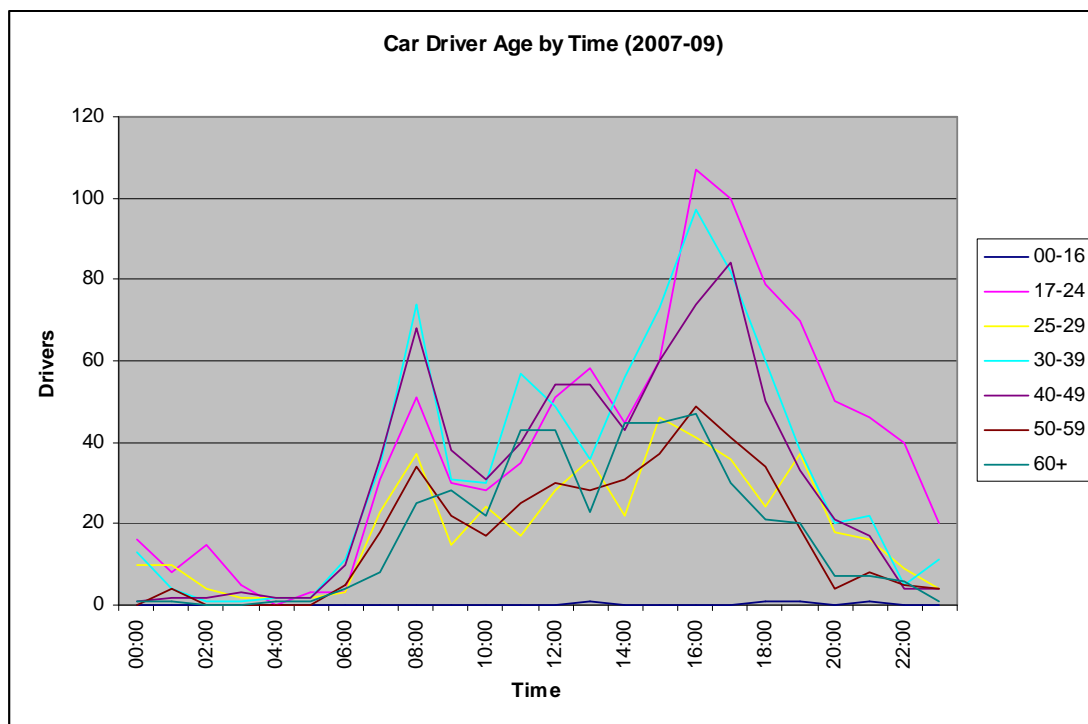


Car passengers form a significant part of car occupant casualties and should not be over looked by road safety practitioners. As shown in Figure 12, car passenger casualties are highest in the lower age ranges, however, from 17 onwards passengers are most likely to be travelling with a driver of the same age bracket. Also, as passenger age increases so too does the likelihood that the passenger will be female.

The driver profile for those car drivers involved in collisions follows the driver casualty trend. 23% of drivers involved in collisions in Cleveland were young drivers. This is an over-representation since this age group only account for 9% of driver licence holdings in the North East.

Analysing collision time by driver age shows a common pattern across all age bands. Most age ranges peak in line with key commuting times (i.e. 8am and 5pm) when traffic flows tend to be at their highest. This pattern is observed both regionally and nationally too. Only the 60+ age range does not follow this pattern, most likely because many of these drivers will be retired, and have different travel patterns, so these peak during the lunch time period. Another point of interest is the higher levels of young driver collisions in the late evening; a trend not seen in the other groups.

Figure 13: Car Drivers by Age & Collision Time (2007-09)



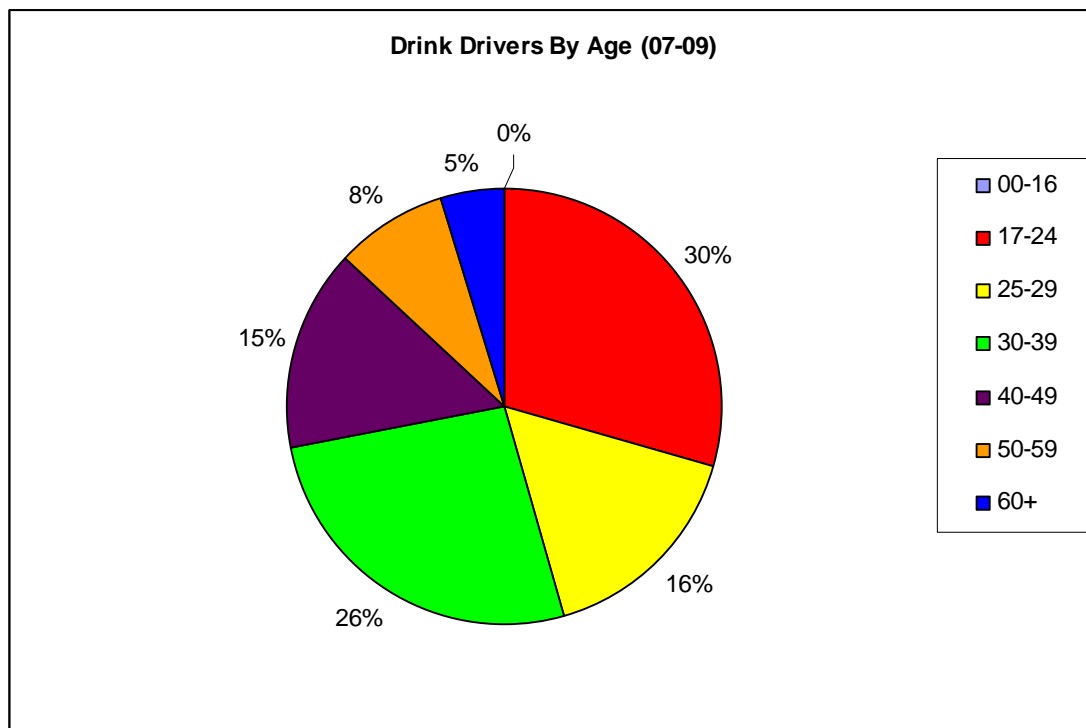
The contributory factors associated with car collisions follow a very similar trend to that observed for all vehicle types in Cleveland; with driver error and judgement the most common factor. When looking at purely those contributory factors associated with young drivers then the trend is slightly different. There appears to be a driving skills/experience issue with young drivers as well as an issue with aggressive/erratic driving. Further training and intelligence led enforcement may be the most appropriate options to tackle the problems associated with young drivers. The top 15 contributory factors associated with young car drivers are:

1. Driver failed to look properly
2. Driver failed to judge other persons path and speed
3. Careless/reckless/in a hurry

4. Slippery road (due to weather)
5. Poor turn and manoeuvre
6. Loss of control
7. Inexperienced or learner driver
8. Sudden braking
9. Following too closely
10. Travelling too fast for conditions
11. Stationary or parked vehicle
12. Pedestrian failed to look properly
13. Exceeding speed limit
14. Aggressive driving
15. Driver impaired by alcohol

According to the Stats 19 data, drink driving is associated with around 5% of car collisions in Cleveland. This is in line with the regional and national data. For purely KSI car collisions this figure rises to around 9%. The young driver category and 30-39 year old drivers feature highest in the drink drive figures in Cleveland; a pattern which is seen all round the country.

Figure 14: Drink Drivers by Age 2007-09



Pedestrians

In Cleveland, pedestrians account for around 28% of KSI casualties and 11% of slight casualties. In the event of a collision, pedestrians are clearly more vulnerable than vehicle users. This vulnerability is reflected in the casualty figures with a high representation in KSI casualties for this road user group.

Analysis of casualty age shows that 0-16 year old pedestrians are injured the most in collisions, accounting for 46% of all pedestrian casualties (41% of KSI pedestrian casualties). Elderly pedestrians also account for a significant proportion of KSI casualties. Both of these groups have characteristics which make them particularly vulnerable as pedestrians. Child and elderly pedestrians are likely to be less aware of the dangers of modern road traffic, and due to their natures both will be more susceptible to severe injury in a collision.

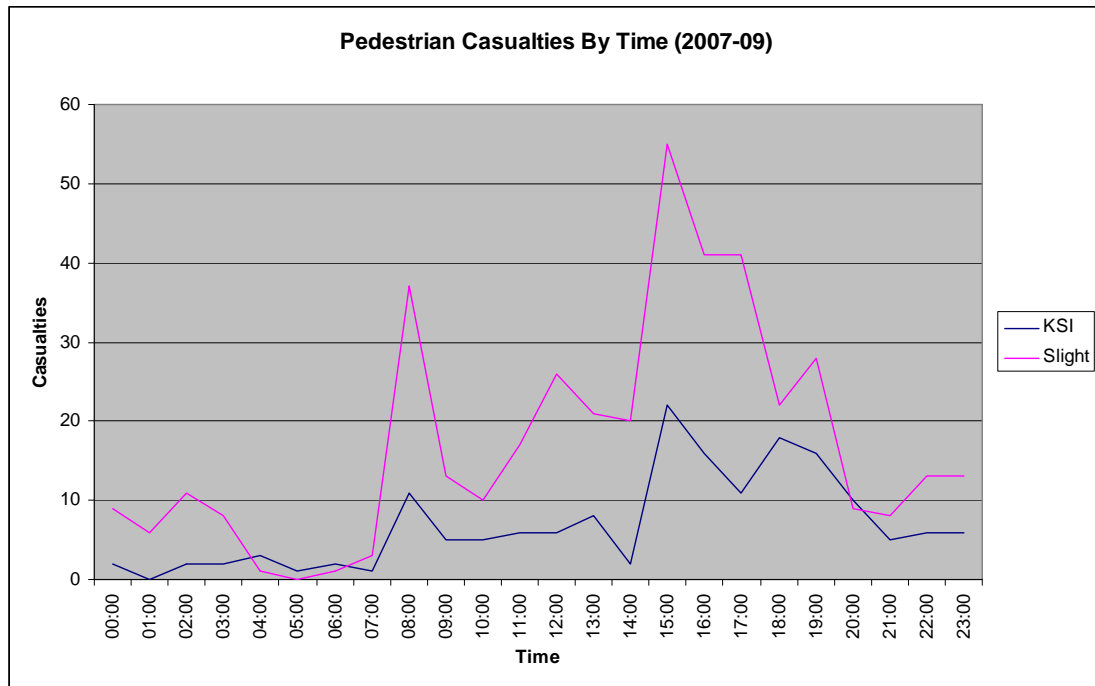
Figure 15: Pedestrian Casualties by Age & Severity 2007-09

Pedestrian Age	KSI		Slight		Total	%
	Male	Female	Male	Female		
00-16	51	17	112	87	267	46
17-24	15	6	34	23	78	13
25-29	6	1	18	6	31	5
30-39	7	4	23	13	47	8
40-49	5	3	11	12	31	5
50-59	4	6	10	11	31	5
60+	18	23	31	20	92	16
Unknown	0	0	0	2	2	0
Total					579	

As shown in Figure 15, there is a higher representation of males in the pedestrian casualty data in the Cleveland force area. This is particularly true in the KSI pedestrian casualties (where males make up around 64%) and in the younger age ranges.

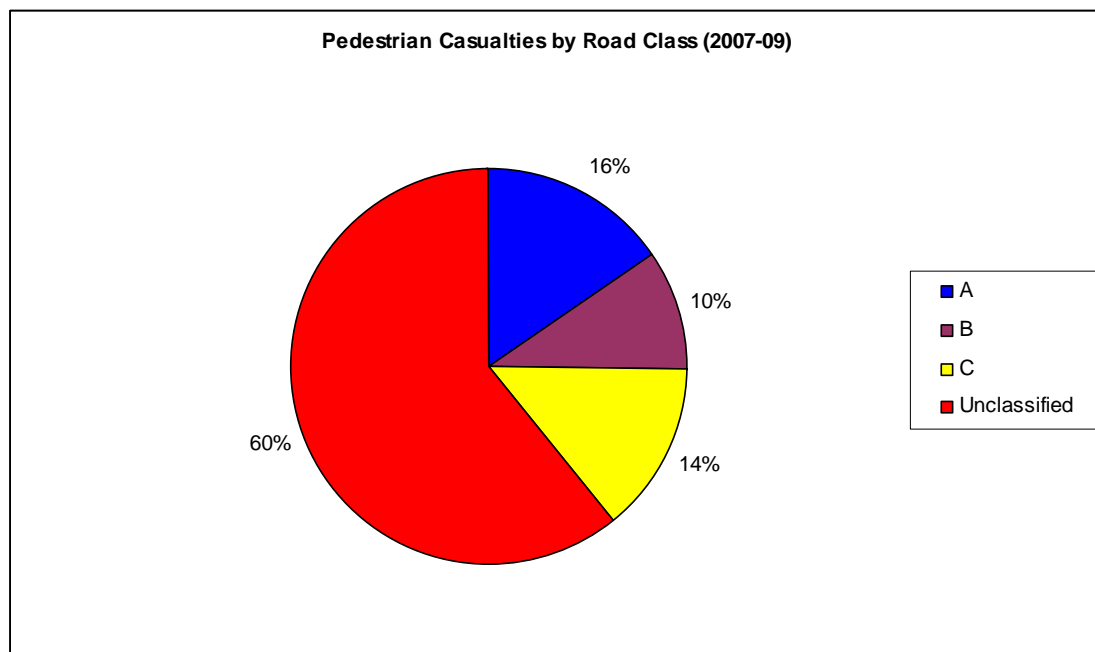
Looking at the time of day when pedestrians are injured shows that pedestrian casualties peak at school commuting time (i.e. 8am and 3pm); not surprising since the majority of pedestrian casualties are children. This pattern is particularly true for slight casualties. KSI pedestrian casualties are highest between 3pm and 7pm; again these casualties are primarily children. It would appear that even with the current efforts of road safety practitioners to train/teach children to the dangers of road traffic more is needed, particularly from parents, as they are still a very vulnerable group.

Figure 16: Pedestrian Casualties by Time 2007-09



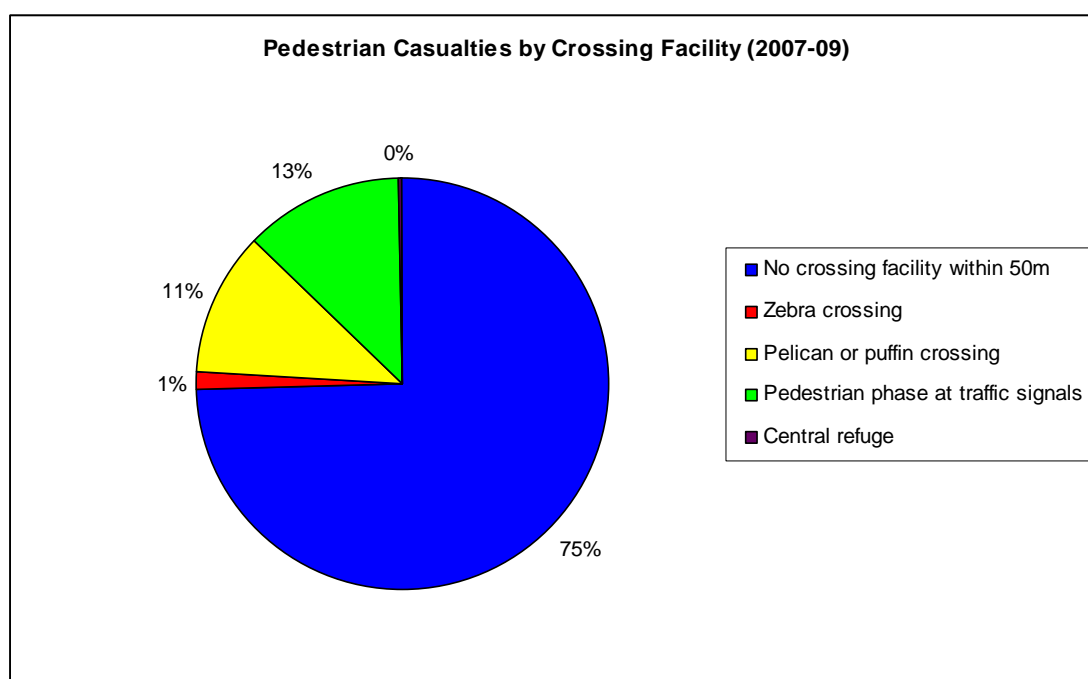
The majority (60%) of pedestrian casualties in the Cleveland area are injured on unclassified roads and within 30mph limits. These are typically urban/residential areas of Cleveland. Child pedestrian casualties are even more concentrated on unclassified roads.

Figure 17: Pedestrian Casualties by Road Class 2007-09



Analysis of pedestrian crossing facilities shows that 75% of pedestrian collisions occur away from any pedestrian crossing facility. This suggests that either pedestrians are choosing to cross elsewhere on the road network or that in urban/residential areas there is a lack of suitable crossing facilities for pedestrians. However, it is worrying that a quarter of pedestrians are injured actually within the proximity or apparent safety of a pedestrian crossing.

Figure 18: Pedestrian Casualties by Crossing Facility 2007-09



The contributory factors associated with pedestrian collisions are very different to the trend for all collisions in the area. There is far more blame placed on pedestrian error and poor pedestrian judgement. Fault primarily would appear to lie with the pedestrian in most cases. The top 10 contributory factors in pedestrian collisions are:

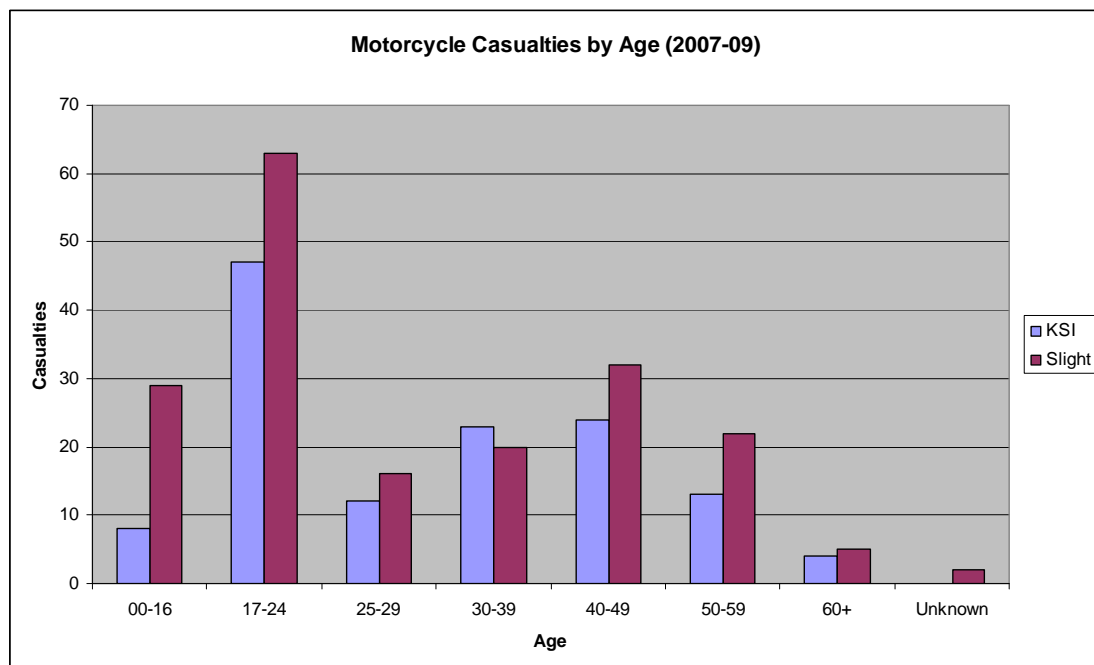
1. Pedestrian failed to look properly
2. Pedestrian careless/reckless/in a hurry
3. Pedestrian crossed masked by stationary or parked vehicle
4. Pedestrian failed to judge vehicles path or speed
5. Driver failed to look properly
6. Pedestrian impaired by alcohol
7. Pedestrian dangerous action in carriageway (e.g. playing)
8. Driver careless/reckless/in a hurry
9. Stationary or parked vehicle
10. Pedestrian wrong use of pedestrian crossing

Motorcycle Riders & Passengers

Motorcycle casualties account for 5% of slight casualties in the Cleveland area but 21% of the KSI casualties. This over representation in KSI casualties is a common theme across both the region and the country, and is the main reason why so many road safety practitioners run motorcycle campaigns.

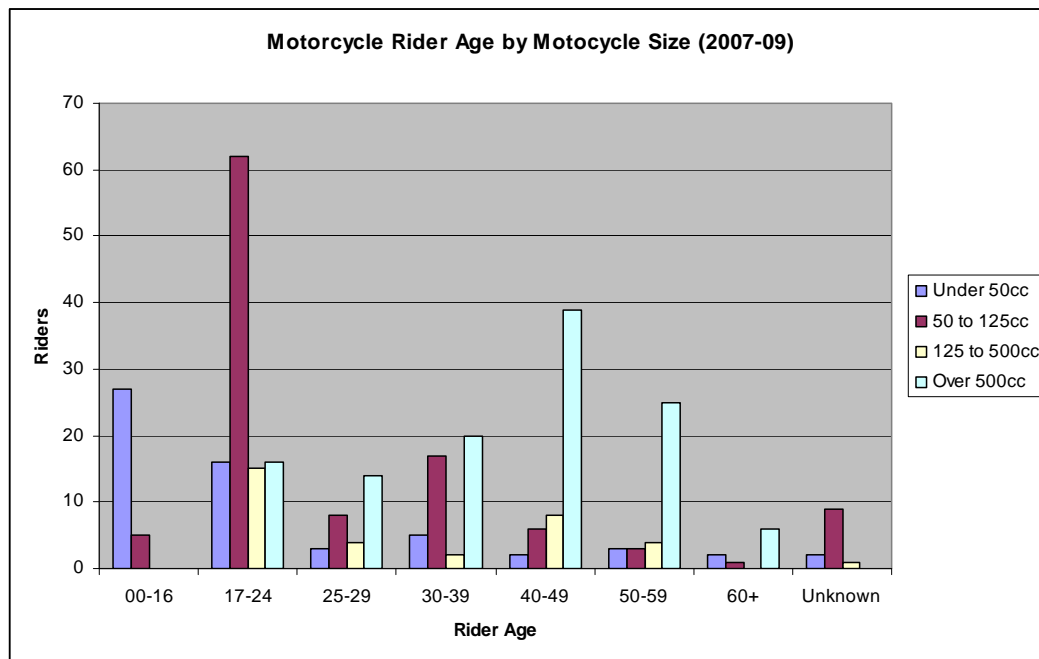
Young riders (17-24 year olds) account for the highest proportion of motorcycle casualties with 34%. However, other age bands show significant levels of KSI casualties also, for example the 30-39 year olds who have more KSI casualties than slight.

Figure 19: Motorcycle Casualties by Age 2007-09



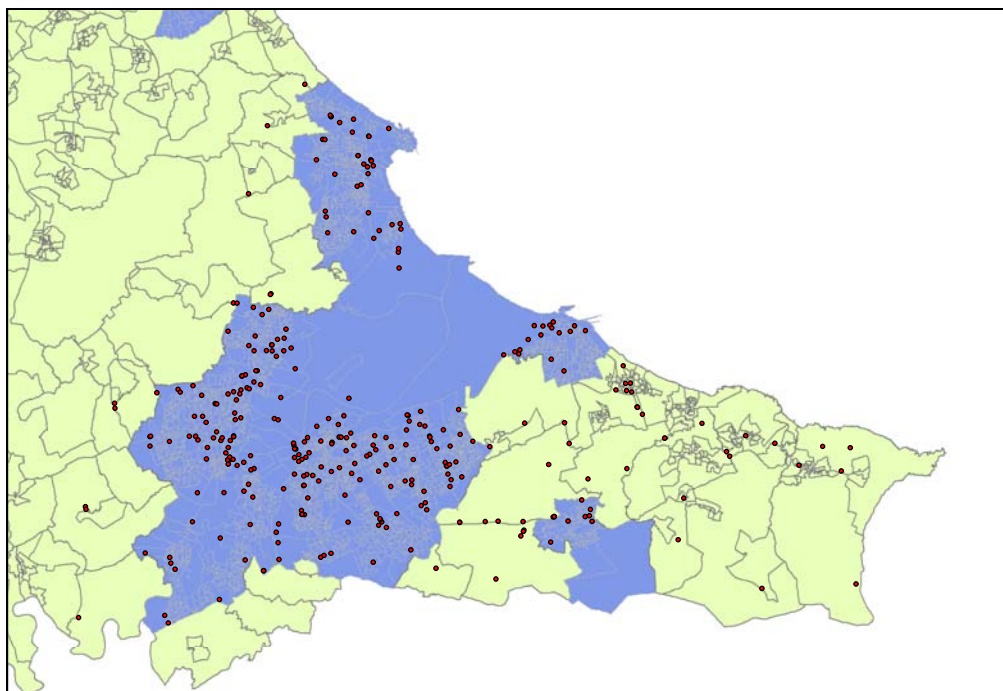
Rider age and motorcycle size are naturally related given the set up of current motorcycle testing. By law, younger and inexperienced riders are required to ride on smaller motorcycles. Therefore it is not too surprising that 17-24 year olds are highly represented in the casualty stats for under 125cc motorcycles, and likewise under 17's on 'Under 50cc' motorcycles. This motorcycle category includes scooters and mopeds. As age, experience and disposable income increases riders tend to progress onto larger motorcycles and this is shown in the casualty figures with 40-49 year olds most likely to be injured on 'Over 500cc' motorcycles. This is demonstrated in Figure 20.

Figure 20: Motorcycle Rider Age by Motorcycle Type 2007-09



Motorcycle collisions in Cleveland are highest in urban areas, which contradicts the common myth that motorcycle collisions only occur in the countryside. In line with the trend for all collisions in Cleveland, motorcycle collisions primarily occur on 'A' class and Unclassified roads on the network, and within the lower speed limits. The plot of all Cleveland motorcycle collisions clearly shows the over representation in the urban areas, particularly around Stockton and Middlesbrough (shaded blue).

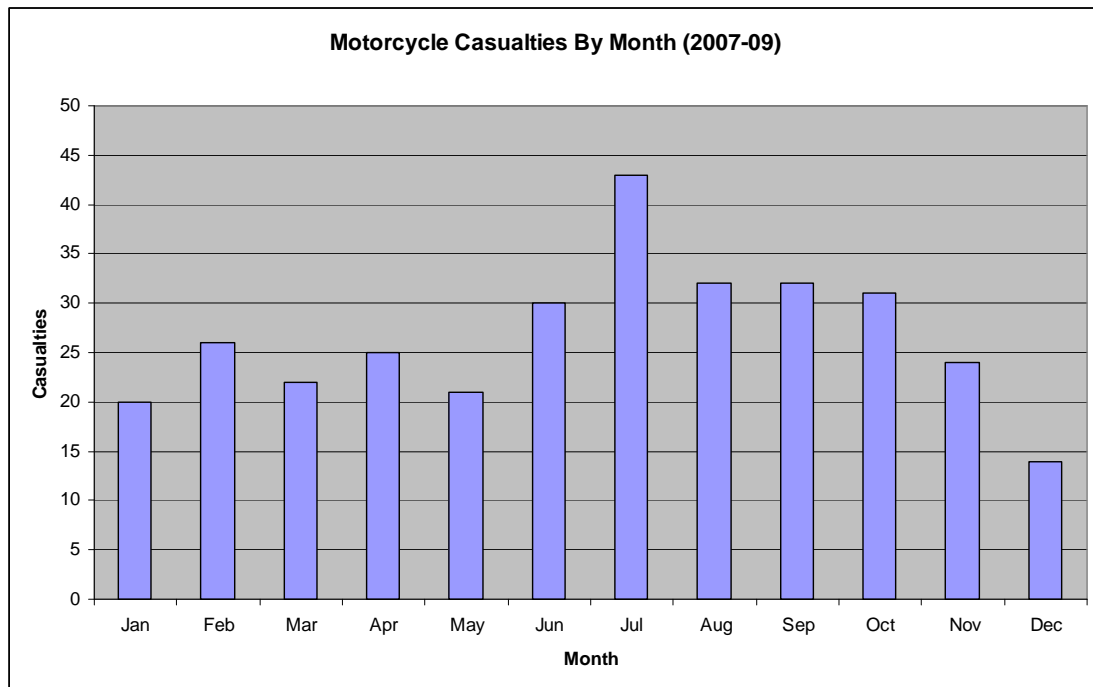
Figure 21: Plot of Cleveland Motorcycle Collisions 2007-09



Those motorcycle collisions that occur in the rural areas of Cleveland tend to involve the 'Over 500cc' motorcycles, however, this is a small proportion of the total collisions and the main issue is still very much in the urban areas.

Motorcyclists are injured on the roads of Cleveland all year round; however, the data does show a peak in casualties during the summer months, in particularly July. This is to be expected as motorcycle flows are higher during the months of good weather, with an increase in leisure riding.

Figure 22: Motorcycle Casualties by Month 2007-09



Analysis of the contributory factors associated with motorcycle collisions in Cleveland shows that fault/error often lies with both parties. Car and other drivers often fail to see motorcyclists and find it difficult to judge their speeds (particularly at junctions). Motorcyclists often have insufficient skills and experience on the roads, or adopt an aggressive and speedy riding style. Any ETP campaign would need to be multi-layered to address both, the issue with car/other drivers, and motorcyclists themselves. The top 10 contributory factors recorded in motorcycle collisions are:

1. Driver/rider failed to look properly
2. Driver/rider failed to judges other persons path or speed
3. Careless/reckless/in a hurry
4. Loss of control
5. Poor turn or manoeuvre
6. Inexperienced driver/rider
7. Travelling too fast for conditions
8. Slippery road (due to weather)
9. Stationary or parked vehicle
10. Aggressive driving/riding

Pedal Cyclists

Pedal cyclist casualties account for 7% of slight casualties in Cleveland but 12% of the KSI casualties. This higher representation in the more severe classes of injury, as well as their lack of protection from and close proximity to traffic, makes them one of several vulnerable road user groups.

Analysis of casualty age shows that child cyclists are injured most often in Cleveland. 33% of cyclists injured were aged under 17 years old. However, as Figure 23 shows, cyclist casualty levels remain at significant levels for all age ranges under 50 years old. The casualty figures also show that the majority of cyclists injured are male

Figure 23: Pedal Cyclist Casualties by Age 2007-09

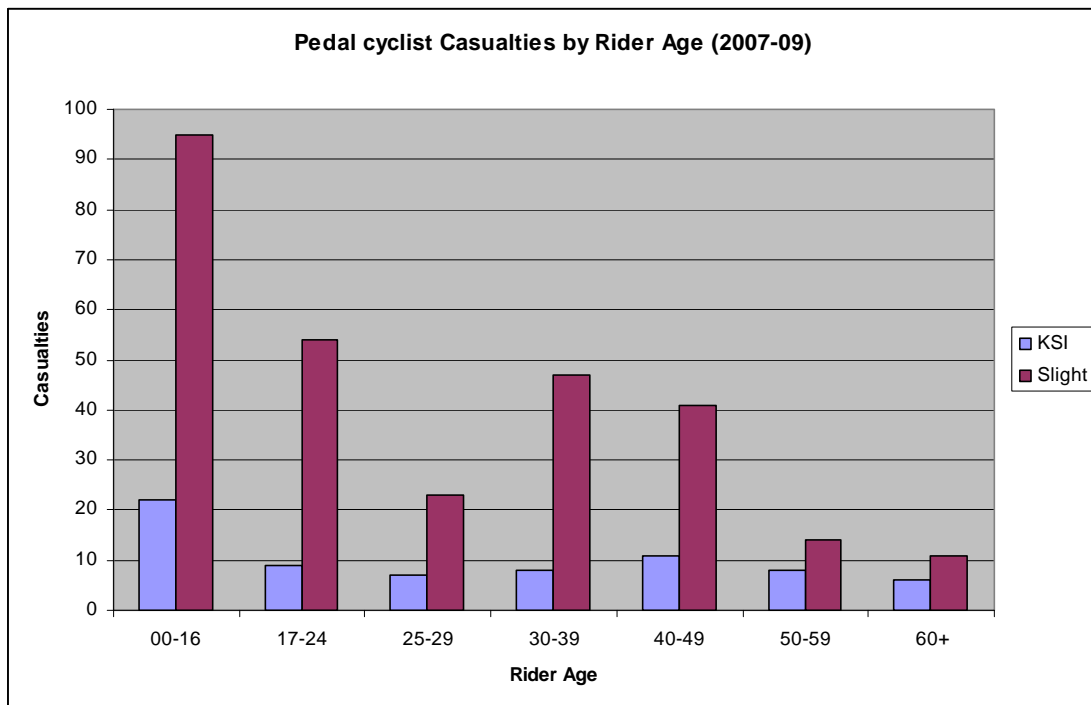
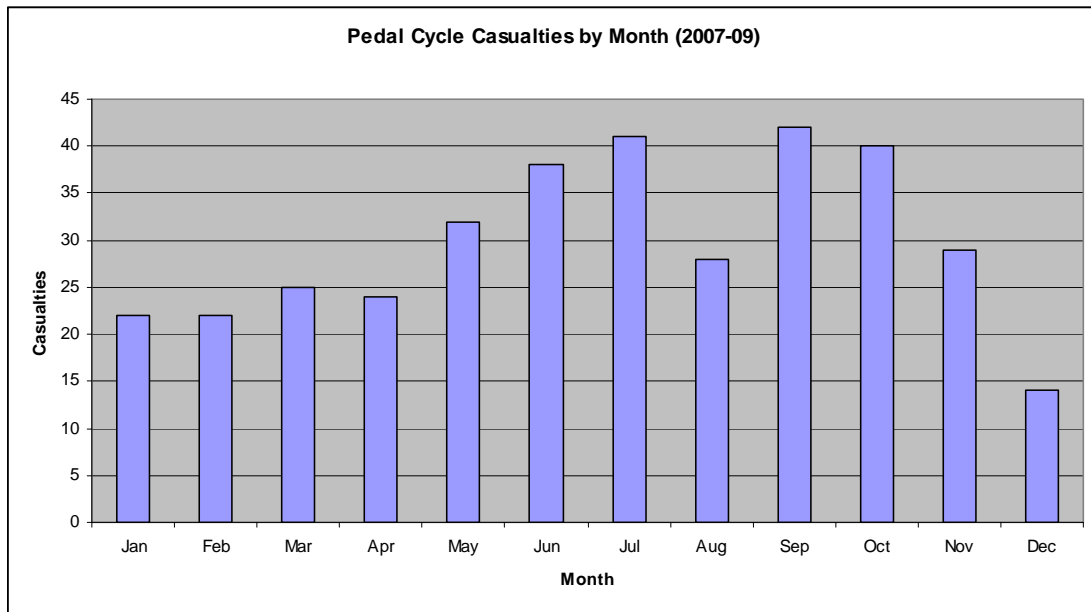


Figure 24: Pedal Cyclist Casualties by Sex 2007-09

Sex	Casualties	Proportion
Male	321	90%
Female	36	10%

Pedal cycle casualties are highest during May to October, with the exception being August which shows a definite dip in casualties. Historically cycling flows tend to be higher during the summer months. The dip in casualties in August would appear to be primarily down to fewer adult cyclist injuries in this month compared to others.

Figure 25: Pedal Cyclist Casualties by Month 2007-09



Analysis of pedal cyclist casualties by road class shows that collision locations differ with age. Child cyclists show higher representation on Unclassified roads, within 30mph limits. Their purpose for cycling is more related to leisure than any other reason. Adult cyclists are injured on all areas of the road network but show significantly high levels on 'A' class roads. Their reason for cycling is mixed between leisure purposes and commuting to/from work.

Figure 26: Pedal Cyclist Casualties by Road Class 2007-09

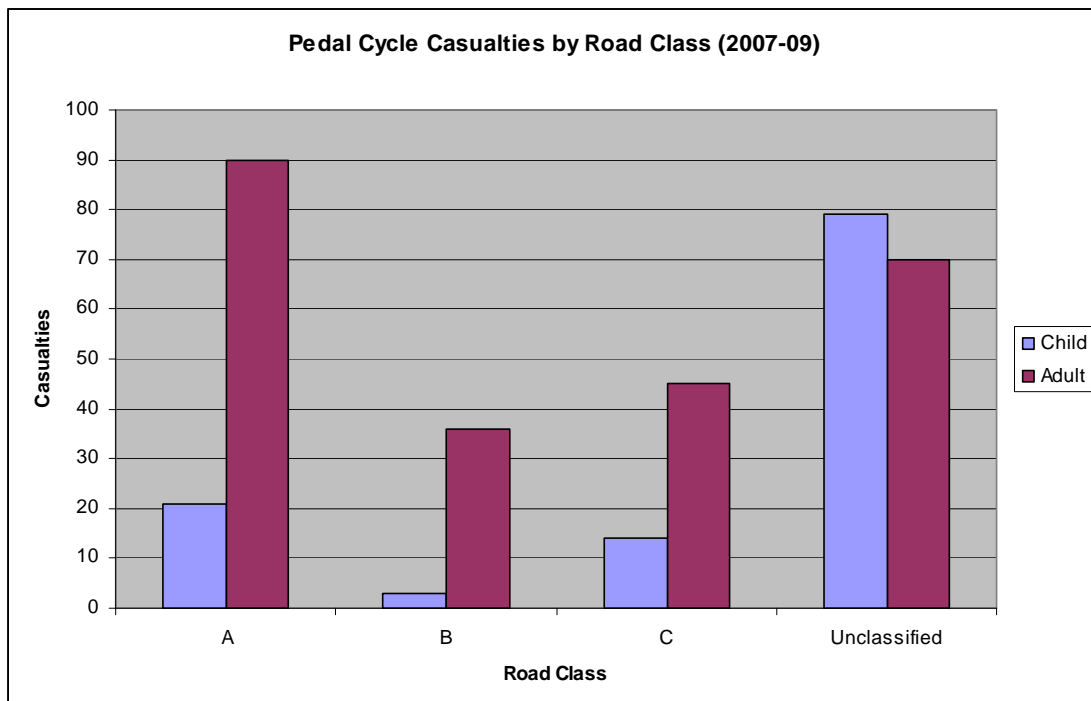
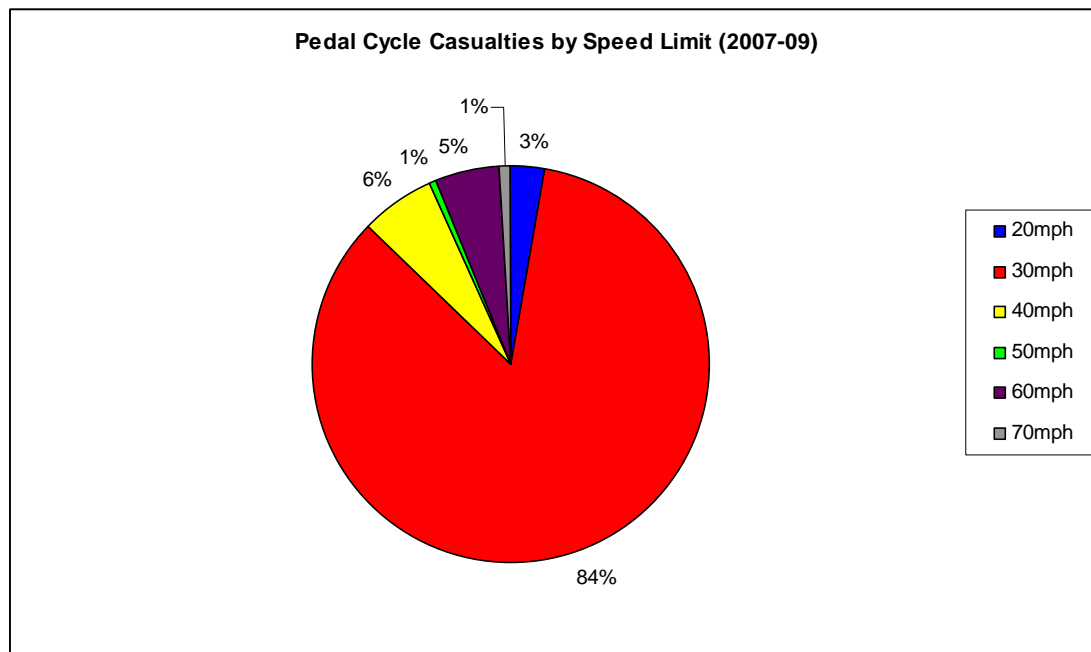


Figure 27: Pedal Cyclist Casualties by Speed Limit 2007-09



Analysis of the contributory factors associated with pedal cycle collisions in Cleveland shows that fault/error often lies with both parties. Car and other drivers often fail to see the cyclist and find it difficult to judge their speeds (particularly at junctions); passing too close to a cyclist is also an issue. Cyclists' lack of observation and judgement can be a cause of a collision, and so too can their riding style and clothing. Although the majority of ETP campaigning should be aimed at other drivers, some training also needs to be given to those cyclists who need it. The top 10 contributory factors recorded in pedal cycle collisions are:

1. Driver/rider failed to look properly
2. Driver/rider failed to judge other persons path or speed
3. Cyclist entering road from footpath
4. Careless/reckless/in a hurry
5. Passing too close to cyclist
6. Poor turn or manoeuvre
7. Stationary or parked vehicle
8. Cyclist wearing dark clothing
9. Loss of control
10. Junction overshoot

Conclusions

The area of Cleveland is unlikely to achieve all of the casualty reduction targets set by the DfT for 2010. However, good progress is still being made and there is certainly potential there to achieve greater casualty reduction levels in the years to come.

The Stats 19 casualty data shows that a blanket approach to road safety in Cleveland will not achieve the desired levels of casualty reduction. There are very specific issues in the area and each need to be addressed in the correct manner, with the specific problem and goal in mind. To achieve the best results all ETP (and enforcement) campaigns need to be data/intelligence led and road safety practitioners should investigate new forms of media and communications (for example viral). Once a plan of ETP activities is set then the casualty data can be linked to socio-demographic data so that engagement with any target audience has maximum effectiveness.

The trends/patterns in the data echo what is seen regionally and there is definitely scope for work to be carried out on a wider scale, encompassing other organisations who wish to target similar problems. Sharing resources, and best practice, will be vital to road safety success in the current economic climate.