

# Lancashire Constabulary



## CASUALTY REDUCTION

### Crime and Disorder Reduction Category

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## EXECUTIVE SUMMARY

Through scanning and analysis it has been identified that between 1994 and 1998 more than 1500 people were being killed and seriously injured on the roads of Lancashire. A further 7,500 received less serious injuries. The cost to the people of Lancashire is a staggering £370million each year. Based upon government figures, the cost to the health service alone in terms of ambulance and accident and emergency services and hospital care is approximately £19.34million each year.

Analysis showed that the causal factors were multi faceted and that significant casualty reductions could be achieved by focusing on speeding, the wearing of seat belts and drinking and driving through partnership working.

The Lancashire Constabulary joined with the County Council to develop a project based on this method. However, Government funding for a 'Victoria' model was not forthcoming. Following legislative changes the partnership was enhanced and revised its approach to take advantage of new financing procedures. The newly developed Lancashire Partnership for Road Safety uses a combination of existing funding streams (Local Transport Plan) and the fine revenue recovery scheme ('netting off') to deliver the nations largest locally based road safety project.

This £11 million, 3-year project consists of four partner agencies:

Lancashire Constabulary	Lancashire County Council
Blackburn with Darwen Unitary Authority	Blackpool Unitary Authority

working with four stakeholder agencies:

National Health Service	Highways Agency
Government Office for the North West	Lancashire Magistrates Courts

to address speeding, drink driving and non-wearing of seat belts through Education, Enforcement, Engineering and Evaluation.

By the end of 2002, the project so far has delivered:

- A **reduction of 31%** in the number of people being killed and seriously injured
- The number of vehicles exceeding the speed limit has been reduced by 54% and the average speed of vehicles has been reduced by 11%
- Approximately **£4.3million** worth of savings have been delivered to the Health Service
- A significant change in road user **behaviour and attitude** evidenced by the speed reductions which have been achieved and the evaluation of the speed awareness course

As a problem oriented policing approach the project provides the mechanism for the Constabulary contributing to delivery of national casualty reduction targets, and achieving its corporate aim of reducing road crash casualties particularly those involving children. At the same time it produces associated community safety benefits, and releases policing resources through its self-funding nature.

## *SCANNING*

Lancashire is located in the North West of England. It is fringed in the south by the two large conurbations of Manchester and Liverpool, and in the north by the Lake District. It is bounded by the Irish Sea to the West and the Pennine uplands to the East.

The County has a population of just over 1.4 million people, and is characterised by a spread of closely spaced inter-linked medium sized towns, including Blackburn, Preston, Lancaster, Burnley and Blackpool. The County also has a number of small market towns, seaside resorts, ports and commuter settlements, together with large areas of countryside and moorland.

Lancashire has 7,401 km of roads and one of the most diverse networks in the North West of the Country, including busy motorways, urban and suburban routes, and quiet country lanes.

The Constabulary has a corporate vision to make 'to make the people of Lancashire feel safe, involved and reassured', and three corporate objectives that emanate from the vision, these are:

- To **Reassure** the public, particularly those who are vulnerable
- To **Reduce Crime** particularly those offences that are of concern to the public
- To **Make Roads Safer**, particularly for children.

**Between 1994 and 1998, on average, more than 1500 men, women, and children were killed or seriously injured on Lancashire's roads each year. A further 7,500 people each year received less serious injuries.**

This level of death and injury represents an alarming and unacceptable cause of trauma. As well as the human suffering there are many economic costs; road casualties in Lancashire cost a staggering £370 million per annum. Much of this human and financial burden falls on the County's Health Services.

## **ANALYSIS**

By analysis of the broad nature of this problem an understanding can be gained by breaking the incidents (crashes) into constituent elements:

- (i) The features of the location
  - (ii) The features of the offender and the source of the problem
  - (iii) The features of the victim
- (Leigh et al 1996)

### **(1) FEATURES OF LOCATION**

Although road crashes can be random in their nature, they can lead to difficulty in understanding the features of a location(s) unless long-term data is used. When crash data covering a sustained period is analysed clustering of casualty locations and crash causes become apparent.

The Lancashire Partnership has used data gathered over a five-year period for detailed analysis. The data gathered includes the reporting officer detailing:

- Day, date, time and location
- Types of vehicles involved
- Weather and condition of the road surface
- Obvious hazards
- Causation factors

This information is transferred to the county council for quality assurance and further analysis to inform decision making and possible solutions. These solutions include the option to engineer out crash hotspots. Partnership staff work closely with their engineering colleagues to develop the most appropriate and cost effective solution.

An initial search of all the classified A, B, and C roads was carried out using a moving cursor facility with the crash database. This system 'walks' a cursor along 10 metre stretches of road examining crash data in the background. This identified those 500 metre lengths of road with the highest number of recorded crashes. This search was further refined to identify those crashes, which were potentially speed related by examining attributed causation factors.

### **(2) FEATURES OF OFFENDER/SOURCE OF PROBLEM**

International, national and local research shows that three factors account for up to 50% of deaths and injuries on roads.

The SARTRE report (Social Attitudes to Road Traffic Risk in Europe, 1998) examined crash causation across 15 European countries including the UK and concluded that for European drivers there are "three main areas for safety measures: complying with speed limits, wearing a seatbelt at all times and not drinking and driving".

A brief summary of key points from research in each of these areas now follows:

## **SPEEDING**

Research in Britain proves that speed is a major contributing factor in about one-third of all road crashes. Speed represents the biggest single contributor to death and injury on our roads. The evidence from national and international research that lower speed reduces crashes and their severity is overwhelming:

- Introduction of the 30mph limit in Britain in 1934 was accompanied by a 15% reduction in fatal and a 6% reduction in all crash severities.
- The 1973-74 oil crisis led to a compulsory 50mph limit, for fuel conservation on roads that usually had a higher limit. Accident rates on motorways fell by 40% and on other roads by 21%.
- Evidence from the United States indicates that 'an increase of only 24mph in the mean rural interstate traffic speed resulted in an increase of between 19% and 34% in fatalities'.
- In Britain the Government concluded from research that the 'speeding driver is a major cause of death and injury on our roads'.
- Research shows that 'accident frequency rises disproportionately with increasing speed' e.g. on urban roads a 21% increase in collisions can result from a 10% increase in mean speeds.
- About a fifth of rural accidents involve vehicles going too fast for the situation, with a further quarter likely to be associated with speed.
- Surveys show that one in three drivers 'penalised for speeding offences in the last three years had been involved in an accident as a driver in the same period'.
- Speed has other adverse community effects; above 30mph 'any increase in speed leads to a steep increase in carbon dioxide emissions'.
- Speed of traffic affects people's quality of life, with long streams of traffic contributing 'to the severance of communities' and social exclusion by making access to facilities such as shops, schools and medical services difficult for those without cars.
- Recent survey evidence shows that motorists felt "that mobile cameras would be a greater deterrent than fixed cameras".

National statistics show that a pedestrian is twice as likely to be killed by a vehicle travelling at 35mph than at 30mph. The Lancashire Partnership was therefore faced with a moral dilemma concerning the level at which enforcement should commence. Rarely had speed limits been enforced in strict adherence to ACPO guidelines but here was a clear case to do so.

The baseline data obtained prior to the commencement of the Partnership showed high numbers of vehicles exceeding the speed limit and an analysis of offenders by postcode shows that a significant number reside in Lancashire.

## **DRINKING AND DRIVING**

Over the last twenty years there has been a dramatic reduction in the number of people killed in drink-drive crashes. However approximately 500 people are still killed every year on British roads.

The Government recognises that 'drink-driving still leads to too many deaths and serious injuries on our roads' (DETR, 2000). Research shows that it is still an important area for casualty reduction activity and the public support robust action:

- 'One in seven road deaths is a result of a drink-drive related accident'.
- Each year around 2,500 people are seriously injured in drink drive crashes.
- Nationally in 2000 there were 18,000 casualties of all severities from drink drive crashes.
- In 2000, almost 8,000 drivers and riders involved in road crashes failed breath tests.
- In England and Wales in 1999 - 94,000 motorists provided a positive breath test or refused to take the test.
- Evidence shows that 'high test rates act to deter drink/driving: forces which have high test rates tend to have a falling trend for drink drive accidents compared with forces with low test rates'.
- Research indicates, "driver behaviour is responsive to significant increases in perceived detection risks and that long term improvements may be sustained if enforcement levels and the media profile of police activity remain high".
- An independent study of Lancashire motorists found that almost 98% thought drink driving was a serious offence with 85% supporting high profile enforcement.

Information from the Magistrates Courts systems and our own arrest reports indicate that in Lancashire there remains a hardcore of drivers who persist in risking their lives and those of others.

This has necessitated a change in enforcement strategy, which has resulted in the development of intelligence and data from a variety of sources about the behaviours of such drivers and has consequently led to more targeted marketing and enforcement.

## **SEAT BELTS**

Wearing a seat belt, or child restraint, saves lives and reduces the severity of injuries in crashes.

Government Strategy 2000-2010 identifies concerns about the wearing rates of seat belts for rear seat passengers. Whilst non-wearing of seat belts is an offence, many of those drivers or passengers who do not wear a seat belt are also likely to feature as victims of road crash injury.

- Whilst more than 90% of front seat drivers and passengers wear a seat belt, wearing for 'adult rear seat passengers rose to a high of 59%' in April 1999.

- Nationally, every year forty people travelling in the front seats die after being hit by a backseat passenger.

Recent research from Japan shows that "if rear seat belts had been used, almost 80% of deaths of belted front seat occupants could have been avoided. Rear seat belt use should be encouraged for the safety of all car occupants".

- Studies in America show that there is 'a 68% reduction in the probability of a driver sustaining a fatal or incapacitating injury in a traffic accident when a safety belt was worn compared to not wearing a safety belt.
- Research also shows that lap and shoulder belts prevent death and injury owing to ejection from a vehicle, and for those in the front seats the "highest level of protection is a lap/shoulder belt supplemented by an airbag".

A study of Lancashire's casualty statistics in the year 2000 showed that approximately 4.3% of all injury crashes involved the non-wearing of seat belts. Significantly it is drivers and rear seat passengers who have suffered serious and fatal injuries when a seat belt is not worn. Using the figures shown above, 1 fatality and approximately 20 serious injuries could have been prevented by the driver wearing a seat belt.

There are significant opportunities for education and enforcement to reduce the number of seat belt related casualties.

### (3) FEATURES OF VICTIM

Road crash victims in Lancashire number more than 8,000 including almost 70 fatalities each year. They come from a range of casualty categories, but data shows that pedestrians fare especially badly when involved in a conflict with a motor vehicle. The speed of impact is often the critical factor in the level of injury sustained.

There is a disproportionate relationship between speed and the severity of pedestrian injuries. Research shows that when pedestrians are struck by a moving car:

- at 20 mph, only 5% are killed, most injuries are slight, and 30% suffer no injury at all
- at 30 mph, 45% are killed and many are seriously injured
- at 40 mph, 85% are killed

## **RESPONSE**

"The need for partnership in problem solving is well established. Resources, competence, and capacity to make a difference are not all lodged in one organisation."

*Read and Riley (2000)*

Following extensive research into international and national road safety best practice, in May 1998 Lancashire Constabulary and Lancashire County Council submitted a proposal document to introduce the Lancashire Partnership for Road Safety. The proposals were based on the experiences in the State of Victoria, Australia and it was proposed to pilot similar measures in Lancashire for evaluation and consideration of its wider application throughout the United Kingdom. Support for the project was received from Home Office, Department of the Environment Transport and the Regions, The Lord Chancellor's Department, ACPO Traffic, Parliamentary Advisory Council for Traffic and Safety, BRAKE and Members of Parliament.

The Partnership secured over £11 million of funding for a three-year project. The successful funding bids have been achieved through two sources, the County Council Local Transport Plan mechanism (£4.2 million) and fine revenue recovery under the Vehicles Crime Act known as 'netting off' (£6.3 million).

The Partnership is using this funding to deliver the nations' largest locally based road safety project.

Each element of the Lancashire Road Safety Project is being delivered in a complementary and integrated way, with evaluation processes to provide ongoing assessment. The 'responses' will be covered under the three headings of Education, Enforcement and Engineering.

## **EDUCATION**

### *Communication Strategy*

A broad range of techniques are being utilised to educate the road-using public of Lancashire. A comprehensive internal (for the staff of the agencies involved) and external (for the public) communication strategy has been developed.

The methods used include radio, written news media, Internet web site, countywide household leafleting, ad-vans, ad-shells, bus backs and cinema advertising. Videos are being produced for use as an educational tool.

Specific media launch days are used for the different aspects of the project.

### *Driver Education*

A further education element, a speed awareness course, has been designed for those motorists who are caught just above the speed threshold at which the police would usually prosecute. This course diverts offenders from entering the criminal justice system by offering the opportunity to attend a professionally designed one-day course. The course consists of facilitated client centred group work and in-car training with an advanced instructor to raise awareness and change attitudes towards speed.

### *Television*

Whilst there is strong research to show that publicity/education combined with enforcement is more effective in delivering road safety outcomes than either method used in isolation, the efficacy of peak time television coverage is unknown. Currently, the government obtains television at low volume viewing times owing to cost restrictions.

Television is a strong medium for getting messages to the public and the project includes the showing of impactful DTLR advertisements more frequently and at times of higher audience rating. The increase from April 2003 is throughout the Granada TV region.

## **ENFORCEMENT**

### *Speed*

Pilot schemes for netting off of speeding fines have demonstrated the effectiveness of targeted enforcement of speed crash hotspots. The Lancashire Road Safety Project involves significant increases in police enforcement activity through a mix of mobile and fixed speed cameras.

During the life of the project fixed safety cameras locations will be increased from 70 to more than 320 in a rolling programme. At the same time fully liveried police vehicles, equipped with laser speed enforcement systems, service mobile locations.

The sites for fixed cameras are based on analysis of crash hotspots. Each site was assessed for its suitability for speed enforcement. If suitable, each site was further assessed to determine whether mobile, static or a mixture of both was the most appropriate based upon the pattern of crashes along the 500-metre length. A minimum of a 24-hour speed count was then collected at each of the proposed sites to evaluate the proportion of drivers exceeding the speed limit.

The mobile locations are similarly focused on the routes that have the highest casualty rates, however, some activity is directed to areas of community concern. The selection of the areas of community concern involves the Community Safety Officers acting as liaison through Crime and Disorder Reduction / Community Safety Partnerships. Community sites are then evaluated for appropriate attention of the mobile units.

To achieve streamlined 'back of house' procedures the Constabulary has joined its processes with those of the Lancashire Magistrates Courts.

**This is the first time nationally that the police and courts process has been joined up and co-located in this way.**

### *Drinking and Driving*

Lancashire Constabulary has taken a robust stance to enforcement of drinking and driving, running high profile campaigns in conjunction with the government's summer and winter (Christmas) publicity initiatives. The Constabulary now co-ordinates its approach to drinking and driving through the Partnership.

As well as supporting the two main government led objectives, a further two are now run locally involving a variety of enforcement techniques including: -

- High profile checkpoints with roadside screening.
- Breath testing in the proximity of licensed premises.

- Breath testing of all drivers involved in crashes (injury and damage only)
- 'Crimestoppers', telephone line to facilitate the giving of anonymous information.

All of this activity is subject of widespread publicity.

#### *Seat belts*

Whilst those not wearing a seat belt could be considered offenders, many also fall victim to injury in road crashes. The Lancashire Partnership involves heightened education in relation to the dangers of not wearing a seat belt. Analysis shows that rear seat passengers are less likely to wear a seat belt, and they are often themselves seriously injured or seriously injure front seat passengers as a result.

As part of the project, the Constabulary links seat belt enforcement to these educative elements at least twice a year.

#### *Automatic Number Plate Recognition (ANPR)*

The advent of ANPR has meant that the partnership can more readily deliver seat belt and drink drive enforcement and education at the same time as engaging in crime reduction and reassurance activity. Drivers who are stopped at ANPR intercept points also receive information about the key partnership messages, consistent with the campaign schedule.

## **ENGINEERING**

Engineering to reduce crashes will continue at appropriate locations. However, to support the project there is increased street signing of speed limits and of the zones of camera activity. A new database has been developed for the project to record information about vehicle speeds at hotspots and other locations (ambient speed), as well as police activity, to identify changes in driver behaviour.

## ASSESSMENT

"Evidence is useful for policy and practice: for informing decisions about priorities and for identifying promising responses to deal with problems" - *Tilley (2001)*

The objectives of the Partnership are:

- Achieve the Governments 2010 **casualty reduction** targets by 2005.
- Bring about a reduction in **ambient speed** levels.
- Deliver significant savings to the **Health Service**.
- Produce significant change in road user **behaviour and attitude**.
- Prove the relationship between extensive focused **publicity and enforcement and casualty reduction**.

Assessment of these high level outcomes requires a number of input and output measurements to support the assessment of progress, as well as longitudinal, attitudinal and behavioural assessment to establish less tangible changes within the public.

This ongoing evaluation recognises the need for improvements to be fed back into policy and practice through the project steering group, and the need for cumulation of evaluative evidence. In order to do this a number of mechanisms have been established: -

### Casualty Reduction

**By the end of 2002, the number of people being killed and seriously injured on the roads of Lancashire has been reduced by 31%. The number of children killed or seriously injured has been reduced by 40%. This represents significant progress towards the 2005 target.**

The targets set by the government for delivery by 2010 are:

- A 40 % reduction in the number of people killed or seriously injured in road crashes
- A 50% reduction in the number of children killed or seriously injured
- A 10% reduction in the slight casualty rate expressed as the number of people slightly injured per hundred million vehicle kilometres.

Since 2001 the most significant development in casualty reduction activity has been the launch of the Partnership.

Over the last two years, in the six netting off pilot areas there has been a reduction of 35% in the number of people killed and seriously injured. The Lancashire Partnership's performance is over a 13-month period.

### Ambient Speed

Speed monitoring equipment is deployed at each of the fixed and mobile enforcement sites every six months. To date:

- The number of vehicles exceeding the speed limit has been reduced by 54%
- The average speed of vehicles has been reduced by 11%

These achievements are consistent with the results in the six pilot areas where:

- The number of vehicles exceeding the speed limit has been reduced by 67%

- The average speed of vehicles has been reduced by 12% - 13%

The Partnership is developing a county wide 'speed map' which will allow the study of activity, output and locational speed. At non-enforced locations it will provide very valuable information on any changes in the underlying ambient speed of motorists. This will greatly improve the Partnership's ability to prove the impact of fixed and mobile speed enforcement on driver behaviour other than at speed enforcement sites.

## Health Service

The Health Service are members of the Lancashire Partnership for Road Safety, and are represented on the Project Board by the Chair of the NHS North West Regional Accident Task Force.

**Government figures for 2001 indicate the cost to the health service from crashes as follows:**

<b>Accident / casualty</b>	<b>Cost per casualty</b>	<b>Cost per crash</b>
Fatal	£700	£4910
Serious	£9,580	£11,180
Slight	£710	£940

These figures represent the costs of ambulance and emergency services and hospital care but not the costs of general practitioner services.

**By the end of 2002 savings totally approximately £4.3million have been delivered to the Health Service.**

For every £100,000 saved the Health Service can deliver all of the following:

- 1 lung transplant
- 1 heart transplant
- 5 primary hip replacements
- 24 normal baby deliveries
- 50 days funding for a special care baby unit
- 11 varicose vein procedures

(Source: NHS Reference costs 2001)

It is understood that road crashes in Lancashire account for approximately 6% of all hospital bed occupancy. Whilst it is difficult to translate these savings into bed days the financial savings to the health service are clear for all to see.

## Behaviour and Attitude

The Parker Report (1999) provided an independently researched view of the behaviour and attitudes of the motoring public in Lancashire. Further attitudinal studies will examine whether the public perceptions have changed and the information gained from these surveys will be used to inform the Partnership's media strategy.

The first of these was an independent survey conducted immediately prior to the launch of the project. This survey found comparatively high levels of public support for the use of speed cameras, but with some concerns regarding fine recovery. There is also considerable support for more enforcement of seat belt regulations (77%) and drink driving, especially in the vicinity of 'pubs' (88%). Opinions on a wide range of other project related issues were obtained to provide a base line.

One year into the project, a further survey was conducted. Whilst there was a 5% increase in the number of people who thought that speed cameras were an easy way to make money, 83% of people believed that speeding is one of the main causes of collisions. This is consistent with the first survey, which recorded 85%.

The 'road users' of Lancashire are its public, and the opportunity was taken to assess their attitudes during the audit and public consultation phase of the development of the 2002 Crime and Disorder Strategies. Without exception, all the current strategies feature road safety.

Further attitudinal surveys specific to motorists or assessing the general public are to be supplemented by the use of the Lancashire Citizens Panel from which the Constabulary and the County Council draw information to benchmark public perceptions.

This data gathered from surveys will be compared with the crash involvement levels and speed data to provide a more precise account of changes in behaviour and attitude.

From an offenders' perspective the Speed Awareness course has brought about a small but statistically significant effect in:

- Drivers' attitude to speed
- Drivers' violating behaviour (both violating that involved speeding and other types of violating e.g. close following)
- Drivers' self-reported speed on the motorway, country lanes, high streets and roads in residential areas (reductions ranged from 2.6 to 4.8 miles per hour)
- Drivers' self-reported preferred speed on the motorway, country lanes, high streets and roads in residential areas (reductions ranged from 2.3 to 4.5 miles per hour)

Moreover, these improvements in driving behaviour were sustained for three months following course attendance.

## **CONCLUSION**

Lancashire Constabulary and its partners are not in any way complacent about the success, which has been achieved. Improving on the level of casualty reductions already achieved is about constantly reviewing the way in which the Partnership works. Processes and systems will continue to be refined throughout the lifetime of the project to ensure early delivery of the 2010 targets thereby making the roads of Lancashire safer for all to use.