
Delays Due to Serious Road Accidents

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The RAC Foundation has commissioned a number of external experts to write a series of think pieces and occasional papers throughout the course of 2009/10. This paper is about Delays Due to Serious Road Accidents and is report number 09/106.

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EXECUTIVE SUMMARY

Serious road accidents inevitably cause severe delays and disruption to other traffic, not only on the road on which the accidents take place but across the surrounding area. The cost of delays is very substantial, not only in terms of standard transport evaluation but also in the practical consequences. Stationary traffic on motorways is also itself a serious hazard.

The Highways Agency (HA) and the Association of Chief Police Officers (ACPO) have issued *Traffic Incident Management Guidance Framework* (January 2009), which sets out the roles of the Highways Agency, police and other emergency services. The police are in the lead on fatal and other serious road traffic collisions. The HA has a key role to play in managing less serious incidents. It also manages traffic around police led incident scenes, instigating strategic message signing, appropriate diversions, liaising with other road service providers, restoring the network afterwards and identifying and promulgating any lessons learned.

Policy Issues

In serious accidents, the phase which takes the most time is the police investigation of the incident and the collection of evidence. Police operations are governed by the *Road Deaths Investigation Manual*, produced in 2007 by the National Policing Improvement Agency on behalf of ACPO. The manual is based on the principle that all fatal collisions should be investigated as 'unlawful killings' until the contrary is proved. This means securing the accident site as a crime scene, taking measurements and photographs, examining vehicles and debris, identifying witnesses etc.

The need for thorough investigation of fatal accidents arises from the need to gather good evidence to support a possible prosecution and to be able to explain what happened at an inquest and to the family of the deceased. There are no national statistics on how many detailed accident investigations take place, nor how many prosecutions result from them

Although the manual is concerned with fatal collisions, investigations are carried out in the case of other serious accidents. The number of investigations is around three times the number of fatalities. There does not appear to be a standard practice in deciding when to deploy specialist investigation teams to non-fatal accidents. The police take advice from the ambulance crew at the scene on whether injuries may be life-threatening. Surrey police noted that of 162 accidents investigated in 2008, 48 were fatal, 69 involved serious injury and the other 45 included some deaths that proved to be of natural causes and some injuries that turned out to be less severe than expected.

One respondent said that it is possible to take a view on whether a prosecution is likely within 15 minutes. If not, examination could take as little as 30-60 minutes, but in practice may still take 3-4 hours as police also have to produce a report for the coroner and they also have an eye on how they can assist within the civil sphere e.g. in subsequent litigation.

It would appear that the police lean on the side of caution in terms of ensuring that no case requiring investigation is missed and gathering detailed evidence even where the cause of the accident is clear, rather than keeping lengthy road closures to a minimum.

There should be an informed public debate about the policy on investigating serious accidents and where to strike the balance between ensuring that all cases that require it receive special investigation and minimising delay and inconvenience to road users.

National statistics should be collated on the number of forensic accident investigations carried out by the police and the number of prosecutions that ensue.

It should be clear who is responsible for deciding that a full forensic investigation is necessary and what criteria should be applied.

Operational Procedures

There are a number of ways in which investigations could be speeded up by extension of best practice or by incremental changes to operational procedures:

- Police authorities should maintain 24 hour cover by specialist accident investigation teams.
- Carrying out the investigation and managing the accident site is too much for one team and that this function should be split.
- Accidents should be investigated by the nearest unit, even if this is based in a neighbouring area.
- Recovery vehicles should be called out at an early stage so that they are available as soon as needed.
- Members of police investigation teams should be trained to take photographs so that no time is lost in calling out a photographer.
- Investigators should have immediate access to on-board vehicle computers.

Equipment

To date the Highways Agency have spent over £3 million on providing equipment for the police, including GPS equipment, which can significantly speed up investigations..

A number of police forces now have new laser scanning equipment which generally saves around 15-20 minutes – and more for the most complex accidents ***Investigations could be speeded up further if the Highways Agency set up a geographical data base of the motorway system which could be used in conjunction with laser scanning to enable debris to be referenced on a plan and then removed much more quickly.***

Traffic Management

Lengthy road closures cause major disruption. It is important that drivers should be warned as soon as possible when there is a closure. ***The Highways Agency should explore with the police ways to speed up warnings of road closures on variable message signs.***

Turning traffic back to the previous junction is the least satisfactory way of releasing traffic trapped on a motorway. ***Work should continue to find practical ways of implementing emergency contraflows.***

Accident causes

The primary interest of the police in major accidents is establishing what happened as a basis for any possible prosecution and for the coroner's inquest. While individual accident reports comment on causal factors involved in accidents, analysis of generic causal factors depends on specific studies. ***There is a case for more systematic analysis of road accidents, which could be undertaken by a body set up under the auspices of the Road Safety Delivery Board.***

Institutional Issues

The policing of a transport network requires specialist expertise and is not easily divided between geographical areas. This is recognised in the case of the railways by the establishment of the British Transport Police.

Accidents on the strategic road network should be treated in a consistent way and, without prejudicing the need to gather the necessary evidence relating to fatal accidents, greater priority should be given to minimising delay to road users. ***Consideration should be given to setting up a national road accident investigation service.***

1. Introduction

Serious road accidents inevitably cause severe delays and disruption to other traffic, not only on the road on which the accidents take place but across the surrounding area. In 2008 there were 25,443 accidents in Great Britain involving death or serious injury¹. This is a historically low figure, but still represents about 70 a day.

Motorways are the safest class of road. They carry nearly 20% of total traffic, but suffer only 3% of serious accidents². Traffic delays due to accidents are particularly severe on motorways and other limited access roads, however. They carry very heavy volumes of traffic, there are no side roads onto which traffic can divert, there is a heavy concentration of traffic around junctions which then causes long queues on the adjoining roads and alternative routes also become very congested. There can of course also be similar consequences on major urban roads, such as the North Circular in London.

It is difficult to quantify the cost of delays due to serious accidents, but it is clearly very substantial, not only in terms of standard transport evaluation – value of time etc – but also in the practical consequences of late deliveries, missed appointments, missed flights at airports and personal anxiety discomfort and frustration. Stationary traffic on motorways is also itself a serious hazard. This paper looks at the scope for reducing the length of time that roads – and particularly motorways and other major roads – are closed due to serious accidents.

I am grateful to the Highways Agency, Metropolitan Police, Surrey Police, Humberside Police, Essex Police; London Ambulance Service and the Coroners whom I have consulted for their generous help. The views expressed in this paper, however, are solely those of the author.

2. Management of Serious Road Accidents

Traffic Incident Management Guidance Framework

The Highways Agency (HA) and the Association of Chief Police Officers (ACPO) work closely together to manage incidents as efficiently as possible and to minimise disruption to the travelling public. Together they issued *Traffic Incident Management Guidance Framework* in January 2009. This document sets out the operational framework within which the police and the HA will continue to work together to deliver an improved service when managing traffic incidents on England's Strategic Road Network (SRN).

¹ Department for Transport: Reported Road Casualties Great Britain 2008
<http://www.dft.gov.uk/pgr/statistics/datatablespublications/accidents/casualtiesgbar/rccgb2008>

² RRC Table 4, Accidents by Road Class, Table 7.3
<http://www.dft.gov.uk/pgr/statistics/datatablespublications/tsgb/2009edition/sectionsevenroadsandtraffic.pdf>

The Guidance sets out the roles of the Highways Agency, police and other emergency services. The police are in the lead on serious or fatal road traffic collisions. The HA has a key role to play in managing less serious incidents. It also manages traffic around police led incident scenes, instigating strategic message signing, appropriate diversions, liaising with other road service providers, restoring the network afterwards and identifying and promulgating any lessons learned.

The Police assume and maintain the lead in incidents which involve:

- Death or injury (including securing evidence and investigation)
- Suspected, alleged or anticipated criminality (including traffic offences)
- Threats to public order and public safety (including hazardous substances)
- Events requiring significant co-ordination of the emergency response

The key police functions at incidents on the Strategic Road Network are:

- Preserving the life of those present and preventing escalation
- Co-ordinating the emergency response with the other core responders and supporting agencies in Police led incidents
- Securing, protecting and preserving the scene, maintaining control and ensuring the integrity of the scene for any subsequent investigation
- Investigating the incident – this includes obtaining and securing evidence in conjunction with other investigatory bodies (where applicable)
- Acting on behalf of HM Coroner
- Handing over the scene or sections of the overall scene to HA as soon as practicable following completion of investigation at the scene

The main functions of the Fire and Rescue Service (FRS) are:

- Save life through search and rescue
- Rescue people trapped in road traffic collisions and emergencies
- Extinguish fires and protect life and property in the event of fires
- Respond to, contain, mitigate effects and prevent further escalation of incidents involving hazardous materials and loads including radioactive substances
- Assist with casualty handling
- Undertake body recovery if it is in a dangerous position

The main functions of the Ambulance service are:

- Endeavour to sustain life
- Prioritise release of persons trapped or in need of rescue (with FRS)
- Prioritise decontamination (with FRS)
- Initiate triage assessment and treatment at the scene
- Prioritise and carry out the transportation of the injured

Both the police and the HA have a role in the management of recovering broken down or damaged vehicles involved in incidents on the SRN.

The police lead where the vehicle is (or is suspected to have been) involved in criminality or is otherwise the subject of investigation. In all other cases where there is no police interest, vehicles are removed under the direction of, or with the assistance of the HA.

The Guidance sets out the key phases of incident response as follows:

1. **Discovery:** The initial identification of a potential incident by an organisation or one of its staff members by any means.
2. **Verification:** The clarification and confirmation of the location, extent and key details of the incident as far as is possible so that appropriate resources can be deployed.
3. **Initial Response:** The deployment of resources appropriate to the reported need, to make the operational environment safe for all involved in the response or the travelling public to prevent escalation, to stabilise the situation, to provide immediate first aid for casualties and support for those involved.
4. **Scene Management:** The management of those activities that need to be completed at the scene before the incident location can be cleared, such as the protection of the scene by implementation of diversions or other traffic management measures when required, the relief of trapped traffic, further treatment and evacuation of casualties, the removal of hazardous chemicals, the investigation of the incident and the collection of evidence.
5. **Recovery:** The recovery of vehicles, loads, obstacles and debris from the carriageway and the carrying out of essential repairs to the infrastructure.
6. **Restoration to Normality:** The return of traffic flow and the infrastructure to expected pre-incident standards and levels (normality).

Road Death Investigation Manual

In serious accidents, the phase which takes the most time is the police investigation of the incident and the collection of evidence. Police operations are governed by their duty to the courts. Their procedures are set out in the *Road Deaths Investigation Manual*³. This manual was produced in 2007 by the Professional Practice Unit of the National Policing Improvement Agency (NPIA) on behalf of (ACPO). The manual is not mandatory and chief officers have discretion whether to follow it or not. Nevertheless it clearly sets the principles on which investigation of road deaths are based.

A crucial role is accorded to the Roads Policing Senior Investigating Officer (RP SIO), an experienced specialist who is needed to take charge of serious accidents, with both an investigative and a management role, supported by other specialists eg a collision investigator.

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http://www.acpo.police.uk/asp/policies/Data/road_death_investigation_manual_18x12x07.pdf

Police forces maintain specialist teams for this purpose, who are called out by the police who initially respond to the accident. Arrangements vary between police forces. The Metropolitan Police for example has five teams located at depots around London who are on duty 24 hours a day. Others have officers on stand-by at home at night. RPSIOs operate with specially equipped vans carrying cameras, measuring equipment etc. It may take a RP SIO up to an hour to reach the scene.

The manual is based on the principle that all fatal collisions should be investigated as 'unlawful killings' until the contrary is proved. This means securing the accident site as a crime scene, taking measurements and photographs, examining vehicles and debris, identifying witnesses etc. Sometimes a finger-tip search is needed. With high speed accidents, the evidence may be spread over a long length of road – up to a 1 km – and sometimes across both carriageways.

The manual sets out five categories of:

- **Category A+** Assessed as likely homicide investigation or where complexity requires the deployment of a nationally registered SIO.
- **Category A** Confirmed fatality – one or more vehicles failed to stop and/or drivers decamped, or other factors are present that significantly increase the complexity of the investigation.
- **Category B** Confirmed fatality – all drivers are known or can immediately be identified
- **Category C** Confirmed fatality – driver only killed, no third-party involvement, inquest only.
- **Category D** Confirmed fatality – driver only killed, death due to natural causes, may involve a third party, no inquest necessary.

It is not possible to start recovery and re-open the road until the investigation is complete. Investigations may take from one hour in the most straightforward cases up to three hours or more in the most complex. Even where only one vehicle appears to have been involved, it is possible another vehicle has caused the accident and failed to stop. This possibility must be eliminated before investigation can be wound down.

The manual makes it explicit that completing the investigation - given their duties to the criminal justice process - must take priority over re-opening the road:

RP SIOs should not release a scene until, having taken all the expert advice into account, they are satisfied that it has been fully exploited for investigative opportunities. Although the closure of roads is likely to cause disruption, the RP SIO should withstand pressure from others to release the scene (eg, re-open roads) prematurely. The investigation should in all cases take precedence over the need to re-open roads.

3. Policy Issues

The manual was prepared by practitioners under the direction of a steering group chaired by DAC Shabir Hussain. It was subject to consultation with HA and other highway authorities. There has not however been any public debate about the implications of the policy on investigating serious accidents, although many thousands of road users are affected.

The need for thorough investigation of fatal accidents arises from the need to gather good evidence to support a possible prosecution and to be able to explain what happened at an inquest and to the family of the deceased. The police also have an eye on how they can assist within the civil sphere ie subsequent litigation. They point out that there may be no other witnesses and that the physical examination of the accident site is the only way of establishing what happened. Once debris are cleared away and the road re-opened, the evidence is lost.

One police investigator said that it is possible to take a view on whether a prosecution is likely within 15 minutes. If not, examination could take as little as 30-60 minutes. However the decision whether to prosecute is taken by the Crown Prosecution Service, who require full evidence. There are cases where a decision to prosecute is not made until some time after the collision itself. In addition, the relatively new road traffic offence of causing death by careless driving must be supported by evidence - including evidence that may be used as part of a defendant's defence.

Even if there is no prosecution the police have to produce a report for the coroner. Road traffic fatalities are classed as "an unnatural death" and require an Inquest. The law requires that Inquests have the "best evidence" available to determine how the death occurred. Coroners consider it important that fatal accidents are carefully investigated so that the bereaved family understand how a loved one has died and that the death has been taken seriously. They also see it as a role of the inquest to identify any issues with regard to the road layout, signage etc that may have contributed to the accident and to make recommendations to prevent future fatalities.

One coroner commented that the Collision Investigating Officer and his report, plan and photographs are the key to the understanding of how the crash and, therefore the death, occurred and that officers would not be able to reach the same conclusions without a thorough examination of all the evidence as currently conducted. This investigation takes three hours or more. Whilst accepting that road closures cause inconvenience, particularly on major roads, coroners regard it as a necessary price to pay for establishing the cause of fatal accidents. They believe that they and the police would be open to criticism if the relevant and appropriate information when available was not collected.

The current practice has however been established on the assumption that detailed investigation should always have priority over the inconvenience and economic cost of lengthy road closures. This assumption should however at least be subject to public debate.

There are no national statistics on how many detailed accident investigations take place, nor how many prosecutions result from them. In 2008/09 there were 427 convictions arising from fatal accidents - causing death by dangerous driving, driving under the influence of drink or drugs, or careless or inconsiderate driving⁴. This compares with 2341 fatal accidents in 2008⁵, which suggests that bad driving behaviour is a factor in a significant proportion of serious accidents. There were 4232 convictions for dangerous driving, but it is not known how many of these resulted from other serious accident investigations

In the absence of national figures for the number of police investigations, the Highways Agency have provided a detailed log of unplanned road closures for the last quarter of 2008. On motorways there were 86 closures lasting more than three hours due to accidents. It is likely that most of these incidents involved police investigations, although it is possible that there were some instances where it simply took a long time to clear the scene. This compares with a total of 136 fatal motorway accidents for the whole of 2008⁶. The HA figures are for England only, whereas the fatal accident figures are for the whole of Great Britain. This suggests that the number of lengthy closures is much greater than the number of fatalities.

The following figures provided by the four forces that were contacted indicate that the number of investigations is around three times the number of fatalities.

	Investigations	Fatalities
London	600	205
Essex	210	73
Humberside	110	42
Surrey	162	48

Although the manual is concerned with fatal collision investigation, it states that “the roles, principles and components can also be applied to the investigation of non-fatal collisions involving, for example, serious injuries.” There does not however appear to be a standard practice in deciding when to deploy specialist investigation teams to non-fatal accidents.

⁴ Home Office, Recorded Crime Statistics <http://www.homeoffice.gov.uk/rds/pdfs09/recorded-crime-2002-2009rev.xls>

⁵ DfT Reported Road Casualties: GB 2008 Table 4

⁶ Reported Road Casualties: GB 2008 Table 4

Surrey police noted that of the 114 non-fatal accidents that were investigated, 69 involved serious injury, while of the other 45 there were some deaths that proved to be of natural causes and some involved injuries that turned out to be less severe than expected.

Some respondents said that the criterion was whether the injuries were 'life threatening'. The police take advice from the ambulance crew at the scene. In London ambulance staff arriving on scene assess a patient, and based on the level of their injuries, make a judgement whether those injuries could prove fatal. Injuries may include serious fractures or serious head injuries.

Other issues that may lead an ambulance crew to think that injuries could be fatal include whether the patient was ejected from the vehicle as a result of the collision; high speed can also be a factor for consideration. The same can apply to injuries that are considered life-changing – as well as fatal. The police may need to investigate these incidents from a criminal point of view, as well as for civil claims or litigation.

There is inevitably a balance to be struck between ensuring that all cases that require it receive special investigation and the resulting delay and inconvenience to road users – given the call-out time even the simplest investigation is likely to lead to the road being closed for up to two hours, and often much longer. From the evidence so far obtained, it would appear that the police lean on the side of caution in terms of ensuring that no case requiring investigation is missed and gathering detailed evidence even where the cause of the accident is clear, rather than keeping lengthy road closures to a minimum.

This raises the question who decides that an investigation is necessary and what guidance they are given on the criteria that should be applied.

4. Speeding up Investigations

Operational Procedures

There are a number of ways in which investigations could be speeded up by extension of best practice or by incremental changes to operational procedures:

- The Metropolitan Police maintain 24 hour cover by specialist teams from five depots. Practice in other forces varies. Surrey maintain two depots with specialists on duty for 16 hours and on-call at home with fully equipped vehicles at night. Humberside have four depots with SIOs on duty eight hours a day, with one of them on call at other times.
- There are differing views on the number of officers required. One force normally calls out two teams for accidents on major roads and as many as four for major accidents. Another takes the view that having more than one team at the scene can cause confusion.

There is also the view that carrying out the investigation and managing the accident site is too much for one team and that this function should be split.

- The geographical location of depots may mean that an accident in one police area is nearer to the depot of a neighbouring force. The Metropolitan Police and other forces covering the M25 have an arrangement to provide support on neighbouring sections of M25. This kind of arrangement could be extended elsewhere to provide faster response times.
- Vehicles involved in an accident cannot be removed until the investigation is complete. But it is possible to call out recovery vehicles at an early stage so that they are available as soon as needed.
- Some members of police investigation teams are trained to take photographs so that no time is lost in calling out a photographer. This practice could be extended to all forces.
- A great deal of information can be retrieved from vehicle computers. It would help if police investigators had immediate access to on-board computers. This would involve allowing authorised users to access a data bank of vehicle codes.

Equipment

Research by Transport Research Laboratory identified that Global Positioning System (GPS) equipment had considerable potential to reduce road user delays that arise from incidents. The results of the research indicated that GPS survey equipment had the potential to reduce incident durations by 5.6% when compared to survey times recorded using existing Total Station equipment without a GPS upgrade. Following a successful trial, over the last two years the Highways Agency has upgraded the surveying equipment for each of the English police forces with trunk roads in their area. They have now provided GPS equipment for all forces provide more Forces with the latest Total Stations too.

The GPS equipment allows the police to commence their surveys before the scene has been cleared by the other services. However, there are limitations to the system, i.e. enough satellites have to be aligned to pin point the location. It may therefore not be operable in built-up areas or if there are bridges or a lot of trees on the scene. A number of police forces now have new Robotic Total Stations using laser scanning equipment. This provides a 3D animated show and also measurements, photos and 2D plans. It is quicker to operate than GPS. The time saving is variable, generally around 15-20 minutes – but for a big scene with multiple vehicles it can be considerably more. The new Total Stations allow the officers to switch between GPS surveying and traditional surveying where bridges or trees cause problems for GPS.

The HA have used the time savings reported by the police to build a business case to provide more forces with the Total Stations. To date the HA has spent just over £3 million on providing equipment for the police.

There is one further development that, in conjunction with laser scanning, could greatly speed up investigations. If the HA set up a geographical data base of the motorway system linked to roadside markers, it would enable debris to be scanned and referenced on a plan and then removed much more quickly.

5. Traffic Management

Lengthy road closures cause major disruption on the surrounding road network and traffic becomes trapped on motorways and other limited access roads when there is a blockage before the next junction. It is important to warn drivers as soon as possible of closures so that they can take alternative routes and avoid becoming caught up in and adding to the surrounding congestion. The HA has a system of variable message signs, operated from a joint HA/police control centre, that is used to warn drivers of problems on the network. It is important that drivers should be warned as soon as possible when there is a closure. The HA should explore with the police ways of speeding up the process.

Some police forces carry out a community impact assessment before deciding how to re-route traffic in order to ensure that they take account of the effect of using roads that do not normally carry such a large volume of traffic. This assessment is carried out by the senior investigating officer with the local police. It is not however clear what criteria are applied. It is sometimes judged to be preferable to keep traffic stationary on a motorway rather than divert it along roads where it would cause severe disturbance to local residents.

With three or four lane carriageways, the police try to re-open at least one as soon as possible. This depends on how quickly debris can be cleared – hence the potential value of being able to scan debris onto a plan of the road. It is however regarded as unsafe to re-open one lane of a two lane carriageway while work is continuing on the other one.

There are several techniques for releasing traffic trapped on a motorway⁷:

- Rearward Relief

This method allows drivers at the back of the queue to turn and return to the previous junction. This is a slow process as each vehicle has to manoeuvre to turn around. On dual-two carriageways (2 lanes in each direction) there is a risk that lorries will not be able to make the turn easily and could end up blocking the carriageway themselves.

⁷ Highways Agency: Releasing Trapped Traffic, September 2007
<http://www.highways.gov.uk/business/16703.aspx>

- Turning through the Central Reserve

Turning traffic through the central reserve places traffic on the opposite carriageway to return to the previous junction resulting in additional delays to this carriageway. The operation can proceed with either a total closure of the opposite carriageway whilst the traffic turns or it can be done with lane closures and careful marshalling.

Another option, if there is a junction immediately downstream of the closed section of carriageway, is to direct traffic through the central reserve and use the opposite carriageway in the 'wrong' direction to the next junction. This allows drivers to continue their journey but does require a total closure of the opposite carriageway.

- Opposing Flow

A fourth option has been used for the first time in August 2008 when M6 was blocked between J27 and J28 and is under further development to formalise it. This uses two central reserve crossing points to establish a single lane contraflow. This can only be employed on a carriageway with at least 3 lanes as a buffer lane is required to separate the opposing traffic. The first use of this system was documented by the Traffic Information Management Bulletin *Crossing the Central Reservation* in November 2006.

- Emergency Contraflow

This is time consuming to establish and limits capacity on the opposing carriageway but does allow drivers to continue on their journey thus reducing the congestion at the previous junction.

To date this has only been used to release trapped traffic but there is ongoing development to establish if an emergency contraflow could be left in place to keep both carriageways partially open during a protracted incident. To extend this to more than one lane of traffic traversing the central reserve raises difficult issues to which no adequate solution has so far been found.

All of these options require considerable police and traffic officer resource. They also require advance planning and training to enable the officers to implement them smoothly.

The 'opposing flow' used on M6 in August 2008 was improvised and required great organisational ability on the part of all those involved. However it took three hours from the time of the accident to implement it.

The technique which is most appropriate depends on factors that are specific to the site, such as the location of possible cross-over points.

Turning traffic back to the previous junction is the least satisfactory solution as it does not enable drivers to continue their journey on the motorway and perpetuates the congestion on the surrounding network. An emergency contraflow would be the most satisfactory and work should continue to find a way of enabling more than one lane of traffic to cross the central reserve. Where contraflows needed for widening or reconstruction are removed on completion of the works, consideration should be given to re-instating the central reserve in a way that enables an emergency contraflow to be implemented if required.

6. Accident causes

The primary interest of the police in major accidents is establishing what happened as a basis for any possible prosecution and for the coroner's inquest, but the need to draw any lessons for road safety is also recognised. The ACPO Road Death Investigation manual says:

"Although the focus of this practice advice is to support the effective and professional investigation of fatal collisions, it is important that staff involved in this area can contribute to the identification of longer-term prevention, intelligence and enforcement opportunities with regards to wider roads policing and road safety issues. The findings of investigations into fatal collisions can help to reduce future road casualty numbers. This is one of the priorities of the Association of Chief Police Officers/Department for Transport/Home Office Road Policing Strategy."

If police suspect there may be a generic issue, they may take it up with other forces. For example when Essex police investigated an accident involving a particular type of lorry trailer, they checked with other police forces on whether this type of trailer had been involved in other accidents.

The Metropolitan Police, by far the biggest force in England, is concerned with a large enough number of accidents to be able to identify accident patterns, for example cyclists struck by lorries turning left at road junctions, and look for common causal factors. Nevertheless the police do not have the locus or powers to ensure remedial action where a problem is found.

Police reports are passed on to highway authorities who investigate local factors that cause accident black spots and take preventive action. While individual accident reports comment on causal factors involved in accidents, however, analysis of generic causal factors depends on specific studies. As Dr Chris Elliott has pointed out in his paper *Transport safety: is the law an ass?* there is often no investigation of the underlying cause of accidents.

As Dr Elliott points out, there are specialist investigative bodies for air, marine and rail accidents, but not for road accidents. The circumstances are of course different. Road accidents do not generally raise issues of corporate responsibility or failure of systems or equipment. Nevertheless there is a case for more systematic analysis of road accidents.

A Road Safety Delivery Board was set up following the 2007 review of road safety targets, with membership drawn from the various organisations concerned with road safety, including highway authorities and the police. It is responsible for improving the delivery of the national casualty reduction objective. The Department for Transport's current consultation paper on road safety *A Safer Way: Consultation on Making Britain's Roads the Safest in the World*, April 2009, suggests that the Delivery Board should be tasked with holding Government and other stakeholders to account on the implementation of a new national road safety plan. However the Board itself is not an investigative body.

7. Institutional Issues

The policing of a transport network requires specialist expertise and is not easily divided between geographical areas. This is recognised in the case of the railways by the establishment of the British Transport Police. There is similarly a case for a highways police force to cover motorways and high speed all purpose roads, working in close conjunction with the Highways Agency. That is however a wider issue that goes beyond the scope of this paper.

Road accident investigation is a highly specialised form of policing. The number of specialist officers in some counties is quite small. In Humberside for example there are five inspectors and ten sergeants. While some forces maintain 24 hour staffing at their depots, others have to rely on officers being on call outside normal working hours. Some investigators are trained to take photographs; others have to call in specialist photographers. Although the nearest police patrol may reach an accident site first, even if it is based in another area, the main investigation is normally taken over by the force within whose area the accident takes place. While the ACPO manual gives guidance on how investigations should be carried out, it is open to different interpretations on the ground and is anyway not binding on individual forces. Accidents on the strategic road network should be treated in a consistent way and, without prejudicing the need to gather the necessary evidence relating to fatal accidents, greater priority should be given to minimising delay to road users.

There is therefore a case for setting up a national road accident investigation service, which would take over this function from territorial police forces. Its officers would have the training and equipment needed to carry out all aspects of accident investigation. It would have depots around the country, staffed 24 hours a day, located to ensure minimum response times on the strategic network. It would work to consistent principles, which would include an objective to minimise delay to road users. The service would work in close collaboration with the Highways Agency and their headquarters could be collocated. The costs could be shared between the Home Office and the Department for Transport.

A national investigation service could also have a wider road safety remit, to report on the causes of accidents, to identify common factors and to recommend ways of reducing the number of serious accidents.

8. Conclusions

Serious road accidents inevitably cause severe delays and disruption to other traffic, not only on the road on which the accidents take place but across the surrounding area. It is difficult to quantify the cost of delays due to serious accidents, but it is clearly very substantial, not only in terms of standard transport evaluation but also in the practical consequences. Stationary traffic on motorways is also itself a serious hazard.

The Highways Agency (HA) and the Association of Chief Police Officers (ACPO) have issued *Traffic Incident Management Guidance Framework* (January 2009), which sets out the roles of the Highways Agency, police and other emergency services. The police are in the lead on fatal and other serious road traffic collisions. The HA has a key role to play in managing less serious incidents. It also manages traffic around police led incident scenes, instigating strategic message signing, appropriate diversions, liaising with other road service providers, restoring the network afterwards and identifying and promulgating any lessons learned.

In serious accidents, the phase which takes the most time is the police investigation of the incident and the collection of evidence. Police operations are governed by the *Road Deaths Investigation Manual*, produced in 2007 by the National Policing Improvement Agency (NPIA) on behalf of (ACPO). The manual is based on the principle that all fatal collisions should be investigated as 'unlawful killings' until the contrary is proved. This means securing the accident site as a crime scene, taking measurements and photographs, examining vehicles and debris, identifying witnesses etc.

There has not however been any public debate about the implications of the policy on investigating serious accidents, although many thousands of road users are affected.

The need for thorough investigation of fatal accidents arises from the need to gather good evidence to support a possible prosecution and to be able to explain what happened at an inquest and to the family of the deceased. There are no national statistics on how many detailed accident investigations take place, nor how many prosecutions result from them.

Although the manual is concerned with fatal collision investigation, it states that "the roles, principles and components can also be applied to the investigation of non-fatal collisions involving, for example, serious injuries."

Figures provided by the four forces that were contacted indicate that the number of investigations is around three times the number of fatalities. There does not appear to be a standard practice in deciding when to deploy specialist investigation teams to non-fatal accidents.

Some respondents said that the criterion was whether the injuries were 'life threatening' or 'life-changing' the police take advice from the ambulance crew at the scene. Surrey police noted that of the 114 non-fatal accidents that were investigated, 69 involved serious injury, while of the other 45 there were some deaths that proved to be of natural causes and some involved injuries that turned out to be less severe than expected.

One respondent said that it is possible to take a view on whether a prosecution is likely within 15 minutes. If not, examination could take as little as 30-60 minutes, but in practice may still take 3-4 hours as police also have to produce a report for the coroner, which still requires a full file, and they also have an eye on how they can assist within the civil sphere ie subsequent litigation.

It would appear that the police lean on the side of caution in terms of ensuring that no case requiring investigation is missed and gathering detailed evidence even where the cause of the accident is clear, rather than keeping lengthy road closures to a minimum.

Operational Procedures

There are a number of ways in which investigations could be speeded up by extension of best practice or by incremental changes to operational procedures:

- Police authorities should maintain 24 hour cover by specialist accident investigation teams.
- Carrying out the investigation and managing the accident site is too much for one team and that this function should be split.
- Accidents should be investigated by the nearest unit, even if this is based in a neighbouring area.
- Recovery vehicles should be called out at an early stage so that they are available as soon as needed.
- Members of police investigation teams should be trained to take photographs so that no time is lost in calling out a photographer.
- Investigators should have immediate access to on-board vehicle computers.

Equipment

To date the Highways Agency have spent over £3 million on providing equipment for the police, including GPS equipment, which can significantly speed up investigations.

Two police forces now have new laser scanning equipment which generally saves around 15-20 minutes – and more for the most complex accidents. Investigations could be speeded up further if the HA set up a geographical data base of the motorway system which could be used in conjunction with laser scanning to enable debris to be referenced on a plan and then removed much more quickly.

There should be an informed public debate about the policy on investigating serious accidents.

National statistics should be collated on the number of forensic accident investigations carried out by the police and the number of prosecutions that ensue.

It should be clear who is responsible for deciding that a full forensic investigation is necessary and what criteria should be applied.